Kentucky Department of
EDUCATION

Kentucky Department of Education

Model Curriculum Framework

Oct. 2023

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Introduction to the Model Curriculum Framework

The **Model Curriculum Framework,** per KRS 158.6451, provides guidance for schools and districts in implementing educational best practices in a way that creates curricular coherence to positively impact student success. Curricular coherence involves local alignment of standards, curriculum, instructional resources and practices, assessment, and professional learning within and across grade-levels in a district or school to help students meet grade-level expectations. According to research, schools that demonstrate increased curricular coherence also show marked improvements in student outcomes (Newmann, Smith, Allensworth, & Bryk, 2001). Figure 1.1 highlights the five key components of curricular coherence addressed within this document:

- **Section 1: Curriculum Development Process** – Outlines a systemwide process for articulating an instructional vision, developing a local curriculum aligned to the *Kentucky Academic Standards* (*KAS)* and selecting a primary high-quality instructional resource (HQIR) to support implementation.
- **Section 2: Professional Learning Communities** – Emphasizes a systems-based approach to developing a shared understanding of the PLC process as an aspect of continuous improvement, the role of leadership in creating a supportive culture and the role of teachers as effective collaborators within a PLC.
- **Section 3: Balanced System of Assessment** - Provides guidance on how teachers and leaders can implement a comprehensive, balanced system of assessments to ensure high-quality and reliable assessment practices with a focus on the formative assessment process and providing stakeholders with effective strategies for noticing, recognizing and responding to evidence of student learning.
- **Section 4: Evidence-Based Instructional Practices** - Supports leaders and teachers in understanding what constitutes an evidence-based practice, in coordinating a system of effective instruction aligned to disciplinary practices and outcomes of the *KAS* and in evaluating the quality of instructional resources.

Figure 1.1. *Key Components of Curricular Coherence*

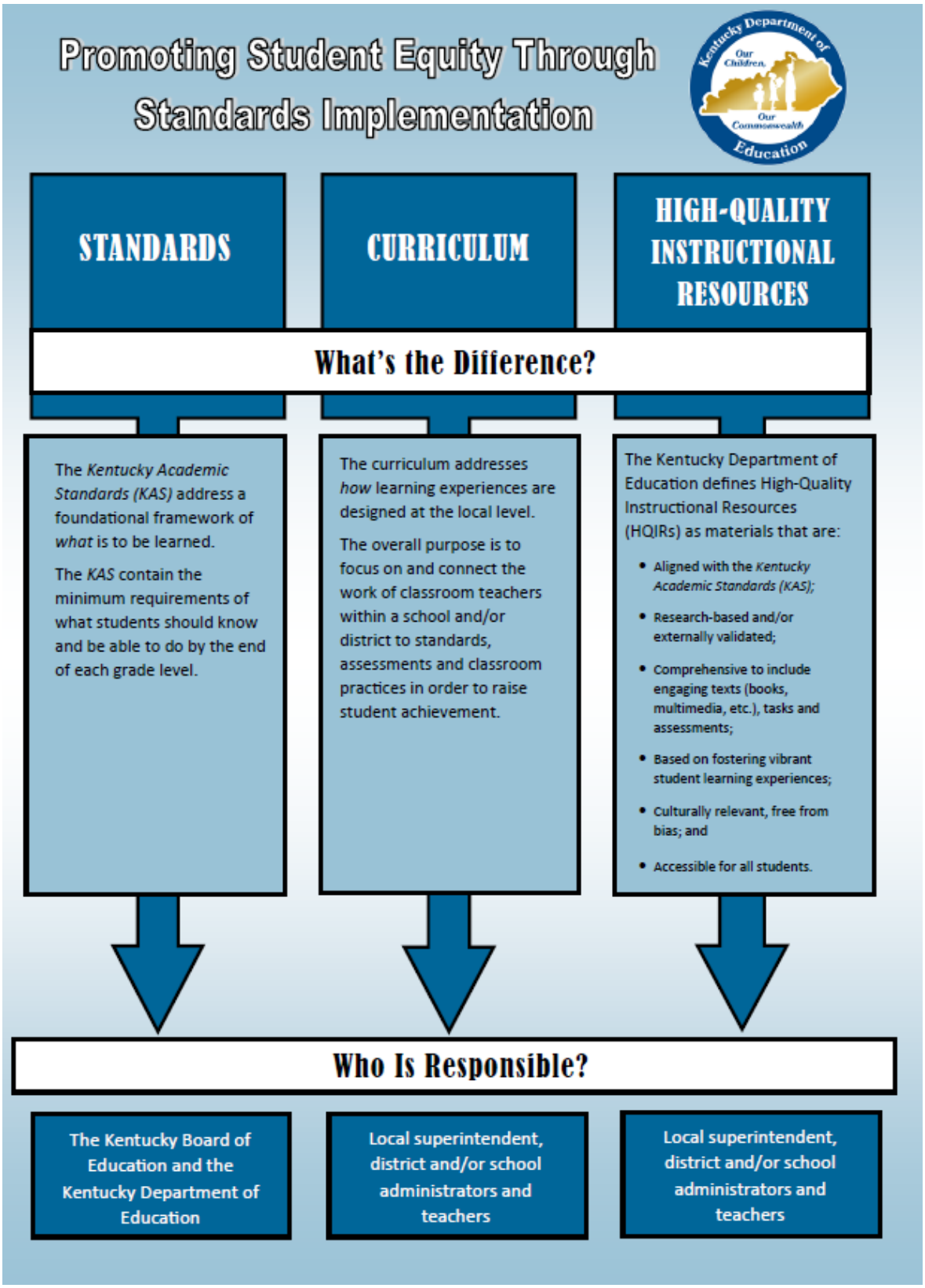
The organization of this document mirrors the use of backward design, beginning with what educators must know and be able to do, proceeding to how learning will be assessed and concluding with how that translates into daily teaching and learning.

The five components of curricular coherence are essential to providing equitable access to learning for all students. Within U.S. schools, large racial and socioeconomic gaps still exist among graduation rates, test scores and advanced proficiency. Historically marginalized populations, such as students of color, English language learners and exceptional students, are less likely to be given access to high-quality curriculum and resources. A 2018 study, from districts around the country, found students of color and those from low-income backgrounds are less likely than white and higher-income students to have access to quality curriculum, instruction and grade-appropriate assignments (TNTP, 2018).

For educators to meet the challenge of helping **all** students reach grade-level expectations, they must have a clear vision of best practices in teaching and learning and a clear roadmap to follow throughout the year (Ainsworth, 2010). High-quality curriculum and instructional resources have the power to provide that roadmap by connecting standards, curriculum, effective instruction, assessment and professional learning (Achieve the Core, 2017).

To create curricular coherence, educators must understand the relationship between standards, curriculum and instructional resources. Figure 1.2 below highlights the differences between these terms as well as who has responsibility for each as defined in Kentucky law (KRS 160.345, 704 KAR 3:455).

Figure 1.2. *Defining Standards, Curriculum and Instructional Resources*



For schools and districts, translating standards into a guaranteed, viable curriculum is vital to student success and the first step in creating curricular coherence.

- **Guaranteed Curriculum** – Guaranteed ensures specific content is taught in specific courses and at specific grade levels, regardless of the teacher assigned to a student. When schools and districts are unable to guarantee the curriculum being taught, the result is redundancy and inconsistency from one classroom to the next across grade levels and little alignment between the standards, assessment and instruction (Dufour & Marzano, 2011).
- **Viable Curriculum** - Viability means the articulated grade-level standards, instructional calendar (pacing guide), and daily instruction are all manageable and can be realistically taught to mastery levels in the instructional year (Marzano, 2003). This means schools and districts must ensure enough instructional time is available to develop essential knowledge, skills and concepts of the guaranteed curriculum.

Development of a district curriculum aligned to the *KAS* and adoption of a primary HQIR does not guarantee students have access to the same knowledge and skills. A distinction must be made between the *intended* curriculum and the *implemented* curriculum. In many places, gaps exist between the district- or school-established curriculum and what is implemented by teachers in classrooms. For districts to truly achieve a guaranteed and viable curriculum, the leaders and teachers accountable for delivering it must possess a common understanding of the curriculum and of the HQIR.

To support effective implementation, teachers and leaders need ongoing professional learning experiences that deepen their knowledge of how the curriculum and HQIR work together to set a strong instructional foundation (Instruction Partners, 2019). The professional learning can occur through the PLC process, workshops, coaching, classroom observations, feedback and other job-embedded contexts.

Referencing Figure 1.1, when districts across Kentucky create coherence by implementing high-quality, standards-aligned curriculum and instructional resources, support implementation and continuous improvement through high-quality professional learning and collaboration, measure student growth through a balanced system of assessment and provide teachers and students access to evidence-based instructional practices, a more equitable environment is established. Leaders and educators working together to implement the local curriculum help ensure every student has access to the same content, knowledge and skills regardless of teacher or school they attend.

Curriculum Development Process

Introduction

The first step in creating curricular coherence is to translate the standards into a local curriculum anchored in high-quality instructional resources (HQIRs). While the *Kentucky Academic Standards* (*KAS*) establish *what* students must know and be able to do, the district is responsible for developing a curriculum that addresses *how* learning experiences are to be designed and for selecting the instructional resources that will *assist* student learning.

Current research recommends districts adopt and implement a primary HQIR as the print, nonprint or electronic medium designed to assist student learning and support implementation of a high-quality curriculum. The research shows:

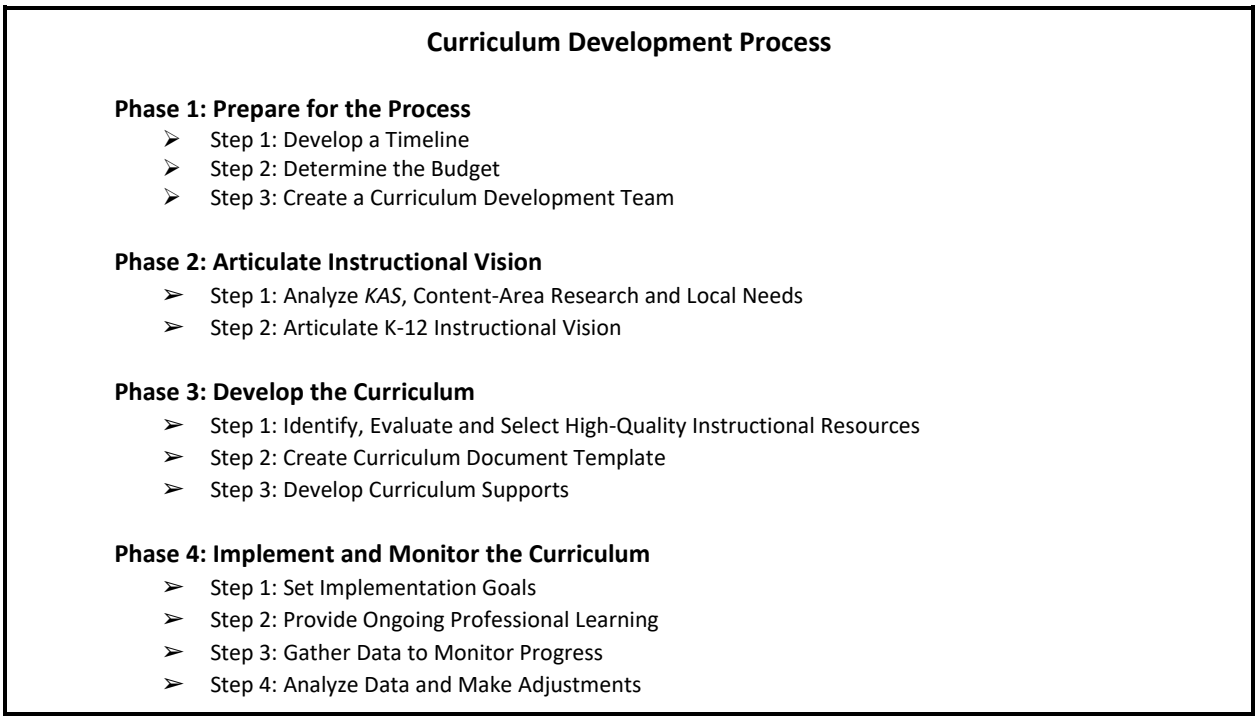
- Aligned to state standards, a HQIR can reduce variability in the quality of instruction across classrooms (SREB, 2017), and students in classrooms that used one HQIR for four consecutive years outpaced comparison students by a margin of 38 percentile points — equivalent to four additional years of learning (Steiner, 2018).
- Teachers creating their own lessons rarely results in a fully sequenced, coherent learning experience over time and across a system (Steiner, 2018), and 75 percent of teacher-created or selected resources are found to be below grade-level (TNTP, 2018).
- Teachers without access to HQIRs spend 7-12 hours per week searching for resources online (Goldberg, 2016).
- Switching from a low to a high-quality instructional resource can boost student achievement more than other, more popular interventions (Steiner, 2018).

Teachers and leaders also must receive high-quality professional learning focused on effective implementation of the local curriculum and the HQIR. Research demonstrates that simply providing teachers with a curriculum and a HQIR without also providing them professional learning focused on how to implement those resources effectively to meet the needs of all students will not impact student achievement (Blazar, D., et al., 2019).

Senate Bill 1 (2022), codified into law per KRS 160.345, places the responsibility for developing the district's curriculum and selecting HQIRs to support implementation on the local superintendent. KRS 160.345 further states this work should be done in consultation with each school's site-based decision-making (SBDM) council and local board of education. There also must be a reasonable review and response period for stakeholders in accordance with local board of education policy before any final decision is made regarding curriculum and instructional resources.

This section is designed to provide guidance to district leaders on implementing a systematic process for developing a local curriculum, selecting a HQIR aligned to the *KAS* and supporting effective implementation. Figure 2.1 provides an example of a possible way to structure the curriculum development process and serves as an outline for this section. To support leaders in this work, each phase of the process includes general guidance, key questions, recommended tools and considerations for stakeholder inclusion are embedded throughout. To support leaders in this work, each phase of the process includes general guidance, key questions, recommended tools and considerations for stakeholder inclusion are embedded throughout.

Figure 2.1. *The Curriculum Development Process*



To make the work more manageable, district leaders should consider establishing a curriculum review cycle that focuses on a limited number of content areas per year in a repeating cycle. This is critical in helping districts to manage the work and the budget in a way that is not overwhelming. Figure 2.2 shows an example of a review cycle.

Figure 2.2. *Sample Curriculum Review Cycle*

Content Area	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Reading and Writing	Year 1: Develop	Year 2: Implement & Monitor	Year 3: Monitor & Adjust	Year 4: Monitor & Adjust	Year 5: Monitor & Adjust	Year 6: Monitor & Plan	Year 1: Develop	Year 2: Implement & Monitor
Mathematics	Year 6: Monitor & Plan	Year 1: Develop	Year 2: Implement & Monitor	Year 3: Monitor & Adjust	Year 4: Monitor & Adjust	Year 5: Monitor & Adjust	Year 6: Monitor & Plan	Year 1: Develop
Social Studies	Year 5: Monitor & Adjust	Year 6: Monitor & Plan	Year 1: Develop	Year 2: Implement & Monitor	Year 3: Monitor & Adjust	Year 4: Monitor & Adjust	Year 5: Monitor & Adjust	Year 6: Monitor & Plan
Science	Year 4: Monitor & Adjust	Year 5: Monitor & Adjust	Year 6: Monitor & Plan	Year 1: Develop	Year 2: Implement & Monitor	Year 3: Monitor & Adjust	Year 4: Monitor & Adjust	Year 5: Monitor & Adjust
World Language & Visual Performing Arts	Year 3: Monitor & Adjust	Year 4: Monitor & Adjust	Year 5: Monitor & Adjust	Year 6: Monitor & Plan	Year 1: Develop	Year 2: Implement & Monitor	Year 3: Monitor & Adjust	Year 4: Monitor & Adjust
CTE & Health/PE	Year 2: Monitor & Adjust	Year 3: Monitor & Adjust	Year 4: Monitor & Adjust	Year 5: Monitor & Adjust	Year 6: Monitor & Plan	Year 1: Develop	Year 2: Implement & Monitor	Year 3: Monitor & Adjust

District leaders may want to consider establishing a cycle that aligns with the standards review process at the Kentucky Department of Education (KDE). In accordance with KRS 158.6453, the current schedule calls for one or two content areas to be reviewed each year and every six years after that on a rotating basis.

In determining the order of the content areas in the curriculum review cycle, district leaders should utilize data from their annual needs assessment. This might include data on student achievement, analysis of student work and sample assessments and tasks, and feedback gathered from surveys regarding classroom climate, school culture, engagement and learning experiences. Once the local curriculum review cycle has been established, districts can use the following process for the content-area(s) under development/review each year.

Phase 1: Prepare for the Process

Some key decisions should be made by district leaders to prepare for and support the work of the curriculum development process. Taking the time to complete the steps for Phase 1 helps create the conditions necessary for the work to be effective, efficient and meaningful. Every decision is crucial to ensuring the process flows smoothly and that time and resources are used effectively.

Step 1: Develop a Timeline

District leaders should develop a curriculum review timeline for the content area of focus and expected outcomes to be completed at each point in the process. Several factors may play a role in the allotted time frame for completing the process, such as team member availability, allocation of resources, budgeting considerations, etc. Once the timeline is established, this process would be repeated with each content area as it comes up in the district's curriculum review cycle.

Key Questions

- **Stakeholder Inclusion:**
  - How will we communicate (1) the need for a revised local curriculum for the content area of focus and (2) our rationale for using this process to develop it to stakeholders, including boards of education and site-based councils?
  - How will we communicate information regarding a timeline and key actions for the process?
- **Logistical Considerations:**
  - What is our ideal date for:
    - Finalizing members of the curriculum team?
    - Facilitating analysis of the KAS, of relevant content area research and of the local context.
    - Refining the instructional vision for the content area?
    - Selecting the high-quality instructional resource(s)?
    - Creating the curriculum template?
    - Developing the curriculum supports using the selected HQIR?
  - What key actions do we need to take to support the work of each phase?
  - Who is responsible for each key action included in the timeline?

Key Tool(s)

- Sample Timeline
- Curriculum Development Timeline Template
- Communication Plan Template (Phase 1)

Step 2: Determine the Budget

Prior to beginning the process, district leaders should develop a budget for the scope of the work to be completed each year. To help prioritize, leadership should consider how curriculum development and implementation might be reflected in their Comprehensive District/School Improvement Plans. Consider how various funding sources (e.g., general, federal, state, local,

technology, etc.) may be utilized to support the launch and sustainability of the curriculum development and implementation process each year.

Key Questions

- Will funds be required to pay stipends or substitutes for members of the curriculum team? What funds will be used?
- Are funds needed to purchase high-quality instructional resources (HQIRs) to support implementation of the curriculum? What funds will be used?
- What resources are needed to support professional learning to build staff capacity with the curriculum and associated HQIRs during implementation? What funds will be used for this purpose?

Key Tool(s)

- Curriculum Development Budget Template

Step 3: Create a Curriculum Development Team

The last step in preparing for the Curriculum Development Process is for district leaders to create the content area curriculum team.

- **District-level team**: The district-level team may consist of teacher representatives from various schools and grade levels in the district, instructional coaches, as well as building and district administrators. It also may be beneficial to include teacher representatives from other areas, such as special education, gifted and talented, English Learners and library media specialists. For a large district, consider dividing into elementary and secondary teams. However, team members from transition grade levels should have opportunities to meet to ensure vertical alignment of the curriculum.
- **School-level team:** If the delegation of responsibility is transferred to the school level, the team may consist of teacher representatives from each grade level, school-based instructional coaches/specialists, as well as building administrators. Like the district team, consideration should be given to teacher representatives from other areas. The school may want to consider including district administrators with curricular and/or specific content expertise.

Once team members have been selected, the district should pre-determine meeting dates and associated logistics. For each phase of the process, leaders should decide when and where the team will meet and the purpose of each meeting. In terms of the purpose, the intended outcomes of each meeting (i.e., expected learning outcomes, work to be accomplished) should be considered. By determining and communicating meeting logistics at the beginning of the

process, team members may plan accordingly to ensure they can commit to each step of the work.

Key Questions

- **Stakeholder Inclusion:**
  - How will we communicate (1) how the curriculum team was formed, (2) who will serve on the curriculum team and (3) the role of team members in the process?
- **Curriculum Team Members Selection Considerations:**
  - Do individuals model a growth mindset?
  - Are individuals able to inspire and influence others within their school and committed to supporting a common, agreed-upon message?
  - How will district leaders ensure equitable representation to provide voice to diverse experiences and perspectives throughout the process?
- **Logistical Considerations:**
  - What are the dates the team will meet, and what is the purpose of each meeting?
  - How will meeting logistics be communicated to the team in a timely manner?

Key Tool(s)

- Curriculum Development Team Template
- Meeting Schedule Template
- Communication Plan Template (Phase 1)

For professional learning support in implementing Phase 1, the KDE has created a supplemental resource toolkit located in Appendix A. Resources include a self-assessment tool, video modules, sample district artifacts and other supporting resources.

Phase 2: Articulate Instructional Vision

An in-depth understanding of the *Kentucky Academic Standards* and of what makes them unique is vital when crafting a vision for teaching and learning in a content area, as is familiarity with relevant research. Districts must also have an accurate sense, derived from local data and input, of their particular educational context. Together these provide curriculum teams an ongoing point of reference for fashioning an instructional vision that can guide them throughout the development and implementation process.

Step 1: Analyze *KAS*, Content-Area Research and Local Needs

Establishing a shared understanding of the subject area content, skills and pedagogy prior to development/revision of the curriculum provides a common foundation for the work. To build this shared understanding, the team should start with analyzing the *KAS* document itself, both its overall architecture and its critical components. The architecture comprises the organizational structure of the document, the different ways to view the standards and the design considerations of the specific components within the standards document.

After examination of the *KAS* document, other useful resources for deepening understanding include resources from kystandards.org, content-specific national and professional organizations, as well as educational experts in the respective subject area. Local instructional priorities (e.g., portrait of a learner, deeper learning, Universal Design for Learning), data and needs assessments should also be examined to refine the team's sense of local context.

Highly Recommended Foundational Learning:

- *Kentucky Academic Standards* document:
  - **"The Writer's Vision Statement"** and **"Design Considerations"** sections will help the team gain an understanding of the foundational beliefs that guided standards development and the design considerations of the specific components within the standards document.
  - **Foundational documents** used in standards development located in "The Writer's Vision Statement" will help the team develop a deeper understanding of research that influenced creation of the standards and the potential impact on classroom instruction and assessment.
  - **Standards Progressions** analysis will help the team gain a better understanding of student experiences over time: a zoom lens focused on the standards for a particular grade level and a wide-angle lens to see the K-12 perspective. Mini-progressions, coherence statements or complete K-12 progressions can guide development of both a microscopic and macroscopic view of the standards.
- Getting to Know the *KAS* Modules are professional learning resources that help build in-depth understanding of each content area standards document.

Key Questions

- What foundational beliefs should drive local implementation of the *KAS*?
- What impacts might these standards and foundational beliefs have on classroom instruction and assessment?
- How do components within the standards document help educators gain clarity on what students need to know and be able to do to meet grade-level expectations?

- What does analysis of the standards progression(s) reveal about the student experience at grade level and across K-12?
- What current research on teaching and learning in the content area of focus might support developing shared understanding of the subject area content, skills and pedagogy?
- What possible sources of data (student demographics, unique learning needs/gaps, cultural values/connections, district initiatives, etc.) might be used to develop understanding of the local context?

Key Tool(s)

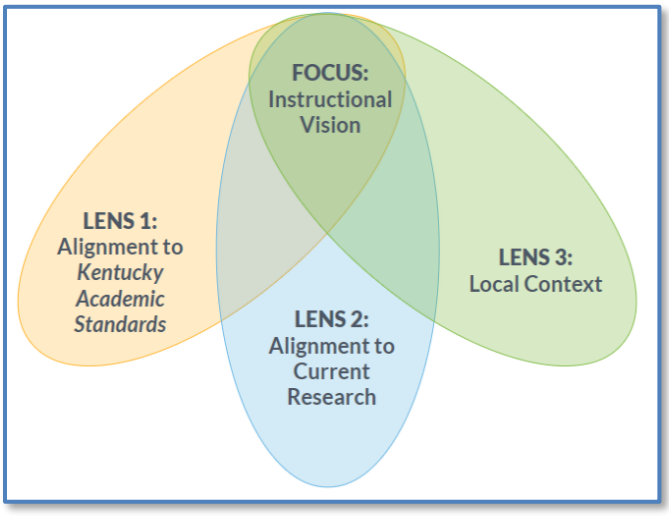
- Team Analysis Planning Template
- Sample Timeline (Phase 2)

Step 2: Articulate K-12 Instructional Vision

Once the curriculum team has a shared understanding of the depth and rigor of the standards, a common view of content pedagogy grounded in current research, and an understanding of the needs of the local community, they develop an instructional vision of teaching and learning for that content area. The vision is more than what the school or district thinks should be happening in individual classrooms. The instructional vision describes the school or district's "instructional aspirations and articulates what teaching and learning look like in the content area" (EdReports, 2021).

Figure 2.3 highlights the three lenses districts should consider when creating their instructional vision. All three lenses work to support a common vision focused on improving student outcomes and guide school and district-level decision-making.

Figure 2.3. *Three Lenses for Creating an Instructional Vision*



*Adapted from Achievement Network

In establishing the instructional vision, the curriculum team identifies the core beliefs that will be the foundation for their work. These core beliefs should include content-specific beliefs as well as beliefs about students (i.e., all students are capable of high-quality work and deeper learning) and the student experience. These belief statements should drive the rest of the curriculum development and be a touchstone the team can return to throughout the process. Each member of the curriculum team must support the

agreed-upon core beliefs, understand the rationale for each and be committed to implementing the core beliefs into classroom practice.

Once the core beliefs have been identified, the team should articulate their instructional vision in writing in a way that is clear and easily understood by all stakeholders. As the sample vision statements provided are examined, it is clear each can find a form appropriate to its contents. **School/district leaders should seek stakeholder feedback and determine how they will incorporate the feedback into the instructional vision**. Once revisions are made based on the feedback received, the vision is then used to guide the rest of the curriculum development/revision process.

Characteristics of an Effective Instructional Vision:

- Focuses on the student experience and what student learning looks like in action (i.e., portrait of a learner);
- Embeds specific context related to the content;
- Aligns with state standards, but is not limited to a review of the standards documents;
- Is evidence-based and cited;
- Prepares all students for postsecondary readiness;
- Includes instructional implications which lead to critical thinking, problem-solving and transferable knowledge (EdReports, 2021).

Key Questions

- **Instructional Vision Considerations:**
  - What is the vision for a standards-aligned, vibrant student experience in this content area?
  - How well does the instructional vision reflect alignment to the *KAS*, current research for teaching and learning in the content area and our local context?
  - How well do current core belief statements align to our vision of an ideal experience? What revisions might increase alignment?
- **Stakeholder Inclusion**:
  - How will we communicate the draft of our instructional vision for the content area in a way that is clear and easily understood by all stakeholders?
  - How will stakeholders provide input and feedback, and how will that be used to inform the instructional vision?

Key Tool(s)

- Sample Vision Statements (ELA, Math, Science)
- Sample Instructional Vision (Woodford County Social Studies example)
- Communication Plan Template (Phase 2)

For professional learning support in implementing Phase 2, the KDE has created a supplemental resource toolkit located in Appendix A. Resources include a self-assessment tool, video modules, sample district artifacts and other supporting resources.

Phase 3: Develop the Curriculum

Once drafted, the articulated instructional vision for the specific content area is used to drive the work of developing the curriculum anchored in a high-quality instructional resource (HQIR) to support implementation. As the team works through this phase, the focus is on what teachers across the school/district would need to see reflected in curriculum documents and instructional resources to work toward the articulated vision.

Step 1: Identify, Evaluate and Select High-Quality Instructional Resources

The Kentucky Department of Education (KDE) defines High-Quality Instructional Resources (HQIRs) as materials that are:

- Aligned with the *Kentucky Academic Standards* (*KAS*);
- Research-based and/or externally validated;
- Comprehensive to include engaging texts (books, multimedia, etc.), tasks and assessments;
- Based on fostering vibrant student learning experiences;
- Culturally relevant, free from bias; and
- Accessible for all students.

High-quality instructional resources (HQIRs) are a means by which local curriculum **aligned with the *Kentucky Academic Standards (KAS)*** becomes an actionable foundation for districts and schools to equitably foster **vibrant student learning experiences**. A local curriculum anchored in a HQIR supports the learning goals, outcomes and core competencies students must demonstrate to reach the grade-level expectations within the *KAS*. It also provides teachers with an array of pedagogical supports to help meet the needs of all learners.

The process of identifying, evaluating and selecting a primary HQIR involves multiple steps to ensure decision-makers select resources that will serve local priorities and meet the needs of all learners as articulated in the instructional vision. This work may be completed by the district curriculum team or delegated to a sub-committee formed to undertake this task. If a sub-committee is charged with the evaluation and selection of the HQIR, members of that team must understand the instructional vision to ensure the selected resource aligns to that vision. In

addition, the sub-committee should receive ongoing support and collaboration with the curriculum team throughout the selection process.

The four-step selection process outlined below is general in nature and can be applied to any content area. For more content-specific support for selecting HQIRs, KDE's consumer guides provide an overview of the standards-aligned markers and characteristics of high-quality content-area instructional resources, as well as specific tools and resources. A consumer guide is currently available for Reading and Writing and Mathematics, with other content areas under development.

Determine Selection Criteria

To help determine selection criteria, the team should use their instructional vision developed in Phase 2 of the Curriculum Development Process as their guide.

The curriculum team should engage educators and stakeholders upfront in meaningful ways to reflect the diverse voices of the district (including families, students, teachers, support staff and community members). Taking time to gather this input will help build support for and investment in the work and ensure the perspectives of those affected by the selection decision inform the process.

A full selection process also should include time and capacity for schools and districts to establish local priorities with an equity focus that will guide identification and selection of HIQRs. Students deserve access to instructional resources that are **culturally relevant, free from bias and accessible for all**, resources they can readily connect to the diverse perspectives of their communities. The practice of including local priorities can help ensure schools and districts select resources that better serve students who have been previously marginalized. Possible equity lenses to consider include selecting resources that:

- Meet the high-quality instructional markers laid out in the KDE definition of High-Quality Instructional Resources.
- Recognize, celebrate and leverage students' cultures and identities and provide opportunities to broaden perspectives by learning about other cultures.
- Provide opportunities for students to lead learning that is meaningful and relevant to them**,** both in connection to their local context and communities and the broader global context of the world.
- Provide engagement with grade-level content and the KAS for all students.
- Allow students to engage and demonstrate their learning in a variety of ways.

Key Questions

- **Stakeholder Inclusion:**

- How will we communicate the importance of selecting a primary high-quality instructional resource (HQIR) to support development of the local curriculum?
- How will we gather stakeholder input to help inform possible selection criteria?
  - What do we want to learn from each stakeholder group?
  - How are we going to get this input?
  - Who is responsible for gathering input?
  - When and how will we see the collected information? (Instruction Partners, 2019)
  - How will stakeholder input inform drafting of the selection criteria?

- **Selection Criteria Considerations:**
  - Based on the instructional vision and stakeholder input, what selection criteria will help us identify a resource aligned to the desired student experience?
- **Equity Lenses Considerations:**
  - How are the equity lenses woven into the school/district priorities?
  - Which equity lenses have been used consistently in the past? Which are opportunities for further attention?
  - Which equity lenses may be challenging for the team to examine in resources and/or may require additional support for examining? This will help identify specific learning the team may need to be able to engage in future steps fully.

Key Tool(s)

- Developing Selection Criteria
- Data Collection Tool
- Sample Stakeholder Questions
- General Equity Lenses
- Sample Timeline (Phase 3)
- Communication Plan Template (Phase 3)

Identify Potential High-Quality Instructional Resources

Once the team has determined the selection criteria, the next step is to identify **research-based and/or externally validated** resources for review. Educators have more options than ever from which to find instructional resources to try to meet their local priorities; however, in such a crowded marketplace, finding high-quality instructional resources that are aligned to the *KAS* and meet specific school and district needs can be difficult.

EdReports is a recommended starting point for school and district review teams to research available resources. It provides free reviews of K-12 primary or comprehensive instructional resources and offers information about indicators of quality from a variety of publishers. For content areas not reviewed by EdReports, consider exploring various vendors and open-source

materials to identify potential resources for further evaluation. Contacting other districts or schools to gather anecdotal information can also help ground findings in a Kentucky context.

After identifying HQIRs of interest, the team is ready to narrow the choices down to those that have the potential to meet the instructional vision and the needs of the teachers and students in the district. The narrowing process allows the team to not only learn about potential resources through research but also to compare characteristics of resources to determine how well they can serve the selection criteria.

Key Questions

- **For Content Areas Reviewed by EdReports:**
  - Based on EdReports reviews, which resources for this content area are rated green according to indicators for their three gateways?
  - Of the green-rated resources, which 2-4 do we want to further evaluate using our selection criteria?
- **For Content Areas Not Reviewed by EdReports:**
  - Based on initial reviews using district selection criteria, which content area resources receive the highest quality rating? Which 2-4 most merit further evaluation?

Key Tool(s)

- EdReports Reports Center
- How to Read an EdReports Review
- Video Tutorial: Navigating EdReports to Identify Potential HQIRs

Evaluate Potential High-Quality Instructional Resources

Once two to four resources aligned to the selection criteria have been identified, team members engage in a hands-on study to determine the best option for meeting the instructional vision and student needs. Teams should begin by establishing the structure and process for researching each of the resources that are being considered. As a part of the process, the team will need to identify the tools/rubrics that will be used to inform evaluation of the potential resources. For content areas evaluated by EdReports, begin by using their criteria-based ratings; for content areas not evaluated there, the key tools below (e.g., Instructional Resources Alignment Rubrics, Equity Lenses) can support curriculum teams in conducting their own evaluation.

Because HQIRs are **comprehensive** and include a range of **texts, tasks and assessments**, teams should also engage publishers to request samples and set up presentations. The time spent with publishers can be used to have them answer questions the team has developed that specifically align to the instructional vision and the identified selection criteria.

Key Questions

- **Review Considerations:**
  - What is the timeline that team members will have to conduct the reviews?
  - Who will set up meetings with vendors and what questions will guide those conversations (Sample HQIR Vendor Questions in Key Tools below)?
  - What materials/resources will reviewers need access to and how will they get access?
  - How will the team collect Review Team notes and final ratings?
  - What key knowledge and skills will the curriculum team members need to conduct reviews (Instruction Partners, 2019)?
- **Stakeholder Inclusion:**
  - How will stakeholders be provided opportunities to review and give input on the 2-4 potential high-quality instructional resources under consideration?

Key Tool(s)

- Instructional Resources Alignment Rubrics
- EdReports Compare Tool and Compare Tool Overview
- General Equity Lenses
- Sample HQIR Vendor Questions
- Communication Plan Template (Phase 3)

Select a High-Quality Instructional Resource

The evidence gathered from the evaluation process is used to inform the review team as they make a final selection. Resource review teams should examine the evidence collected from the evaluation activities in light of the identified selection criteria. **Ultimately, no one primary instructional resource is likely to provide the full supports necessary to reach the grade-level expectations within the *KAS*, the local articulated vision and the identified selection criteria.** Districts may select a primary HQIR and then purchase supplemental resources to fill any identified gaps.

As the team selects its instructional resources, they may use the equity lenses to ensure the final set of resources contains strengths for each lens and that any gaps or supplementary needs are clearly noted. The equity lenses and analyses may be carried forward into Phase 4 of the Curriculum Development Process to help inform professional learning needed to support implementation.

Once made, the decision, the rationale for it and next steps should be shared to all stakeholders. Finally, a plan should be established for the procurement and distribution of the resources to get them into teachers' hands and for the team to use as they move into developing the curriculum documents.

Key Questions

- **Selection Considerations:**
  - What are the comparative strengths and weaknesses of identified HQIR options (selection criteria, alignment to stakeholder feedback, cost, vendor supports, etc.)?
  - What work will need to be engaged to implement each option, and what are potential implications of the choices on other initiatives and on staff capacity?
  - How will the team share with the school and/or district staff the strengths and gaps of the resources tied to the equity lenses?
  - Where there are continued needs/gaps tied to the equity lenses, what supports will teachers need to ensure students experience the content in a way that fulfills the instructional vision?
  - What will be the recurring costs? (Which materials are reusable, and which will be reordered each year?)
- **Stakeholder Inclusion:**
  - How will a rationale for the selected primary HQIR be communicated to stakeholders?
- **Logistical Considerations:**
  - Where will we store the materials before distribution can occur?
  - How will we inventory materials once they arrive?
  - How will we inventory and track materials once they are distributed to schools?
  - Where and how will the school and/or district distribute the resources (Instruction Partners, 2019)?

Key Tool(s)

- Decision-Making Options
- Sample Consensus Protocol
- Communication Plan Template (Phase 3)

Step 2: Create Curriculum Document Template

The goal of this step is for the team to create a curriculum document template that plans a coherent instructional experience within and across grade levels that systematically builds student understanding of the *KAS* and reflects the beliefs of the instructional vision. "In addition to the central objective of supporting teachers and administrators, ensuring equity of access, and preparing students for college and careers, a strong curriculum must clarify what

instructional decisions it holds tightly and loosely and what learning is essential and why" (Council of the Great City Schools, 2017, p.51).

The curriculum document template serves as the central guidance for all instructional staff who support and supervise teaching and student learning. The document should be designed to:

- Establish the curricular elements (*KAS* alignment, instructional, assessment, scaffolds/supports, etc.) aligned to the instructional vision that must be present in every classroom;
- Highlight within the HQIR where key curricular elements are addressed for each unit/module;
- Locate where supplemental resources might be required to address depths and dimensions unique to the *KAS* or to a local context; and
- Provide broad-based access and ease of use to support navigation.

Key Questions

- In order to move toward the instructional vision for teaching and learning, what curricular elements and features should be accounted for in the template? Possible curricular elements to consider include:
  - *KAS* alignment
  - Grade-level tasks/assignments
  - Pedagogical/Instructional support
  - Assessment, formative and summative
  - Supports/Scaffolds for differentiation and diverse learners

Key Tool(s)

- Curriculum Document Template

Step 3: Develop Curriculum Supports

The final step in the process is to develop the curriculum supports aligned to each essential element. Each area of support must reflect the beliefs outlined in the instructional vision and be designed to help students meet the *KAS* grade-level or course expectations. Developing curriculum documents that support the key features and criteria ensures that schools and districts are providing a curriculum with meaningful guidance rather than just a set of materials or textbooks (Council of the Great City Schools, 2017).

As the team develops the curriculum supports for each grade-level, they should utilize the selected HQIR to guide this work. HQIRs have been thoughtfully built and deeply reviewed for alignment to research and evidence-based practices for the specific content area including:

- organization, sequencing and pacing of the standards,

- grade-level texts, tasks and assessments,
- instructional/pedagogical supports, and
- teacher supports for diverse learners.

Gaps in the primary HQIR may be identified while working through the curriculum template process prior to implementation, and subtle insufficiencies may also emerge as the resource is used over time. Where gaps are found, selecting supplemental resources, rated as high-quality by an evaluator like EdReports when possible, can be a way of addressing them. Examples of initial gaps might include:

- All of the *KAS* for a content area or the full depth of specific standard(s) are not present;
- Some dimensions of the standards (inquiry in social studies, Interdisciplinary Literacy Practices in Reading and Writing, etc.) are not accounted for; or
- Specific aspects of equity are not reflected.

Ultimately, the goal of the curriculum documents is to provide teachers with common expectations for instruction and assessment to create coherence across all classrooms. The documents also should reflect where supports are located in the primary HQIR and any supplemental resources to provide for the vibrant student experience outlined in the district's instructional vision.

Instructional units containing a group of content standards organized around big ideas or questions helps to avoid students seeing the standards as a set of isolated information, skills or processes and can provide a way to identify places for interdisciplinary connections. Since the standards represent what students should know and be able to do at the conclusion of a course, some standards may appear in multiple units in order to deepen understanding over time. Teams should then identify the organizational principles embedded in the HQIR, noting how standards are bundled and learning progresses to support implementation.

There is no one correct way to organize content course standards, and HQIRs will reflect this. However, the standards need to be organized in a way that reflects the school or district's vision and upholds the instructional intent of the *KAS* document for the specific content area.

After considering the organization and sequencing of the standards within a HQIR, the team examines the appropriateness of its pacing for delivering the instructional units. The duration of each unit will vary based on the complexity of certain standards assigned to a particular unit or its intended learning outcomes (Ainsworth, 2010). **Consideration also must be given to including enough time in a unit for teachers to respond to student learning needs.** Ainsworth (2010) recommends building in a short interval between each unit referred to as a "buffer" period that provides flexibility to meet students' needs.

Key Questions

- **Organizing, Sequencing and Pacing Considerations:**
  - How are standards organized and sequenced to reflect the intent of the *Kentucky Academic Standards* and the instructional vision for the specific content area?
  - How are standards within each unit organized around big ideas or questions to help avoid students seeing the standards as a set of isolated information, skills or processes?
  - How might the standards be organized or grouped into instructional units in a way that anchors student learning and builds on students' knowledge, skills and understanding over time?
  - For standards that appear in multiple units, when are they assessed for mastery? When are they supporting standards?
  - Is the pacing appropriate, and does it provide flexibility for teachers to respond to student needs?
- **Curricular Supports Considerations:**
  - How does the curriculum document clarify common expectations for grade-level assessments and where those are located in the HQIRs?
  - How does the curriculum document clarify common expectations for grade-level texts, tasks and/or assignments, and where those are located in the HQIRs?
  - How are instructional/pedagogical supports identified and access to them enabled within the document?
  - How are supports for diverse learners identified and made accessible by the document?
- **Revision and Feedback Considerations:**
  - What process will be used for reviewing and revising so all aspects of the curriculum are viewed by both the vertical and grade-level teams to ensure coherence and quality across all grade levels?
- **Stakeholder Inclusion**:
  - How will district leaders gather staff feedback (i.e., clarity, organization, usability) of the completed curriculum documents and use the feedback to guide possible revisions prior to implementation?
  - How will curriculum documents be made readily accessible to all staff?

Key Tool(s)

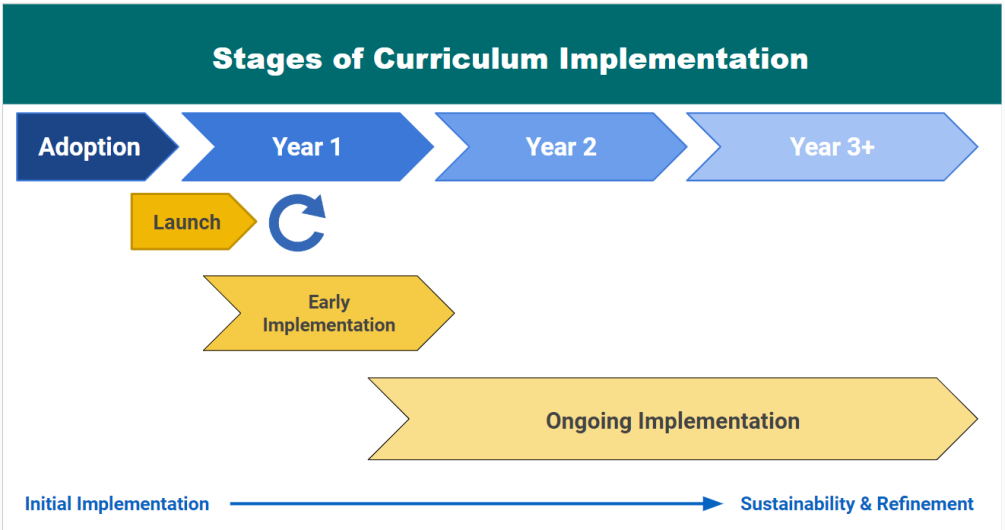
- Sample Local Curriculum Document (Wayne County example)
- Communication Plan Template (Phase 3)

For professional learning support in implementing Phase 3, the KDE has created a supplemental resource toolkit located in Appendix A. Resources include a self-assessment tool, video modules, sample district artifacts and other supporting resources.

Phase 4: Implement and Monitor the Curriculum

Effective implementation of a local curriculum and supporting HQIRs is an ongoing process typically requiring 3-5 years to reach a point of refinement and established sustainability. The KDE has identified three critical stages, shown in Figure 2.4, of curriculum implementation: **Launch, Early Implementation** and **Ongoing Implementation**.

Figure 2.4: *Stages of Curriculum Implementation*



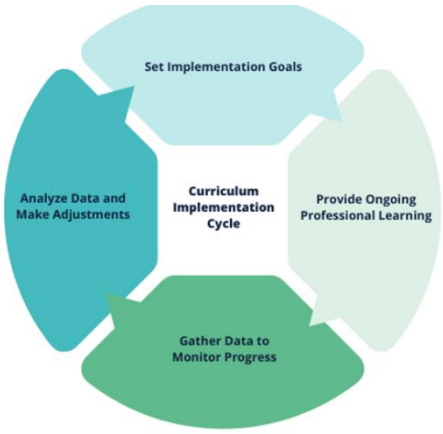
Although all role groups contribute to effective implementation across its three stages, **research confirms district and school leadership play a vital part in ensuring an adopted curriculum and instructional resource(s) improve student outcomes**. Based on a review of the research, the Wallace Foundation (2021) states leadership is second only to teaching among school-related factors that can impact student learning. For a district or school to make the instructional vision a reality in all classrooms, there must be a sustained commitment and focus from leaders at all levels of the system.

The Curriculum Implementation Framework outlines roles and responsibilities aligned to each of the three stages of implementation, highlighting how leadership creates the enabling conditions for the actions of other role groups. While the framework outlines unique aspects within each stage, it also embodies **four core actions** district and school leaders should take

each year to support successful implementation of a locally developed curriculum and its instructional resources:

- **Set Implementation Goals** –Establish clear goals each year aligned to the instructional vision and stage of implementation.
- **Provide Ongoing Professional Learning** – Provide leaders, teachers and others in the system with curriculum-based professional learning appropriate to each stage of implementation.
- **Gather Data to Monitor Progress** – Gather quantitative and qualitative data to measure progress towards the implementation goals.
- **Analyze Data and Make Necessary Adjustments** – Analyze data to determine progress towards the goals, identify key successes, learn from and solve for significant challenges and make adjustments to the implementation plan.

Figure 2.5. *Curriculum Implementation Cycle*



The key actions listed above allow school and district leaders to work in a cycle of continuous improvement, as shown in Figure 2.5. Each year of implementation, leaders repeat these actions as they move closer to the district's instructional vision for teaching and learning in the content area.

Step 1: Set Implementation Goals

To support the vision that the intended curriculum truly becomes the implemented curriculum, district and school leaders need to set clear implementation goals each year aligned to key aspects of the new curriculum and HQIRs according to the stage of implementation. After determining each year's implementation goals, district and school leaders should develop a monitoring plan. The plan should clearly define what data will be collected to provide evidence of implementation at the classroom level aligned to the instructional vision and the curriculum. Data also should be gathered to ensure students continue to attain the learning outcomes of the curriculum aligned to the appropriate depth of the *Kentucky Academic Standards*.

When developing the monitoring plan, consider the person(s) responsible for collecting evidence as well as those responsible for analyzing data. Finally, consider how often data will be analyzed in order to make decisions in a timely manner regarding adjustments and/or supports needed to ensure effective implementation of the curriculum.

Key Questions

- **Implementation Goal Setting Considerations:**

- Based on current evidence and the stage of implementation, what are our goals this year?
- What are the core beliefs that underpin our goals?
- What will success look like in year one and over time? (Instruction Partners, 2019)

- **Progress Monitoring Considerations:**
  - For each goal, when will we know if we are on track?
  - What data will we review?
  - Operationally, what needs to happen to gather this data? Who is responsible?
  - When will we step back to review our progress toward our goals holistically? Who will be a part of these step-backs? (Instruction Partners, 2019)
- **Stakeholder Inclusion:**
  - How will we gather feedback from staff to help inform our implementation goals and monitoring plan?
  - How will we communicate our goals for effective implementation and plans for monitoring progress toward them?

Key Tool(s)

- Setting Implementation Goals Template
- Sample Implementation Goals
- Monitoring Plan Template
- Sample Monitoring Plans and Approaches
- Communication Plan Template (Phase 4)

Step 2: Provide Ongoing Professional Learning

Simply providing teachers with a curriculum and HQIRs without also providing them professional learning focused on ***how*** to implement those resources effectively to meet the needs of all students will not impact student achievement (Short & Hirsh, 2023; Blazar, D., Heller, B., Kane, T., Polikoff, M., Staiger, D., Carrell, S…..& Kurlaender, M., 2019; Instruction Partners, 2019). **Educators need professional learning that deepens understanding of what to teach, improves content knowledge and pedagogy through exploring how best to teach it and facilitates transfer by being connected to the curriculum used in classrooms** (Rivet, 2020). This need, now recognized in the field, has resulted in beginning to establish high-quality professional learning that is curriculum based.

Curriculum-based professional learning (CBPL) supports districts as they move through the stages of implementation, from gaining an initial understanding of the curriculum and HQIR, to arriving at a fuller, more nuanced understanding and making informed adjustments to the HQIR as implementation progresses. The three critical stages of implementation identified above

correspond to three stages of curriculum-based professional learning to support teachers and leaders in moving toward refinement and established sustainability: **Launch PL, Early Implementation PL** and **Ongoing PL**.

- **Launch PL** – Prior to the start of the school year, designed to develop initial understanding of the new curriculum and HQIR, its overall design, and the instructional shifts it represents. To help build initial understanding, educators spend time internalizing early units of instruction.
- **Early Implementation PL** – Occurs during the first year of implementation and is designed to provide collaborative PL opportunities that begin to deepen understanding of the curriculum and what is required for effective implementation (e.g., continued unit/lesson internalization, lesson rehearsal, experiencing lessons as students, analyzing models of effective practice).
- **Ongoing Implementation PL** – Begins in year two, continues throughout successive years of implementation and is designed to deepen understanding of how to integrate HQIRs more skillfully into regular practice and make smart adaptations to help meet the needs of all learners (e.g., student work analysis, lesson study, coaching, classroom observations and feedback).

Each year of implementation, district and school leaders identify professional learning needs aligned to a particular stage of implementation. Once professional learning needs are identified, the next step is to develop a professional learning plan. Leaders should prioritize identified areas of need to decide where to begin the work and then determine which funds will be used to support the professional learning, who will facilitate it, how facilitators will be trained and possible timelines for completion. Most high-quality instructional resources come with tools and/or trainings to support implementation, and districts may also consider partnering with the HQIR vendor or an external PL provider. In addition, the KDE's Curriculum-Based Professional Learning Guidance document contains key ideas, questions and protocols specifically aligned to each stage.

Key Questions

- **Yearly PL Plan Considerations:**
  - What are the specific PL needs aligned to the implementation goals and the stage of implementation?
  - What structures will be used to provide the PL?
  - What are the potential focuses and outcomes of the PL?
  - How will training be differentiated (over time and according to varying needs)?
  - What is the target date/time frame?
  - Who will be responsible for providing the PL?

- What funding will be used?
- How will the school/district know if participants have mastered the professional learning objectives, and what data will be collected at the end of each session? (Instruction Partners, 2019)

- **Stakeholder Inclusion:**
  - How will input be gathered from staff to help determine possible areas of professional learning needed to support effective implementation?
  - How will leaders ensure consistent communication about how the PL plan each year aligns to the instructional vision? How will they address questions as they arise?

Key Tool(s)

- Professional Learning Plan Template
- Communication Plan Template (Phase 4)
- Curriculum-Based Professional Learning Guidance

Step 3: Gather Data to Monitor Progress

The goal of this step is to implement the curriculum and professional learning plan and for leadership to collect data in order to determine what is working, what is not working and what needs to be adjusted.

Implementation should be observed at every level in order to give a full picture of what is happening. **Though no single data point is able to provide full analysis of student achievement, the triangulation of data can provide information to identify where the curriculum and instructional resources are having positive impacts and where adjustments may be needed**. The evidence gathered should focus on both quantitative and qualitative data.

- **Qualitative Data**: May include insights gathered from classroom observations (i.e., informal and formal principal observations, instructional rounds, learning walks) and feedback from surveys and ongoing conversations with students and school and district staff.
- **Quantitative Data:** Should also represent overall student performance closely linked to daily instruction and may include grade-level or course assessment results and samples of student work (samples of assessments, tasks and assignments).

While school or district leaders should meet quarterly to make large adjustments, quick check-ins more regularly can support leadership in progress monitoring and allow for quick problem solving and adjustments in the implementation plan. Leaders also may spend time as a PLC analyzing data at various times throughout the school year to identify school and district trends. As teachers work collaboratively through the PLC process, analyzing data from common

formative and summative assessments, they are able to monitor student attainment of the curriculum.

Key Questions

- How are things going across our implementation plan?
- What bright spots and exemplary practices can we celebrate and share?
- Where are we having challenges?
- What are we hearing and what questions are we getting?
- What concerns can we address easily? What concerns are more challenging?
- What else do we want to observe and listen for before our next meeting? (Instruction Partners, 2019)

Key Tool(s)

- Implementation Evidence Consolidation Log
- Communication Plan Template (Phase 4)

Step 4: Analyze Data and Make Adjustments

This step is designed to support district and school leadership teams as they examine progress towards the goals, identify key successes, learn from and solve significant challenges, and adjust the plan for the next chapter of work (Instruction Partners, 2019). While the team should meet consistently during the year for check-ins to monitor progress and make small adjustments, more formal meetings quarterly, and then yearly, give the team an opportunity to get a comprehensive view of overall progress on goals. Table 2.1 outlines essential actions that comprise both meeting types.

Table 2.1. *Step-Back Meetings*

Meeting Type	Key Actions
Quarterly Step-Back	• Prepare and analyze qualitative and quantitative data as outlined in the monitoring plan aligned to the implementation goals. • Reflect on progress and challenges. • Identify 2-3 areas of improvement. • Adjust implementation plan and revisit roles and responsibilities according to areas of improvement. • Communicate changes and celebrate successes with stakeholders.
End-of-Year Step-Back	• Analyze summative data and data not available during the school year.

Meeting Type	Key Actions
	○ Disaggregate data to evaluate for, "equity, specifically for students in poverty, students of color, students with disabilities, and English language learners" (Instruction Partners, 2019). • Reflect on areas of improvement identified throughout the school year. • Examine systems and structures used to support implementation. • Identify 2-3 areas of improvement for the upcoming school year. • Revise implementation goals and revisit roles and responsibilities according to areas of improvement for following school year. • Communicate changes and celebrate successes with stakeholders.

Key Questions

- **Quarterly Step-Back Meeting Considerations:**
  - Where are we on pace to meet our goals?
  - What are the drivers of success?
  - Where are we off track to meet our goals? What is holding us back from meeting those goals?
  - What are the 2-3 areas we want to improve in next quarter?
  - For each of the 2-3 priorities, what is the root of the problem?
  - At our next step-back meeting, how will we know that these adjustments worked?
  - What do we need to observe and what additional data do we need to collect next quarter to know if it is working? (Instruction Partners, 2019)
- **End-of-Year Step-Back Meeting Considerations:**
  - Where did we meet our goals?
  - What were the drivers of success?
  - Where did we miss our goals? What held us back from meeting those goals?
  - What will be different next year, and what should our goals be to account for those differences?
  - What work needs to be done this summer to support teachers and leaders who have been using the curriculum to prepare for the next stage of implementation? (Instruction Partners, 2019)
- **Stakeholder Inclusion:**
  - Following the quarterly and end-of-year stepbacks, how will we communicate to stakeholders:
    - "Bright spots" and exemplary practices (email, newsletter, social media, etc.), and
    - Adjustments and next steps in relation to the implementation and professional learning plans?

Key Tool(s)

- Quarterly Stepback Data Gathering Template
- Quarterly Stepback Agenda
- End-of-Year Stepback Data Gathering Template
- End-of-Year Stepback Agenda
- Communication Plan Template (Phase 4)

For professional learning support in implementing Phase 4, the KDE has created a supplemental resource toolkit located in Appendix A. Resources include a self-assessment tool, video modules, sample district artifacts and other supporting resources.

Professional Learning Communities

The Need for PLCs

While translating the standards into curriculum at the local level is critical work, systems and structures are needed to ensure the intended curriculum is actually implemented in all classrooms across the school or district. Merely distributing the curriculum documents and pacing guides to individual teachers does not guarantee that all students will be held to the same expectations. Student learning improves when a school or district can truly guarantee that students will be taught the same knowledge and skills regardless of the teacher to whom they are assigned (Marzano, 2003).

In analyzing factors that impact student achievement, John Hattie (2009) concluded that one of the best ways to improve schools is to organize teachers into collaborative teams that (1) clarify what each student must learn and the indicators of learning the team will track, (2) gather evidence of learning on an ongoing basis, and (3) analyze results together to identify which instructional strategies are working and which are not. This, in essence, describes the work of a professional learning community (PLC).

The PLC process is a systems approach to continuous improvement. Through this process, teachers are organized into grade-level, course specific or interdisciplinary teams, in which members work collaboratively toward a common goal while holding all members mutually accountable to improving student learning. The focus of collaboration begins with clarifying essential learning outcomes for that course/grade level in each unit of instruction, then creating common assessments to monitor student attainment of that learning, as well as common criteria used to determine the quality of student work. The team uses data gathered from the common assessments to identify students who need extra time and support to meet the learning expectations, address potential curricular issues and analyze the effectiveness of instructional strategies employed to identify strengths and weaknesses (DuFour, 2009).

The PLC process is specifically designed to create the conditions necessary for educators to become more skillful in their teaching practices. In addition, PLCs play a vital role in improving overall school performance, student engagement, educators' self-efficacy and overall job satisfaction (DuFour & Fullan, 2013; Eaker & Keating, 2015).

In spite of compelling evidence that working collaboratively is regarded as a best practice, in many schools teachers continue to work in isolation (DuFour, 2004, Eaker & Keating, 2015). Although some schools seem to support the idea of collaboration, the willingness of staff to collaborate does not extend into the classroom setting. They are often willing to collaborate around issues related to operations, discipline and social climate, but while these areas may be

important, they do not represent the type of professional dialogue that occurs in a professional learning community. In a PLC, teachers work together to analyze and improve their classroom practice and engage in an ongoing cycle of inquiry that promote deep learning for the team. This, in turn, helps to improve student achievement (DuFour, 2004).

Writing about the power of the PLC process, Eaker and Keating (2015) emphasize that teachers are the most important players in ensuring high levels of learning for all students and that the culture of a PLC fosters the conditions necessary for this to occur. Teachers in a PLC continually improve as they collaboratively review and analyze the results of their teaching. By working together, PLCs "break down the traditional barriers that lead to isolation, loneliness, and in many cases, a feeling of helplessness", and they "become places of mutual support, respect, interdependence, and importantly, mutual accountability" (p. 5).

The PLC process not only helps to increase overall teacher effectiveness and ensures greater consistency in delivering high-quality instruction to all students, but also teachers benefit from the shared-power, authority and decision-making inherent to the process (Hord, 2015). In a review of the research, Vesicles, Ross and Adams (2008) conclude that "PLCs honor both the knowledge and experience of teachers and knowledge and theory generated by other researchers. Through collaborative inquiry, teachers explore new ideas, current practice, and evidence of student learning using processes that respect them as the experts on what is needed to improve their own practice and increase student learning" (p. 89).

Clarity in PLCs

While there is a large body of research that supports the positive impact of effective PLCs on student achievement, a great deal of ambiguity exists around what is meant by "Professional Learning Communities." Fisher, Frey, Almarode, Flories and Nage (2020) state that "one of the biggest hindrances to the impact the PLC can have on teaching and learning is the misconception about the intention and implementation of PLCs" (p. 1).

Therefore, one of the first steps to implementing effective PLCs is to build a common understanding of the PLC process and the work involved. In the book *Learning by Doing* (DuFour, DuFour, Eaker, Many & Mattos, 2016), the authors define a PLC as "an ongoing process in which educators work collaboratively in recurring cycles of collective inquiry and action research to achieve better results for the students they serve" (p.10).

A common misconception is that the PLC process is a program. Dufour and colleagues (2016) emphasize that the PLC process is not a program: "It cannot be purchased, nor can it be implemented by anyone other than the staff itself. Most importantly, it is ongoing - a continuous, never-ending process of conducting schooling that has a profound impact on the

structure and culture of the school and the assumptions and practices of the professionals within it" (p. 10). Dufour and Marzano (2011) stress that "it is a process to be pursued but never quite perfected," and that it "is not an appendage to existing structures and cultures; it profoundly impacts structure and culture" (p. 22).

Others tend to apply the term PLCs to any meeting in which teachers are together, regardless of the purpose of the meeting (DuFour & Marzano, 2011). Still yet, others tend to view PLCs as a type of book club where members read and discuss a text but may or may not act on the information (DuFour, et al., 2016). All of these misconceptions reflect a lack of deep understanding around the true work that occurs within the PLC process. Reeves and Dufour refer to this as "PLC lite." In each of these scenarios, the activities do not embrace the key principles of the PLC process and, as a result, fail to lead to higher levels of learning for students or adults (Reeves & DuFour, 2016).

Three Big Ideas of a PLC

The level of impact the PLC process has on a school or district is largely determined by the degree to which they are able to understand and embrace the three big ideas that drive the process: (1) **a focus on learning**, (2) **a collaborative culture and collective responsibility** and (3) **a results orientation**.

The first big idea of a PLC, **a focus on learning**, is predicated on the belief that "the fundamental purpose of the school is to ensure all students learn at high levels (DuFour, et al., 2016, p. 11). Educators within the school or district view this as their primary responsibility, not just that students are taught the content or simply provided with an opportunity to learn. This commitment to ensuring all students acquire the essential knowledge, skills and dispositions for each grade level or course drives every decision regarding practices, policies and procedures within the organization. In order to ensure that all students learn at high levels, it is important that educators within the school or district continually learn as well. PLCs provide opportunities for ongoing, job-embedded professional learning driven by student results (DuFour & Fullan, 2013).

When schools and districts operate from the belief that their fundamental purpose is to ensure high levels of learning for all students, it changes the way in which educators traditionally work. No longer can teachers or administrators work in isolation. If all students are to achieve high levels of learning, it requires a **collaborative culture where educators take collective responsibility** for each student's success within the school or district. Collaborating with other educators is not an option; it becomes an expectation of employment. The goal is for teams to work interdependently in order to achieve common agreed-upon goals for which all members are mutually accountable (DuFour, et al., 2016).

The third big idea of a PLC, **a results orientation**, drives the focus of collaboration within the school or district. To determine if all students are acquiring the essential knowledge, skills or dispositions, educators must continually monitor and collect evidence of student learning. Educators use the results to assess the effectiveness of classroom practices and inform areas of continuous improvement. In addition, student results are used to immediately respond to student needs for intervention or enrichment (DuFour & Fullan, 2013).

In order for collaboration to truly impact student achievement, educators must focus their time and energy on the right work. As explained by Dufour and Marzano (2011):

> "Collaboration is morally neutral. It will benefit neither students nor practitioners unless educators demonstrate the discipline to co-labor on the right work. The important question every district, school, and team must address is not, 'Do we collaborate?' but rather, 'What do we collaborate about?' To paraphrase W. Edwards Deming, it is not enough to work hard; you must clarify the right work, and then work hard. Effective leaders at all levels will ensure there is agreement on the right work" (p. 83).

Driving Questions of a PLC

So, what is the right work that drives the PLC process? As educators collaborate within PLCs in cycles of collective inquiry and action research, there are four critical questions that focus the team on improving student results: (Dufour, et al., 2016)

1. **What do we expect our students to learn?**
2. **How will we know if they are learning?**
3. **How will we respond when some students do not learn?**
4. **How will we extend learning for students who already know it?**

These questions allow educators to engage in what the PLC process is designed for - to learn together. According to Dufour and colleagues (2016), the question "Learn what?" is the most significant question a team will consider because the "entire PLC process is predicated on a deep understanding on the part of all educators of what all students must know and be able to do as a result of every unit of instruction" (p. 113).

In addressing the first question, PLC teams study the standards and local curriculum documents to gain clarity around what students need to know and be able to do to meet those expectations. They establish what proficiency looks like and develop general pacing guidelines for delivering the curriculum and, most importantly, commit to teaching the agreed upon curriculum (DuFour, 2015).

Once the team has clarified what students are expected to learn, they move to the second question of "How will we know if they are learning?" In working through this question, the PLC determines the most effective way to measure student learning aligned to the expected learning outcomes through both daily classroom and team-developed common assessments. Teams establish the criteria they will use to assess the quality of student work and ensure they apply the criteria consistently (DuFour & Marzano, 2011).

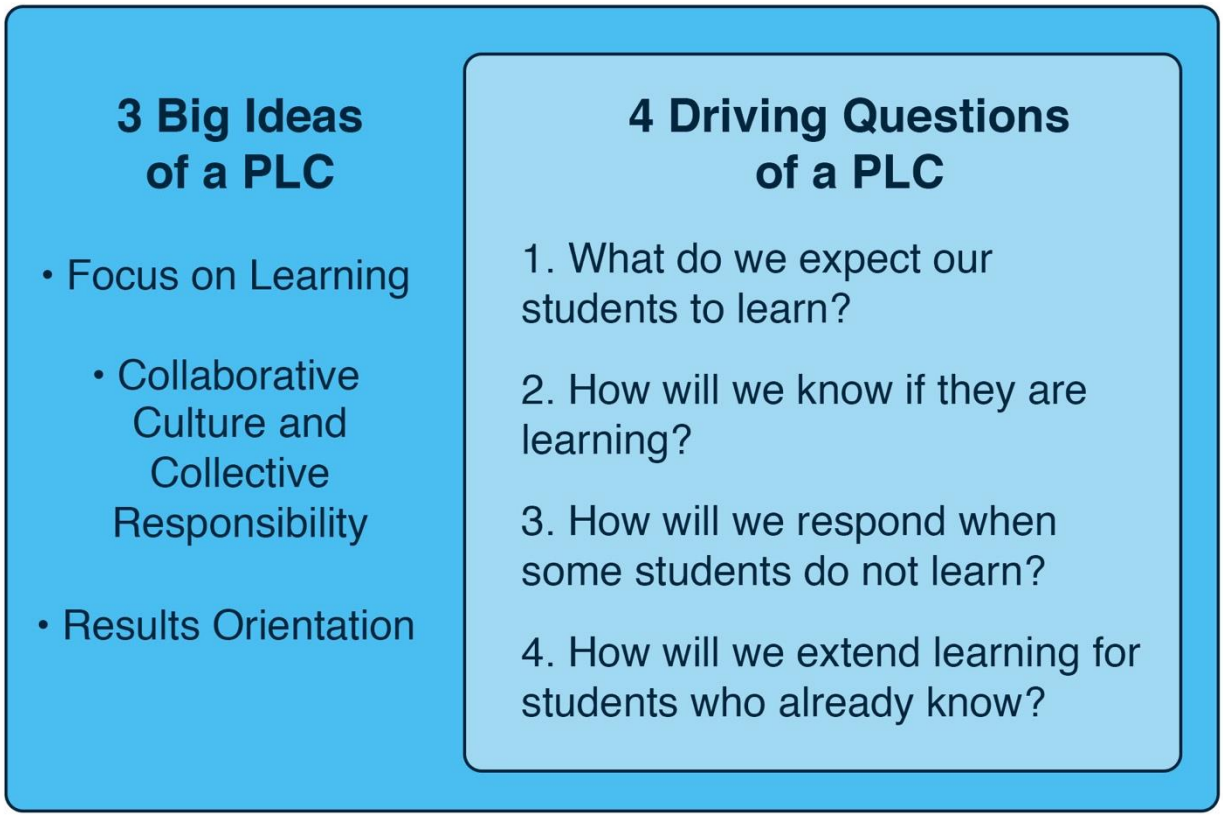
According to DuFour and Marzano (2011), the second question "is specifically intended to ensure that the guaranteed curriculum is not only being *taught* to students but, more importantly, is *being learned* by students" (p. 91). When teachers work collaboratively in PLCs and commit to addressing certain key skills and concepts as organized in the curriculum documents aligned to the standards, it creates positive peer pressure to honor those commitments. In turn, this dramatically increases the likelihood of a guaranteed implemented curriculum throughout the school or district (DuFour & Fullan, 2013).

As teachers work through the third and fourth questions, they examine the evidence of student learning and identify effective instructional practices and areas for improvement. They develop a plan to support students experiencing difficulty and identify strategies to extend learning for those students who have met the learning outcomes (DuFour & Fullan, 2013).

DuFour and Reeves (2016) urge schools to avoid labeling themselves as PLCs without engaging in the hard work that goes into becoming a PLC. In their article, *The Futility of PLC Lite*, they state that many schools have adopted the label without actually committing to the substance of the professional learning community processes. To truly implement the PLC process, the authors assert that "educators must focus on the four questions of PLCs as an integral part of their meetings, use common formative assessments in a way that has a specific effect on teaching and learning, and analyze data not as a way to humiliate teachers but rather to elevate the learning of students and faculty members. Finally, real PLCs include specific interventions that lead to measurable improvements in student performance."

When schools and districts embrace the three big ideas of a PLC and ensure that teams focus on the right work in addressing the four driving questions, they create a true culture of continuous improvement of learning for both students and adults. The culture shifts from thinking in terms of "my" students to "our" students as every member of the organization takes collective responsibility for helping every student achieve.

Figure 3.1. *Clarity in PLCs*



Role of Leadership in Supporting PLCs

In order for a school or district to truly embrace the culture needed to support PLCs, it requires sustained commitment and focus from leaders at all levels throughout the organization. In their book, *Starting a Movement*, Williams and Hierck (2015) state that leaders often set out to implement the PLC process with good intentions. Yet, the work still feels like one more thing to do in a long line, and often educators are merely compliant in "doing" the work of a PLC, which is not the same as "becoming'' a PLC. Without true commitment to becoming a PLC, schools and districts will not see the results in student or adult learning.

Based on their observations, Williams and Hierck (2015), categorized different levels of commitment to the PLC process as either "flirting", dating" or "engaged" with the work. When educators are "flirting" with PLCs, they tend to simply observe the process from afar with no real action steps to move forward. In other cases, educators may be "dating" PLCs where they are scratching the surface and see the potential in the PLC process. However, they like to keep their options open for the next new thing that comes along. When educators are "engaged" to the PLC process, they have made a commitment to fully embrace the work and take the steps necessary to continually improve. DuFour and his colleagues (2016) added one more layer for

educators who are “married” to the PLC process. These educators have chosen this way of life with no desire to return to the old ways of doing things. PLCs have become deeply embedded in the culture of the school and are seen as “the way we do things around here.”

How do leaders move to creating a culture that fully embraces and is “married” to the work of the PLC process as a part of continuous improvement? Dufour and Marzano (2011) point to two adages that are critical to the success of PLCs: (1) addressing the “why” before the “how” and (2) the idea that clarity precedes competence. To support school and district leaders in effectively implementing the PLC process, this guidance suggests the following key leadership strategies:

- Establish Vision and Purpose
- Create Clarity and Coherence
- Create Collaborative Systems and Structures
- Monitor Implementation

For each key leadership action, the following guidance includes possible steps for leaders to consider to help support implementation and shift the culture of the school or district to truly becoming a PLC.

Leadership Strategy # 1: Establish Vision and Purpose

As leaders embark on creating the conditions necessary for a culture that embraces the PLC process, they must start with addressing the “why” before the “how.” This involves working with stakeholders to establish and communicate a clear vision and purpose for undertaking the initiative. Three critical steps to support this leadership action include (1) **creating a collaborative leadership team**, (2) **analyzing current reality** and (3) **building a shared foundation**.

Step 1: Create a Collaborative Leadership Team

As a school or district begins the journey of implementing the PLC process, it is important to note that no single individual within the organization has the necessary expertise, energy and influence to lead the change process without first gaining the support of key stakeholders. DuFour (2015) states that “even the most competent leaders will struggle to bring about substantive change without the support of allies who are willing to serve as champions for that change” (p. 226). One of the key steps to laying the foundation for the PLC process is to create a collaborative leadership team.

The purpose of the collaborative leadership team, also referred to as a guiding coalition, is to create and sustain a culture of collective responsibility. They work to keep the school and/or

district focused on its mission, vision and collective commitments. Members of the leadership team work to unite and coordinate the school and/or district's collective efforts across grade-levels, subjects and departments. The team operates from shared objectives and high levels of trust and helps guide the process with an emphasis on shared leadership, ownership and investment. Through the process of building shared knowledge and consensus, they develop goals, make decisions and then return to their job-alike teams to advocate for why the initiative is vital to the continuous improvement of the school and/or district (Williams and Hierck, 2015).

Instead of thinking of leadership in terms of positional authority, members of the leadership team should view themselves as servant leaders. DuFour (2015) states that it is imperative for the leadership team to view their roles as ensuring teams have everything they need to succeed in what is being asked of them to do as they work to implement the PLC process. For each critical element of the PLC process, the leadership team works together to anticipate the questions teams may have as work through implementation. Dufour, DuFour, Eaker and Many (2010) provide the following questions the team will likely need to address for each critical component (p. 2):

- **Why questions**. Why should we do this? Can you present a rationale for why we should engage in this work? Is there evidence to suggest that the outcome of this work is desirable, feasible and more effective than what we have traditionally done?
- **What questions.** What are the exact meanings of key terms? What resources, tools, templates, materials and examples can you provide to assist in our work?
- **How questions.** How do we proceed? How do you propose we do this? Is there a preferred process?
- **When questions**. When will we find time to do this? When do you expect us to complete the task? What is the timeline?
- **Guiding questions.** Which questions are we attempting to answer? Which questions will help us stay focused on the right work?
- **Quality questions**. What criteria will be used to judge the quality of our work? What criteria can we use to assess our own work?
- **Assurance questions**. What suggestions can you offer to increase the likelihood of our success? What cautions can you alert us to? Where do we turn when we struggle?

DuFour et. al (2016) suggests selecting members based on their influence with their peers; those individuals who are seen as knowledgeable, respected and trustworthy can have a major influence on the rest of the group. This may include individuals who traditionally resist change but are important players to getting key staff members to support the work. The team should represent all relevant perspectives and reflect the various expertise and experiences of the school or district (Williams and Hierck, 2015).

When selecting the right people to serve as a part of the leadership team, consider using Kotter's (2012) four characteristics:

- **Position Power**: Are enough key players on board, especially those who are responsible for leading a large percentage of others and have influence, so that those left out cannot easily block progress?
- **Expertise**: Are the various points of view - in terms of discipline, work experience, nationality, etc. - relevant to the task at hand adequately represented so that informed, intelligent decisions will be made?
- **Credibility**: Does the group have enough people with good reputations in the system so that its pronouncements will be taken seriously by other employees?
- **Leadership**: Does the group include enough proven leaders to be able to drive the change process? You need both management and leadership skills on the guiding coalition, and they must work in tandem, teamwork style. The former keeps the whole process under control, while the latter drives the change. (p.56-57)

At the district level, possible key members include school principals, district office staff, teacher leaders and/or instructional coaches from each school, as well as other key stakeholders, such as parent/legal guardian and board member representatives.

When selecting members for the leadership team at the school level, possible members might include school administrators, teacher leaders, classified and support staff, parents/legal guardians, as well as School-based Decision Making (SBDM) council representatives.

Step 2: Analyze Current Reality

Leaders must spend time building shared knowledge throughout the organization as to why PLCs are needed. People throughout the system must have a clear understanding of what the initiative entails and why it is worth their time, energy and expertise. Leaders need to provide a compelling rationale for the change beginning with assessing the school and/or district's current reality (DuFour & Fullan, 2013). Without an honest assessment of where the school and/or district is starting from, it is difficult to reach the intended destination.

Analyzing the evidence of the current reality before deciding next steps helps ensure the team makes informed decisions that lead to reaching the end goal. Spiller and Power (2019) state that "the deep work of school improvement takes time and energy, and, most important, understanding the truth of the current reality and working on the right work to exact the change" (p. 87). Possible evidence or data the team might analyze to gain a better understanding of the school and/or district's current reality includes:

- Student and staff attendance;

- Student discipline data;
- Student learning data;
- Data gathered from perception surveys from various stakeholder groups; and
- Demographic data.

When leaders and teams analyze the data, they should focus on the root causes of underperformance to understand the "why." It is difficult to create buy-in for the change process if stakeholders do not have a clear understanding why change is necessary. Once the "why" is clear, it is easier to move forward in planning for improvement and creating action plans that are tailored to address the "why" (Spiller & Power, 2019).

After an analysis of the current reality, teams should also spend time identifying evidence of best practice. The team might collaboratively analyze a synthesis of the research on characteristics of high performing schools, such as PLCs, use of clear learning outcomes, ongoing monitoring of student learning, systematic approach to interventions and high expectations for all students. The team might conduct site-visits to see the PLC process in action or hear from schools that have successfully implemented the PLC process (DuFour, DuFour, Eaker, Many, & Mattos, 2016). In doing so, it is easier to identify the gap between current systems, structures and practices in the school and/or district and the systems, structures and practices of high-performing schools and districts. Understanding this gap and having a greater sense of what success looks like, educators then shift to creating a shared mission and vision that embodies what they want to strive to obtain and develop values and goals to help them achieve that vision.

Step 3: Build a Shared Foundation

In his book, *In Praise of American Educators*, DuFour (2015) points out that "the PLC process is to focus less on what educators in high-performing PLCs *do* and more on how the members of the organization *think* - the mindset of those educators. The assumptions, beliefs, expectations, and commitments of people in any organization shape the culture of that organization" (p. 100). To address this challenge, DuFour suggests engaging the staff in building consensus around the four essential pillars of the PLC foundation: (1) **shared mission**, (2) **vision,** (3) **values** and (4) **goals**. Once consensus has been established around these four areas, it lays the foundation that drives the daily work of the school and/or district as highlighted in Table 3.1 below.

Table 3.1. *Four Pillars of the PLC Foundation*

Pillar	Guiding Question	Purpose
Mission	Why do we exist?	Clarifies priorities and guides decisions

Pillar	Guiding Question	Purpose
Vision	What must our school become to accomplish this purpose?	Provides directions and serves as a basis for assessing practices, policies and procedures
Values	How must we behave to achieve our vision?	Clarifies the collective commitments members of an organization make to one another
Goals	How will we mark our progress?	Helps in identifying targets, timelines and evidence that the new behaviors are positively impacting student learning

Mission

When focusing on the mission pillar, the school and/or district is responding to the question of "*Why do we exist?*" This question is aimed at getting educators to reach agreement around the fundamental purpose of school. Clearly articulating the fundamental purpose helps to establish priorities and guides decisions. If a school and/or district is to fully embrace the PLC process, then ensuring all students learn must be the core of its mission (DuFour, et. al, 2016). According to Dufour (2015), a "learning-focused culture understands that the school was not built so that teachers have a place to teach - it was built so that the children of the community have a place to learn" (p. 104). This requires educators to shift from schools ensuring students are just "taught" to ensuring all students "learn."

Dufour (2015) points out that most schools and districts likely have world-class mission statements. In this case, the task for educators embarking on the PLC journey is not in writing a new mission statement. It is in ensuring every practice, policy and procedure is aligned to their fundamental purpose of ensuring high levels of learning for all. Schools and/or districts must work to bring their mission to life by aligning what they do with what they say in their mission.

Vision

While the mission statement addresses the "why," the vision helps address the "what" by responding to the question of "*What must we become to accomplish our purpose?*" According to Dufour, et. al (2016), when educators collectively work to answer this question, they "attempt to create a compelling, attractive, realistic future that describes what they hope their school will become" (p. 39.) Developing a clear vision provides educators with a sense of direction and a basis for assessing potential strategies, programs and procedures aimed at reaching their goals. It also allows educators to create a list of what to "stop doing" in regards

to current practices, policies and procedures because they are not aligned to the mission or vision.

Values

Creating a vision statement is meaningless without developing an action plan to reach the intended outcome. The third pillar focuses on stakeholders working collaboratively to address the question of "*How must we behave to achieve our vision?*" This involves clarifying the collective commitments (values) all members of the school and/or district make to one another. They determine the ways in which all individuals need to act now to reach their future goals. These values guide the individual and collaborative work of each staff member and describe how each person contributes to the overall success of improving student learning (DuFour, et. al, 2016).

To create the conditions in which everyone upholds the collective commitments, leaders need to clearly define, teach, model and continually reinforce each expectation. When educators in a school and/or district reach agreement on what they are prepared to start doing and implement that agreement, it is a key step in closing the gap between their vision and their current reality. Dufour (2015) argues that in the absence of collective commitments and the willingness to hold each other accountable, schools often struggle to truly build a collaborative culture due to personal conflicts and adult drama and student learning suffers as a result.

The collective commitments should show that the system as a whole is committed to working together to improve student learning. By including all stakeholders in the development of the behaviors, it points to the fact that the PLC process works best when the entire school community and/or district functions in a collaborative and purposeful manner. The collective commitments reflect the shift from teachers working in isolation to teachers working collaboratively and from stakeholders thinking in terms of "my responsibility" to "our responsibility" and from "my students" to "our students" (Marzano, Heflebower, Hoegh, Warrick, & Grift, 2016).

Goals

The final pillar addresses the question of "*How will we mark our progress?*" In response to this question, educators need to clarify the specific goals they hope to achieve through implementing the improvement strategies. This involves articulating short-term goals and the steps necessary to reach each goal. Each goal needs to have clearly defined targets, timelines and results that will be gathered to provide evidence of the impact of the improvement strategies on student learning (DuFour, et. al, 2016).

Effective goals are critical components in supporting the three big ideas of a PLC by fostering a results orientation and the individual and collective accountability for improving student

learning. In addition, goals are essential to the success of the collaborative team process. In the book, *Learning by Doing* (2016), the authors state that "in the absence of a common goal, there can be no true team" (p. 42). Effective goals help collaborative teams clarify how their work contributes to the overall improvement of the school and/or district and demand evidence of results rather than activity. Establishing achievable short-term goals creates a sense of positive momentum and contributes to the confidence and self-efficacy of the staff (DuFour, 2015).

Once the school and/or district has reached consensus on their mission, vision, collective commitments and have articulated their short- and long-term goals, DuFour (2015) offers four questions the group should utilize moving forward when making decisions:

- "Is this consistent with our purpose?"
- "Will it help us become the school we envision?"
- "Are we prepared to commit to doing this?"
- "Will it help us achieve our goals?

To support school and/or district leaders with implementation of this leadership strategy, the Kentucky Department of Education (KDE) has created a supplemental resource toolkit that includes resources, templates, samples and other supporting documents. The resources are located in Appendix B: Establish Vision and Purpose Toolkit.

Leadership Strategy # 2: Create Clarity and Coherence

Once the school and/or district has created and articulated a clear mission and vision and has communicated why the PLC process is critical to the success of both students and adults, it is important to create clarity and coherence throughout the system. To create clarity, leaders must ensure all members of the organization have a clear understanding of what it means to be a professional learning community and what is involved in the process of becoming and sustaining a PLC. In terms of coherence making, leaders need to create a shared mindset among individuals and across the system that is committed to and supports the work involved in becoming a PLC (DuFour & Fullan, 2013). Possible action steps leaders might take to create clarity and coherence include (1) **utilizing a simultaneous loose-tight leadership approach**, (2) **creating a common language**, (3) **limiting initiatives**, (4) **effectively communicating priorities** and (5) **building capacity to lead the process**.

Step 1: Utilize a Simultaneous Loose-Tight Approach

When engaging in the complex process of cultural change, it is important to find the appropriate balance between what is tight or non-negotiable and what is loose where people are empowered to make certain decisions. To be successful, DuFour and Fullan (2013) assert that interdependence is the key by creating a system of "defined autonomy." In this type of

system, leaders establish a few non-negotiables ("tights") that must be adhered to and honored at all levels of the school and/or district. Built within the defined boundaries, people are empowered to determine the best course of action to pursue those priorities.

Once a school or district has established what is "tight" in regards to the implementation of the initiative, leaders must build a shared understanding throughout the system by providing a detailed description of what is meant by each non-negotiable. It is important to provide opportunities for people to offer input and ask clarifying questions. If people have an opportunity to weigh in on what is "tight," they are more likely to buy-in to what is being asked of them in supporting the PLC process. In addition, leaders must clarify the specific practices and conditions they expect to see in every school (DuFour and Fullan, 2013).

In *Learning by Doing*, DuFour, et al. (2016) offer the following as important non-negotiables in creating the conditions necessary to support the PLC process (p. 261):

- Educators work collaboratively rather than in isolation, take collective responsibility for student learning and clarify the commitments they make to each other about how they will work together;
- The fundamental structure of the school becomes the collaborative team in which members work interdependently to achieve common goals for which all members are mutually accountable;
- The team establishes a guaranteed and viable curriculum, unit by unit, so all students have access to the same knowledge and skills regardless of the teacher to whom they are assigned;
- The team develops common formative assessments to frequently gather evidence of student learning;
- The school has created a system of interventions and extensions to ensure students who struggle receive additional time and support for learning in a way that is timely, directive, diagnostic and systematic, and students who demonstrate proficiency can extend their learning; and
- The team uses evidence of student learning to inform and improve the individual and collective practice of its members.

At the district level, while these elements must be present in each school, principals still have autonomy in regards to the teaming structures, how they will build in time for the teams to collaborate, the process used for teams to create common assessments and the way in which the school implements a schoolwide system of interventions into their master schedule (DuFour & Fullan, 2013).

At the school level, teachers are empowered to work collaboratively in making important decisions regarding the norms and goals for their team, what to teach, sequencing and pacing of the content, the assessments used to monitor student learning and the criteria they will use in assessing the quality of student work (DuFour, et al., 2016).

Step 2: Create a Common Language

Important to the success of any initiative is ensuring all stakeholders are speaking a common language throughout the school and/or district regarding the key terms associated with the improvement strategies. Leaders need to ensure everyone moves beyond a superficial use of the terms to a deep understanding of the meaning of each term and how that concept or idea fits into the overall picture of the PLC process. Key steps to building understanding include (DuFour & Marzano, 2011):

- Identifying the key terms required to move forward;
- Teaching those terms through descriptions, explanations and examples;
- Engaging staff in discussions of the key terms; and
- Periodically assessing levels of understanding.

According to DuFour and Marzano (2011), when people throughout the school and/or district possess a shared understanding of the critical vocabulary regarding the PLC process, it greatly increases the likelihood of successful implementation. The toolkit in Appendix B contains a list of possible terms associated with PLCs.

Step 3: Limit Initiatives

Dufour and Marzano (2011), argue that one of the biggest obstacles to school improvement is pursuing too many initiatives. This is often further compounded by a lack of coherence among the various initiatives, which leads to many educators throughout the school or district suffering from what Doug Reeves (2011) refers to as “initiative fatigue.” According to Reeves (2010), the Law of Initiative Fatigue states that “when the number of initiatives increases while time, resources, and emotional energy are constant, then each new initiative—no matter how well conceived or well intentioned—will receive fewer minutes, dollars, and ounces of emotional energy than its predecessors” (p. 27). In addition, the numerous initiatives are often seen as fragmented, disconnected, short-term projects that result in educators investing little time and energy to implement because they feel, “This too shall pass.”

In his research, Reeves (2011) concluded when leaders have a sustained focus combined with effective monitoring and a sense of efficacy with educators throughout the school or district, it produces positive results for all students in the school regardless of demographics. In the

absence of a sustained focus over an extended period of time, even the most research-based initiatives will fail.

To avoid initiative fatigue, school and/or district leaders should identify a few key evidence-based priorities that support continuous improvement and then pursue them relentlessly. As they work to implement the different elements of the key strategies, leaders need to stress how they connect to the bigger picture of the vision, mission, values and goals. It is important

for educators throughout the system to see how all the pieces connect to support one sustained improvement effort over time. In terms of the PLC process, examples of the different elements include organizing staff into collaborative teams, establishing a guaranteed, viable curriculum, creating common formative assessments, analyzing evidence of student learning to improve teacher practice and creating systems to support interventions and enrichment (DuFour & Marzano, 2011).

Step 4: Effectively Communicate Priorities

A critical element in the successful implementation of any improvement initiative is for school and/or district leaders to clearly communicate the goals and priorities to all stakeholders. Clarity in communication must be ongoing throughout the implementation process. Leaders need to keep the message simple and consistent when speaking with various stakeholders. Their actions must align to the identified priorities and they must ensure that leaders at all levels can speak the same message and clearly articulate which elements are “tight” and which are “loose” (DuFour & Marzano, 2011). Additionally, leaders must ensure support of their goals and priorities from their local SBDM and/or board of education.

Spiller and Power (2019) believe that the most effective leaders are those who pay attention to and work on being thoughtful, respectful and considerate communicators. For communication to be truly effective, leaders must value 2-way communication as they work with all stakeholders throughout the implementation process. This involves asking clarifying questions, being an attentive listener and taking time to truly understand before acting. Effective leaders initiate dialogue, develop formal and informal strategies to ensure all perspectives are heard and valued, and seek feedback to make necessary adjustments along the way (Dufour & Fullan, 2011).

Step 5: Build Capacity to Lead the Process

In order to successfully embrace the PLC process and bring about cultural change, it is critical to build the capacity of staff to lead the change process in their respective schools. In a loose-tight system, district leaders must hold principals accountable for leading the PLC process while also being accountable to them for providing training and support needed to be successful (DuFour

& Fullan, 2013). The same is also true at the school level as principals build capacity of the leadership team and collaborative team leads.

Leaders at all levels must provide ongoing training and support to meet the established expectations. This involves initial training to build a foundational understanding of the PLC process and the rationale for why the initiative is critical to improve student learning. Leaders should consider accompanying principals, leadership team members and lead teachers on site visits to schools or districts with high-functioning PLCs. Additionally, leaders could facilitate article and book studies on the PLC process to build deeper understanding overtime throughout the implementation process (Dufour & Fullan, 2013).

As a part of ongoing support, district leaders need to provide collaborative time during principals' meetings for school leaders to identify and resolve implementation challenges. Using the meetings in this way provides opportunities for principals to collaborate with colleagues to learn from each other's successes and help brainstorm possible solutions to problems (DuFour & Fullan, 2013). At the school level, the principal works with his/her collaborative leadership team to identify and resolve challenges that arise from the PLC teams.

One way to promote shared leadership at the school level is for principals to designate teacher leads for each collaborative teacher team. There are different approaches principles can take in assigning team leads. In the first option, the principal may designate the leader for each collaborative team by recruiting individuals based on the respect of their peers or their leadership potential. Another option involves the principal asking each team to select its leader within clearly defined parameters. For small teams, the principal could encourage members to rotate responsibilities such as team leader, recorder, or timekeeper throughout the year. Once selected, team leads are responsible for serving as a liaison between the collaborative teacher team and the principal as they work together to become a PLC (DuFour, 2015).

Regardless of the strategy a principal might use to designate team leads, it is important to take time to build the leadership skills of the team leads so they can effectively facilitate collaborative discussions, support members of the team and develop other leadership skills to promote team success (DuFour, 2015). Spiller and Power (2019) argue that "it is one thing to say that you have teacher leaders; however, it is another to know your teacher leaders understand how to lead the right work" (p. 73).

Dufour and Marzano (2013) suggests that team leads need support and ongoing training in skills such as building consensus, facilitating dialogue, collaborative problem solving, conducting effective meetings and resolving conflict. They also should be taught how to lead colleagues through the process of completing specific tasks aligned to the work of a high-performing PLC. For example, as a part of a focus on results, each team should set a SMART goal aligned to school and/or district goals. To help ensure the team is successful, principals must work with

their team leads in understanding what a SMART goal is and how to work with their respective team to develop the goal.

At all levels of the system, leaders must be equipped with the knowledge and resources that increase the likelihood of the collaborative team's success. This includes leaders from the central office, principals, leadership teams and the team leads. In supporting those leaders individually and collectively as they work their way through each step of the collective inquiry process, it strengthens the collective commitments and collective responsibility that is critical to sustaining the PLC initiative (DuFour & Marzano, 2013).

To support school and/or district leaders with implementation of this leadership strategy, the KDE has created a supplemental resource toolkit that includes resources, templates, samples and other supporting documents. The resources are located in Appendix B: Create Clarity and Coherence.

Leadership Strategy # 3: Create Collaborative Systems and Structures

For a school and/or district to transform their culture from one of teacher isolation to one that embraces collaboration, leaders must create systems and structures that signal the importance of this shift in mindsets and beliefs. If leaders say they value teachers working collaboratively, they must ensure the conditions necessary for this to occur are put in place. This includes (1) **organizing staff into meaningful teams**, (2) **providing teams with time to collaborate**, (3) **clarifying the work teams must accomplish** and (4) **creating a school-wide system of interventions**.

Step 1: Organize staff into meaningful teams

At the heart of the PLC process lies the work of a high-performing team. When principals organize staff into meaningful collaborative teams, it is another avenue for building shared leadership. According to DuFour and Marzano (2011), when teams are empowered to make key decisions within clearly defined parameters, they are less likely to cite the decisions of others as the core of their problems because they are part of the decision-making process. This is important because people tend to advocate for and support what they help create.

The collaborative team process key to the success of PLCs requires people to work together *interdependently* to achieve *common goals* for which members are *mutually accountable* (Dufour & Fullan, 2013). Members benefit from shared responsibility for engaging in collective inquiry specifically designed to improve instructional practice and student learning. Without these conditions in place, teams will struggle to find meaning in their teams and will be prone to drift toward superficial conversations. Dufour (2015) stresses that "absent these three key

elements, a group may be congenial or collegial, but its members are not a team" (p. 125). Groups do not become teams simply because that is what someone labels them.

When organizing staff into meaningful teams, the most important criterion is to base assignments on which team members have a shared responsibility for student learning and addressing the four questions that drive a PLC (DuFour & Fullan, 2013; DuFour & Marzano, 2011; Mattos, et al., 2016):

1. What do we expect our students to learn?
2. How will we know if they are learning?
3. How will we respond when some students do not learn?
4. How will we extend learning for students who already know it?

Research has shown that grade-level or course content teams are the most effective at improving student and adult learning (Gallimore, et al., 2009; Little, 2006). Little (2006) argues that when the team's learning is content-based and they work collaboratively to focus on the curriculum, assessment and instruction aligned to their content, teachers are more likely to improve their practice.

The way in which principals organize their staff into meaningful teams is dependent upon the size and make-up of the school and/or district. Table 3.2 below includes a list of possible team structures that support collaboration focused on improving student and adult learning (Dufour, et al. 2016).

Table 3.2. *Possible Team Structures*

Team Structure	Description	Examples
Grade-level or course-content team	All teachers teaching the same grade-level or course	All 3rd grade teachers; all geometry teachers
Vertical teams	Link teachers with those who teach content above or below their students	K-2 teachers; Spanish I-IV teachers
Electronic Teams	Job-alike teachers in different schools that use technology to collaborate across the district, state, or world	All physical education teachers for each elementary school in a district
Interdisciplinary Teams	Members from multiple courses are mutually accountable for an overarching academic common goal	7th grade math, ELA, science, and social studies teachers working together to improve student proficiency in non-fiction reading and

Team Structure	Description	Examples
		writing across the curriculum
Logical Links	Teachers placed in teams that are pursuing outcomes linked to their areas of expertise	A special education provides support to a biology team to help special education students achieve the intended outcomes of the course

Again, the key to organizing teachers is to utilize a structure that allows them to engage in meaningful collaboration that benefits the teachers and their students. The effectiveness of the team structure depends on the extent to which it supports teacher dialogue and action aligned to the four driving questions of a PLC (DuFour, et al., 2016).

Step 2: Provide teams with time to collaborate

One of the most vital resources leaders can provide when attempting to create a culture of continuous improvement is time for teams to collaborate (DuFour & Fullan, 2013). If leaders are to ensure their actions align with creating a collaborative culture, then they must provide teams with the necessary time to do the work being asked of them (DuFour, et al., 2016).
For many schools and/districts, finding time within the schedule for collaboration may be challenging, and there is no one-size-fits-all solution. Here is a list of possible strategies adapted from *Learning by Doing* (Dufour, et al., 2016) to help leaders to address the issue of time (pp. 65-67):

- **Common Planning:** The master schedule is built to provide same grade-level or course content teachers with common planning periods. Each team then determines one day each week to engage in the collaborative work of a PLC instead of individual planning time.
- **Parallel scheduling:** Schedule common planning time by assigning the specialists (librarians, music teachers, art teachers, guidance counselors, etc.) to provide lessons to students across an entire grade level at the same time each day. Each team then determines one day each week to engage in the collaborative work of a PLC instead of individual planning time. Time also must be built in for Specials teachers to collaborate.
- **Adjusted start and end times**: Members of a team, department or an entire faculty agree to start their workday early or extend their workday one day each week to gain collaborative team time. In exchange for adding time to one end of the workday, the teachers are compensated by getting the time back on the other end of that day.
- **Shared classes:** Combine students across two grade levels or courses into one class for instruction. While one teacher or team instructs the students, the other team engages

in collaborative work. The teams alternate instructing and collaborating to provide equity in learning time for students and teams.

- **Use large group lessons, testing and assemblies:** Teacher teams coordinate activities that require supervision of students rather than instructional expertise (i.e., videos, resource lessons, read-alouds, assemblies, testing). Nonteaching staff supervise students while the teachers engage in team collaboration.
- **Banked time:** Over a designated period of days, extend the instructional minutes beyond the required school day. After banking the desired number of minutes, end the instructional day early to allow for faculty collaboration and student enrichment.
- **Use in-service and faculty meeting time:** Schedule extended time for teams to work together on staff development days and during faculty meeting time.

Whichever combination of strategies a school and/or district utilizes, that collaborative time should be non-negotiable and never sacrificed for other purposes (Marzano, et al., 2016).

Step 3: Clarify the work teams must accomplish

Even if people are organized into meaningful teams and given the time to collaborate, without a focus on the right work they will not experience higher levels of student achievement. This applies to all levels of the system from principals' meetings at district level to teacher conversations at the school level (DuFour & Fullan, 2013). Dufour and colleagues (2016) argue that "in a PLC, the reason teachers are organized into teams, the reason they are provided with time to work together, and the reason they are asked to focus on certain topics and complete specific tasks is so that when they return to their classrooms they will possess and utilize an expanded repertoire of skills, strategies, materials, assessments, and ideas in order to impact student achievement in a more positive way" (p. 67).

In a study of districts that implemented the PLC process for a minimum of three years, researchers focused on why some of those districts experienced dramatic gains in student achievement while others remained flat. The study revealed that in all the districts teachers were provided time to collaborate. The difference in achievement came down to what occurred during the team meetings. The districts that experienced gains in student achievement put processes in place to ensure the teams were focused on the right work (DuFour, 2015).

School and/or district leaders must establish clear parameters and priorities that guide the team toward the goal of improving student learning. Principals should meet regularly with team leads to agree on the work that must be done, determine a timeline for completion of the work, as well as clarify the products or evidence teams will provide to demonstrate their work (Mattos, et al., 2016). This helps teams to avoid focusing on frivolous topics and instead focus their conversations on specific aspects of teaching and learning as they address the four

questions that drive the PLC process (DuFour, et al., 2016). By defining what is tight, each team is then provided the autonomy to determine the agenda for their meetings. It is also important for leaders to provide teams with meaningful and timely professional learning necessary to complete the work and to offer templates and models to help guide and assess the quality of their work (DuFour, 2015).

When looking at the work of a collaborative team, some of the work is addressed annually (i.e., team norms, SMART goals), and some are repeated throughout the year as part of the continuous improvement cycle. For example, for each unit, teams will establish clear learning outcomes, agree on pacing, develop common formative assessments, analyze results of those assessments and act on evidence of learning to support students and improve instructional practice. Below is an example of a possible timeline that a principal and team leads might establish (Mattos, et al., 2016):

1. **After the second meeting**: Present team norms and SMART goal.
2. **After the fourth meeting:** Present the essential learning goals for the first unit of teaching.
3. **After the sixth meeting:** Present first common assessment.
4. **After the eight meeting:** Present analysis form a common assessment, including areas of celebration, areas of concern, and strategies for proceeding.
5. **After the tenth meeting**: Present the essential outcomes for the next unit. (p.60)

While the team only completes step 1 at the beginning of the year, the remaining steps repeat for each new unit of study for the grade-level or course content team. The team members clearly know what is expected of the team, when it must be completed and the product that will show evidence of their work. In return, principals ensure that each team receives the time, resources and support necessary to accomplish the work and improve student learning (Mattos, et al., 2016).

Step 4: Create a schoolwide system of interventions

In their book, *Leaders of Learning*, DuFour and Marzano (2011) claim that "one of the most persistent brutal facts in education is the disconnect between the proclaimed commitment to ensure all students learn and the lack of a thoughtful, coordinated, and systematic response when some students do not learn in spite of the best efforts of their individual classroom teacher" (p. 173). This misalignment between purpose and practice often results in schools playing an educational lottery with their students, meaning that the response to students when they struggle is dependent upon the randomness of the teacher to whom they are assigned.

If a school and/or district is to substantially shift their culture to one that ensures all students learn, it is imperative for their actions to impact both individual teacher practice and the

collective practice of the school when students struggle (DuFour & Marzano, 2011). This requires schools to develop **highly effective, systematic interventions** that provide students with the additional time and support they need. *Intervention*s are anything a school does above and beyond core instruction that all students receive. If it is *systematic*, then the school guarantees every learner receives the help needed regardless of the teacher he/she is assigned. For the support to be *effective*, the interventions used are evidence-based and targeted to meet the individual needs of each student (DuFour, 2015; Mattos, et al., 2016).

Implementing a schoolwide system of interventions may look different from one school to another, but DuFour (2015) argues that leaders must be insistent that specific critical elements of effective interventions are present in their schools. He suggests the following "tight" elements (p. 202):

- Interventions must be provided in addition to effective, grade-level Tier I instruction, not in place of it.
- An effective system of interventions starts with the foundation of strong Tier I instruction delivered to all students.
- There must be a systematic and timely process to identify students who need additional time and support.
- The master schedule must allocate time for supplemental and intensive interventions.
- Interventions must be targeted by student, by standard.
- Interventions must be provided by trained professionals.
- Interventions must be mandatory; not optional for students to attend.
- Interventions must not come at the expense of students who succeed in core instruction.

While the above elements must be "tight" in each school, the "loose" is in how each school implements these practices. For more information about interventions and how they fit into the bigger picture of the Multi-Tiered System of Supports (MTSS) framework, please visit KDE's MTSS site.

To support school and/or district leaders with implementation of this leadership strategy, the KDE has created a supplemental resource toolkit that includes resources, templates, samples and other supporting documents. The resources are located in Appendix B: Create Collaborative Systems and Structures.

Leadership Strategy # 4: Monitor Implementation

In any organization, what gets monitored gets done. As a school and/or district undertakes the work of fully embracing a PLC culture, it is important that leaders continually monitor the

critical elements necessary to ensure its mission and vision become a reality. As a part of this leadership strategy, possible action steps include (1) **monitoring and providing ongoing support,** (2) **addressing resistance and conflict** and (3) **celebrating progress.**

Step 1: Monitor and Provide Ongoing Support

Principals and/or district leaders along with their collaborative leadership team need to establish a process for monitoring the work of the teams. A key component to effective monitoring relies upon school and/or district leaders to clearly communicate priorities and goals and the evidence that will be gathered to determine what is working, what is not working and what is needed to improve. Leaders themselves must function as PLCs as they work collaboratively to monitor the ongoing work of adults, just as teacher teams monitor the ongoing learning of students (Mattos, et al., 2016).

One way to monitor PLC implementation is through examination of the products that flow out of the collaborative work of the teams. According to DuFour and Marzano (2013), these products serve as the primary sources of dialogue among teachers in a team, between the team and principal, and between the principal and district leaders. Examples of products include team norms, SMART goals, common assessments and student data. Through an examination of these products, leaders can look for areas across the board where progress is being made and identify common places teams may be struggling. It also allows the leader to better differentiate the support needed to move each team forward. It might be that some teams are unable to provide tangible evidence they are making progress on the right work. Some teams may be doing the right work, but not doing it well. Other teams may be making progress on some of the work but need help in a specific area. (DuFour et al., 2016; Mattos, et al., 2016).

Leaders also need to create feedback loops focused on transparency of results from common assessments, collective analysis of results and shared responsibility for improving results. School leaders need to have regular contact with the collaborative teams in order to maintain 2-way communication. Possible ideas include the leader attending portions of a team's meeting, meeting with the team lead on a regular basis and/or asking each team to quarterly present specific products and to collaboratively discuss strengths and ways to improve. In doing so, leaders are able to stay up to date on the team's success and identify support needed by the team or an individual teacher as they work toward becoming a highly effective PLC (Marzano, et al., 2016).

At the district level, one way to monitor the implementation process is to utilize principals' meetings where principals are asked to demonstrate what they have done to implement the PLC process by explaining the steps they have taken using specific evidence, such as examples of team norms, student results from common assessments and the school schedule that

supports a schoolwide system of interventions (DuFour & Marzano, 2011). All the principals, along with district leaders, then work collaboratively to help identify and resolve problem areas in a school and learn from those that are being successful in improving student learning (DuFour & Fullan, 2013).

At both the school and district level, it is important for leaders to build trust among the staff to ensure the focus is on informing and improving practice, not about rating or ranking the schools and/or the teachers. The routine practice of examining evidence of student learning and products of the work of collaborative teams highlights how the PLC process contributes to continuous improvement by ensuring adult learning is aligned to student learning. This, in turn, improves both the individual and collective capacity of all members of the school and/or district DuFour, 2016).

Step 2: Address Conflict

With any initiative that requires a cultural shift in mindset and behaviors, there will likely be instances when people fail to honor the agreed-on priorities and collective commitments. The ultimate goal is to create a culture that is both strong and open enough that members throughout the school and/or district use the violation as an opportunity to reinforce the core values through peer pressure by essentially saying, "That is not how we do it here." Knowing that conflict is a natural part of any substantial change process, the key is not to eliminate or avoid conflict; rather it is to learn how to productively manage the conflict (DuFour, et al., 2016).

Effective leaders must demonstrate the willingness to confront individuals when their behavior is in direct conflict with the established "tights" of the collective commitments. The unwillingness of leaders to address an obvious problem and a reluctance to hold people accountable to the agreed upon behaviors severely weakens the PLC process and the leader's credibility with the staff (DuFour, 2015; DuFour, et al., 2016). When addressing conflict, the key is to focus on the behaviors, not on the individual's attitude. In *Learning by Doing* (2016), the authors state that "Work that is designed to require people to *act* in new ways create the possibility of new experiences. These new experiences, in turn, can lead to new attitudes over time" (p. 220).

When an individual's behavior does not adhere to the school and/or district's collective commitments, leaders need to have a crucial conversation to insist the person change his/her behavior in a way that supports the PLC process. DuFour (2015) suggest the following guidelines when having these types of conversations (p. 238-240):

- Conduct the conversation in private.

- Express specific concerns regarding the behavior of the individual and avoid generalities or judgements about attitudes.
- Contrast the individual's behavior with the collective commitments that staff has made to better achieve the mission of the school. Remind the individual that these commitments were created by the entire faculty and that he/she had a voice in this process.
- Invite the individual to explain his/her behavior in light of the commitments. Look for areas of agreement and common ground. Be prepared to share specific research and evidence to support why the requested behaviors are desirable and necessary.
- Clarify the very specific behaviors that you will require of the individual both verbally and in writing to avoid any misunderstandings.
- Invite the individual to suggest any support, training, or resources he/she may need to comply with the directive.
- Clarify the specific consequences that will occur if the individual does not comply with the directive.

After the crucial conversation, it is important for leaders to monitor the individual's behavior and to follow through on the specific consequences if the person fails to adhere to the discussed behaviors. Even if the crucial conversation does not result in a positive outcome, it is an important component of clear communication with the rest of the staff. If leaders take the time to build understanding of the processes and behaviors vital to the success of PLCs but fail to address individuals who blatantly disregard them, it communicates to the staff that maybe those processes and behaviors are not so vital after all (DuFour, 2015). The goal for leaders in addressing the violations is not only about changing the individual's behavior but also to clearly communicate priorities throughout the school and/or district and to maintain trust and credibility with the staff (DuFour, et al., 2016).

Step 3: Celebrate Progress

While it is critically important to the success of PLCs for leaders to address conflict and resistance, it is equally imperative that leaders also recognize and celebrate the effort and incremental progress achieved throughout implementation (DuFour & Marzano, 2013). Intentional and specific celebrations serve to reinforce the shared mission, vision, collective commitments and goals of the school and/or district. Researchers consistently highlight the importance of planning for short-term wins to help members throughout the organization to maintain focus on the improvement efforts (Elmore & City, 2007; Fullan, 2011).

DuFour (2016) emphasizes that the PLC process is a journey, and unless people see evidence that the work is making an impact, they are not likely to continue the journey. School and/or district leaders must work within their leadership teams to establish a series of incremental,

manageable steps aligned with implementation of key elements of the PLC process that will be used to mark short-term wins along the way. For example, when every team has created a SMART goal and developed the collective commitments they will use to achieve that goal, leaders should publicly celebrate that with staff. Through leaders drawing attention to and publicly celebrating short-term wins, Fullan (2011) states that this helps people throughout the school and/or district to believe in their collective ability to tackle the next challenge as they build off of their previous successes. This creates positive momentum and builds both the individual and collective efficacy of the staff.

DuFour et al. (2016) recommend the following four keys for incorporating celebration into the school and/or district culture (pp. 222-223):

- **Explicitly state the purpose of the celebration**: The rationale for public celebration should be carefully explained at the outset of every celebration. Staff members should be continually reminded that celebration represents an important strategy for reinforcing the school and/or district's shared mission, vision, collective commitments and goals and that it is the most powerful tool for sustaining the improvement process.
- **Make celebration everyone's responsibility:** Recognizing extraordinary commitment should be the responsibility of everyone in the organization, and each individual should be called on to contribute to the effort. All staff members should have the opportunity to publicly report when they appreciate and admire the work of a colleague.
- **Establish a clear link between the recognition and the behavior or commitment you are attempting to encourage and reinforce:** Recognition must be specifically linked to the organization's mission, vision, collective commitments and goals if it is to play a role in shaping culture. It is imperative to establish clear parameters for recognition and rewards. The answer to the question, "What behavior or commitment are we attempting to encourage with this recognition?" should be readily apparent. Recognition should always be accompanied with a story relating the efforts of the team or individual back to the core foundation of the school and/or district. It should not only express appreciation and admiration but also provide others with an example they can emulate.
- **Create opportunities for many winners:** Celebration will not have a significant effect on the culture of a school or district if most people in the organization feel they have no opportunity to be recognized. In fact, celebration can be disruptive and detrimental if there is a perception that recognition and reward are reserved for an exclusive few. Developing a PLC requires creating systems specifically designed not only to provide celebrations but also to ensure there are many winners.

To support school and/or district leaders with implementation of this leadership strategy, the KDE has created a supplemental resource toolkit that includes resources, templates, samples and other supporting documents. The resources are located in Appendix B: Monitor Implementation.

Role of Teachers in Effective PLCs

The heart of the PLC process lies in the work of high-performing teams. According to Eaker and Keating (2015), teachers are the most important players in improvement efforts aimed at ensuring high levels of learning for all students. PLCs create the conditions in which teachers are valued, empowered and provided opportunities to continually grow and learn as true professionals. In a culture that embraces PLCs, teachers are viewed as the key transformational leaders in a school and/or district because of their position to directly impact classroom instruction and assessment aimed at improving student learning.

n a school and/or district that promotes a simultaneous loose-tight leadership approach, teachers are expected to work collaboratively in teams rather than in isolation, take collective responsibility for student learning and clarify the commitments they make to each other about how they will work together. Within the school and/or district established "tights," teachers are empowered to make important decisions, such as agreeing on team norms and goals, what to teach in each unit, the sequencing and pacing of the content, the assessments used to monitor student learning and the criteria used to assess the quality of student work (DuFour, et al., 2016).

When a school and/or district shifts from a culture of teacher isolation to one that requires collaboration, it is important for teachers to have clarity around the work they are being asked to do. DuFour, et al. (2016) stress that just having teachers merely collaborate will not improve a school: "The pertinent question is not, 'Are they collaborating?' but rather, 'What are they collaborating about?" (p. 59). The purpose of collaboration in a PLC is to improve student learning, and this can only be accomplished if the collaboration is focused on the right work. This once again ties back to the four critical questions that define the work of a high-performing PLC (Dufour, et al., 2016).

- **What do we expect our students to learn?** Teacher teams identify the essential knowledge, skills and dispositions each student is to acquire as a result of each unit of instruction.
- **How will we know if they are learning?** Teacher teams use team-developed common formative assessments to elicit and interpret evidence of student learning for each unit of instruction.

- **How will we respond when some students do not learn?** Teacher teams identify students who need additional time and support by standard for every unit of instruction. They use evidence of student learning from common formative assessments to analyze and improve their individual and collective instructional practices.
- **How will we extend learning for students who already know it?** Teacher teams identify students who have reached identified learning outcomes to extend the student's learning.

Building Trust in a PLC

For teachers to work collaboratively to address the four critical questions, they must overcome the fear that they may be exposed to their colleagues and administrators as ineffective. The using student results from common formative assessments may show one teacher as being less effective than another teacher can cause teachers to feel exposed and vulnerable. To help teachers in overcoming this fear, Patrick Lencioni (2003) argues that the first and most important step to creating a cohesive and highly effective team is to establish vulnerability-based trust. Graham and Ferriter (2010) also state that trust may be the most important ingredient in developing a highly functional PLC. When trust is present, teachers on effective teams learn to acknowledge their own mistakes, weaknesses and failures. Based on analysis of student learning, they ask for help from colleagues with strong student results. They recognize and value other team members' strengths and are willing to learn from each other to improve learning for all students (Lencioni, 2003).

According to Marzano, et al. (2016), when trust is not present in a collaborative team, members tend to blame each other when problems arise instead of working together to address them. Members may waste time and energy focusing on how to make themselves look better in relation to their peers and are not as likely to speak up and share their honest opinions. Additionally, Lencioni (2003) states that a lack of trust may lead to the avoidance of productive conflict as teams avoid topics that require them to work interdependently. They settle for the appearance of agreement rather than engaging in inquiry and advocacy focused on improving the results of student learning. This superficial harmony leads to members not pushing each other to honor the agreement, which leads to a lack of accountability. This, in turn, violates the very heart of a high performing PLC in which teams work interdependently in order to achieve common agreed-upon goals for improving student learning in which all members are mutually accountable.

When trust is present on a team, it supports productive collaboration as teachers discuss PLC-related issues, such as clarifying what the standards are asking students to know and be able to do, creating assessments to measure student learning, reviewing assessment data and discussing evidence-based instructional strategies. Marzano, et al. (2016) stresses that

"productive collaboration does not mean that everyone agrees all the time. In fact, it often means the opposite - frequent disagreement is necessary" (p. 27). However, team members should argue about ideas and practices that improve learning, rather than with each other.

As teams work to develop trust, Hord and Sommers (2008) provide the following conversational guidelines for respectful and productive discussions:

- **Listen**: Focus what is being said instead of waiting for your turn to speak.
- **Set aside judgement**: Remain open to various perspectives and new ideas.
- **Ask questions**: Seek clarity before making a decision about what has been said.
- **Make observations:** State your perspective or restate another person's perspective without passing judgment.
- **Stay open**: Let the discussion run its course; do not force judgement or decisions too soon.
- **Clarify goals:** Restate and ask questions to clarify the goal of the conversation; shift focus to what the team wants, rather than what the team does not want.

One way to support teams in developing trust is to utilize norms and protocols as they work collaboratively to address the four critical questions of a PLC. Norms refer to the standards of behavior that members agree upon and are often referred to as "commitments." According to Mattos, et al. (2016), "norms enhance productivity, promote collaboration, and create the environment for a successful experience among adults in the school" (p. 65).

Protocols provide an outline of a process teams may use to accomplish a task or to develop a product. They provide a structure that guides the team's conversations and typically includes a recommended time frame for each step of the process. Many protocols also describe specific roles and responsibilities each member of a team will play. As teams work to build trust among its members, protocols help create the conditions necessary to promote more effective conversations around improved teaching and learning (Mattos, et al., 2016).

To support PLCs with implementation of this action step, the KDE has created a supplemental resource toolkit that includes resources, templates, samples and other supporting documents. The resources are located in Appendix C: Annual Work of a PLC.

Create Team Norms

Building trust on a team is an ongoing process but is a critical element necessary to support productive collaboration. In addition to establishing clarity around the work they will do, teachers also benefit from establishing clarity around how they will work together and the expectations of each member of the team. One of the first steps to establishing trust is for

teams to create norms that clarify their expectations of one another regarding procedures, responsibilities and relationships (DuFour, et al., 2016).

Team norms act as the guiding principles by which a collaborative team governs itself and its work. They help validate the purposes of the team and serve as a reminder of how the team members have agreed to work together (Marzano, et al., 2016). According to DuFour, et al. (2016), "when individuals work through a process to create explicitly stated norms, and then commit to honor those norms, they increase the likelihood they will begin to function as a collaborative team rather than as a loose collection of people working together" (p. 72).

Before a team works through a process to develop their norms, DuFour, et al. (2016) recommends that members have an open and honest conversation about the expectations they have and to reflect on and discuss their past experiences working with groups. It is helpful to have each member describe a time when he/she was a member of a group, committee, task force, etc., that proved to be a negative experience and to explain the specific behaviors or conditions that made it so negative. Then, have each member describe an experience in which he/she felt a part of an effective team and identify the specific behaviors or conditions that attributed to its success. The team can use the responses to identify commitments that would prevent the negative and promote the positive aspects if all participants agree to honor those norms.

Creating norms is not about simply establishing rules of behavior. Norms clarify promises that cultivate trust in a team. During the process of developing norms, discussion should occur around how the teams will address topics such as time (punctuality and timeliness), communication (listening and responding), decision making (inquiry and advocacy), participation (attendance and engagement), expectations (roles and responsibilities) and conflict resolution (Garcia, et al., 2015; Mattos, et al., 2016). When creating team norms, DuFour, et al. (2016) offer the following considerations (pp. 73-74):

- **Each team should create its own norms:** Asking a committee to create team norms all teams should honor is ineffective. Norms are collective commitments that members make to each other, and committees cannot make commitments for a team. Norms should reflect the experiences, hopes and expectations of a specific team's members.
- **Norms should be stated as commitments to act or behave in certain ways rather than as beliefs:** The statement, "We will arrive at meetings on time and stay fully engaged throughout the meeting," is more powerful than, "We believe in punctuality."
- **Norms should be reviewed at the beginning and end of each meeting for at least six months:** Norms only impact the work of a team if they are put into practice over and over again until they become internalized. Teams should not confuse writing norms with living norms.

- **Teams should formally evaluate their effectiveness at least twice a year:** This assessment should include exploration of the following questions:
    - Are all members adhering to the norms?
    - Does the team need to establish a new norm to address a problem occurring on the team?
    - Are all members of the team contributing to its work?
    - Are all members working interdependently to achieve the team's goal?
- **Teams should focus on a few essential norms rather than creating an extensive laundry list**: Less is more when it comes to norms. People do not need a lot of rules to remember, just a few commitments to honor.
- **One of the team's norms should clarify how the team will respond if one or more members are not observing the norms**: Violations of the team norms must be addressed. Failure to confront clear violations of the commitments members have made to each other will undermine the entire team process.

Once a team has created a final list of norms, members should come to a shared understanding of what each norm really means. This includes developing a brief description of what each norm might "look like" or "sound like" if it were being followed (Marzano, et al., 2016).
As a final step, each team should describe the process for how members will respond when an individual violates a team norm. When teams clarify what will happen when members violate the norms at the beginning of the collaborative team process, it helps to establish the rules of engagement before conflict arises. Mattos, et al. (2016) offers the following suggestions for addressing a norm violation (p. 63):

- Give a nonverbal cue that a norm has been violated. Team members might pick up an object (for example, a stuffed animal representing the school's mascot or the face of Norm from the television show *Cheers* mounted to a stick) to signal that a norm has been broken and then proceed to describe how the norm was broken.
- Put the topic (the specific norm) on the next agenda and talk about the impact violating the norm has on the team.
- The team leader or team discusses the problem with the individual who did not honor the norm in an effort to recommit that person to the norm process.
- Facilitate a conversation with the principal between the team and the person who is violating the norm.

After teams create their final list of norms and identify the process it will use when a team norm is violated, it is important that each team revisits its norms continually in order for them to impact how they work together. Boudett and Lockwood (2019) contend that "norms are most useful once the group is far enough along in its work for the 'honeymoon' stage to have

ended and disagreements to arise" (p. 16). If the team does not keep their norms alive, they will not be of use when they get to this point.

Boudett and Lockwood (2019) offer several suggestions to help teams keep their norms alive. Teams might display their norms on chart paper or print them on the agenda for each meeting. Teams might periodically use a norms check-in, which allows team members to rate themselves on how well they believe they are following each norm and to select one norm to focus on for the meeting or next several meetings. Another possible idea is for teams to utilize a plus/delta protocol at the end of each meeting. Team members identify what went well during the meeting (pluses) and what they can change next time to improve the team's collaboration (deltas). This information is used in planning for the next meeting to honor what is working well and to make necessary adjustments to address the areas of improvement.

To support PLCs with implementation of this action step, the KDE has created a supplemental resource toolkit that includes resources, templates, samples and other supporting documents. The resources are located in Appendix C: Annual Work of a PLC.

Establish Team SMART Goal

According to DuFour and Marzano (2011) for a group to truly function as a team, members must work interdependently to achieve common goals for which all members are mutually accountable. This begins with each team establishing a SMART goal that specifically calls for evidence of improved learning for all the students they serve. Schoolwide goals alone will not impact student achievement. Teachers must translate the broader goals of the school and/or district into specific goals for their grade-level or course content teams (McDougall, Saunders, & Goldenburg, 2007). To help provide greater clarity, the SMART acronym can assist teams in establishing appropriate goals. A SMART goal is (Conzemius & O'Neil, 2013):

- **Strategic and specific**: Team's goal is aligned with the goals of the school or district.
- **Measurable**: The goal includes quantifiable terms.
- **Attainable**: The team believes the goal is achievable.
- **Results-oriented**: The goal requires evidence of improved student learning.
- **Time bound:** The goal will be accomplished within a specific period of time.

The purpose of the goal is to assist teams in analyzing their practice, monitoring evidence of student learning and adjusting their practice to improve student performance. If teams do not establish clear, achievable goals, they may have a false sense that all is well and fail to improve both their practice and student learning. The team SMART goal is at the heart of their work and helps to move team members from good intentions to results and from the abstract to actionable steps (Garcia, et al., 2015). Every member of the team must be clear on the goal,

how he/she can contribute to achieving the goal and the specific evidence the team will gather to monitor progress towards the goal (DuFour & Marzano, 2011).

It is important that SMART goals are established *by* each team and not *for* the teams. It should be based on past student achievement, which serves as the benchmark for improving student learning, and include the improvement goal for the indicator being monitored (DuFour, et al., 2016). The following are examples of team SMART goals adapted from *Learning by Doing* (DuFour, et al., 2016):

- Example 1:
  - **Current Reality:** Last year, 76% of the first grade students scored at proficiency/advanced levels in mathematics as measured by the district's end-of-year assessment.
  - **Team SMART Goal**: By the end of this school year, at least 81% of the first-grade students will score at the proficiency/advanced levels in mathematics as measured by the district's end-of-year assessment.

- Example 2:
  - **Current Reality:** Last year, 68% of the freshman English students earned a final grade of C or better.
  - **Team SMART Goal**: By the end of this school year, at least 75% of the freshman English students will earn a final grade of C or better.

- Example 3:
  - **Current reality**: Last year, 35% of students in our school enrolled in at least one advanced placement (AP) course. 73% of those students scored 3, 4, or 5 (passing scores) on the end-of-course national AP exam.
  - **Team SMART Goal:** This year, 48% of the students in our school will enroll in at least one AP course. At least 75% of those students will score 3, 4, or 5 (passing scores) on the end-of-course national AP exam.

Dufour, et al. (2016) recommends that collaborative teams establish annual SMART goals that are attainable but also include short-term goals that can serve as benchmarks to measure progress along the way. Teams need to feel reasonably confident that through their collective actions they have the capacity to reach their goals. By setting smaller goals for each unit, teams can measure incremental progress and make adjustments as needed along the way to reaching the team's overall goal. These short-term goals also serve as opportunities for frequent feedback, intermittent reinforcement and sources of celebration to build and sustain the team's motivation, as well as their individual and collective efficacy.

To support PLCs with implementation of this action step, the KDE has created a supplemental resource toolkit that includes resources, templates, samples and other supporting documents. The resources are located in Appendix C: Annual Work of a PLC.

Addressing Question # 1: What do we expect our students to learn?

One of the most critical factors that impacts student success is access to a guaranteed and viable curriculum. Marzano (2003) states that the work of translating the standards into a guaranteed, viable curriculum at the local level is the single most important initiative a school or district can engage in to raise student achievement. For the curriculum to be *guaranteed*, it must ensure that specific content is taught in specific courses and at specific grade levels, regardless of the teacher assigned to the student. To be *viable*, schools and districts must ensure enough instructional time is available to actually teach the essential knowledge, skills and/or concepts in each unit of instruction.

Simply creating and distributing a copy of the school or district curriculum aligned to the *Kentucky Academic Standards* (KAS) does not guarantee students have access to the same knowledge and skills. Often gaps exist between the school or district-established curriculum and what is actually implemented by teachers in classrooms. If a school is committed to ensuring all students learn at high levels, then it must have a process in place in which teachers work collaboratively to respond to the question of "Learn what?" According to DuFour, DuFour, and Eaker (2008) "schools are more effective when the teachers within them have worked together to establish a clear and consistent understanding of what students must learn' (p. 186). DuFour, et al. (2016) stresses that the "entire PLC process is predicated on a deep understanding on the part of all educators of what all students must know and be able to do as a result of every unit of instruction" (p. 113).

Providing students access to a guaranteed and viable curriculum does not take away from an individual teacher's autonomy. Dufour, et al. (2016) states that implementing a guaranteed and viable curriculum "does not mean that teachers must adhere to lockstep pacing by which all members are teaching from the same page on the same day. It does not mean that all teachers must use the same instructional strategies or same materials" (p. 113). However, it does mean that during the designated time frame established by the team for presenting a given unit, each team member will work to ensure every student acquires the essential learning outcomes for that unit. Clarifying the essential knowledge, skills and/or concepts allows teachers to establish the *what* of the curriculum, but each teacher is still responsible for determining *how* to most effectively present the content to his/her students (Mattos, et al., 2016).

The following list provides possible action steps teachers can use as they engage in collective inquiry to address the first question of a PLC for each unit of instruction:

1. Collectively study the standards using the KAS documents, local curriculum documents and other supporting internal and external resources.
2. Clarify and reach consensus on the essential knowledge, skills, and/or concepts necessary for students to reach the intended depth of the grade-level standards for that unit.
3. Determine a learning progression that leads students to what they are expected to know and be able to do.
4. Determine what proficiency looks like for each essential learning outcome.
5. Establish common pacing guides and agreed-upon assessment schedules.
6. Commit to one another to actually teach the agreed-upon curriculum.

Identify Essential Learning Outcomes

As teachers work collaboratively to prepare for each unit of instruction, they must start with identifying the essential learning outcomes. If teachers are not clear on what students should know and be able to do and how it will be measured, it is not likely their students will learn. As stated by Fisher, et al. (2020), all students need to learn at high levels, "not by chance but by design" (p. 32). This requires moving beyond just looking at pacing guides and curriculum maps to members of a collaborative team spending time learning together to gain clarity around the standards and to make decisions about the learning pathway for each unit of instruction.

Responding to the question of what students need to know and be able to do requires the team to analyze the KAS standards, local curriculum documents and other supporting resources as they engage in professional dialogue about the specific knowledge, skills and/or concepts required to meet the intended depth of the standards. It is important to note that the *KAS documents* were written by teachers with an intentional focus on providing support to teachers in understanding the grade-level expectations, whether this is through mini-progressions, coherence statements, multidimensionality or complete K-12 progressions. In addition, the Breaking Down a Standard Protocols walks teachers through a process that guides the collaborative team in utilizing the different components within the KAS documents to gain greater clarity of their grade-level or course standards.

Discussion and analysis of the standards prior to beginning a unit of instruction ensures all team members have common expectations for learning aligned to the appropriate depth for all students. It helps to create a clear path forward that allows teachers to stay focused on what students *need* to know, understand, and be able to do to meet the grade-level expectations and to avoid potential distractions or digressions of what is just *nice* to know and be able to do. As teams consistently work together, unit by unit, to review and discuss the standards and local

curriculum documents, it helps to build both the individual and collective efficacy of the team (Fisher, et al., 2020).

Determine a Learning Progression

Once the team has determined what specific knowledge, skills and/or concepts are required for students to meet the grade-level expectations within the unit of study, the next step is to determine the appropriate learning progression necessary to help students reach those expectations. DuFour and Marzano (2011) define learning progressions as "attempts to organize the academic content into a progression of increasingly more complex and generalizable knowledge" (p. 111). This requires the team to consider the subksills or knowledge required to access the skills and concepts within the standard as a whole. Fisher, et al. (2020) offers the following questions teams can use to create a possible learning progression (p. 39):

- What prior knowledge is necessary for learners to successfully engage in this learning?
- What skills and concepts did students need to master in prior standards?
- What learning experiences must they have to successfully build their prior learning and background knowledge?
- What key vocabulary is explicit or implicit within the verbiage of the standard or curriculum expectations?
- What scaffolding is necessary for all learners to successfully engage in this learning?
- What do we know about students that can make these learning experiences more meaningful?

Once created, the learning progression is used to guide the team as they develop the learning intentions and success criteria for each lesson or series of lessons within the unit of instruction. It also serves as a diagnostic roadmap they can use to identify where potential learning gaps exist when students struggle. Additionally, the collaborative team can use their understanding of the learning progression to consider areas that may need to be explored and addressed in subsequent meetings. It also allows the team to identify areas that may require additional support to build member's individual and collective efficacy which allows for true job-embedded professional learning (Fisher, et al., 2020).

Determine Proficiency

When team members have gained clarity regarding the essential knowledge, concepts and/or skills required for students to meet the grade-level expectations, the next challenge is to determine what represents proficiency. Teachers need to think through the question of "What would this standard, if mastered, look like in terms of student work?" What evidence must students produce to demonstrate they have met each essential learning outcome? The team

will use this shared understanding of what proficiency as they work together to address the second question of a PLC, "How will we know if they are learning?"

Establish Pacing Guide

In order for teachers to determine if all students are reaching proficiency on the essential learning outcomes for each unit and to provide the necessary supports and enrichments, the team needs to establish a common pacing guide and assessment schedule. Having a common pacing guide in no way means that teachers must teach the exact topic in the same way each day, but it does establish an overall timeline for a unit of instruction. It also includes the agreed-upon dates the team will administer common formative assessments and the unit summative assessment, as well as time for the team to respond to the results from each common formative assessment. The day-to-day pacing may vary from teacher to teacher, but the entire team knows that on certain dates during the unit, instruction stops and the entire team administers its common assessments. Mattos, et al. (2016) stresses that "without common pacing, it is impossible for a team to provide students with equal access to a guaranteed and viable curriculum" (p. 105).

The work of creating a guaranteed and viable curriculum is a never-ending process. DuFour (2015) recommends that teacher teams should review and revise each unit's essential learning outcomes every year. This allows teams to review their curriculum and make adjustments based on the needs of their students and the professional learning of the team as they work to improve their individual and collective practice based on student results. In addition, it provides new teachers with an opportunity to participate in the collective inquiry process to better understand the standards and the essential learning outcomes for students and to create a sense of ownership of the grade-level or course curriculum.

For more information on developing learning goals and success criteria, please reference the Evidenced-Based Practices Section of the Model Curriculum Framework.

To support PLCs with implementation of this action step, the KDE has created a supplemental resource toolkit that includes resources, templates, samples and other supporting documents. The resources are located in Appendix C: Recurring Work of a PLC.

Addressing Question # 2: How will we know if students are learning?

If a school and/or district is truly committed to ensuring all students learn at high levels, it must have a systematic process in place to gather evidence of each student's learning on an ongoing basis. The second question of a PLC, "How will we know if they are learning?" calls on collaborative teams to develop common formative assessments in order to monitor the learning of each student, skill by skill, on a frequent and timely basis (Eaker & Keating, 2015).

After teams have clarified the intended learning outcomes for an instructional unit, they work together to create common formative assessments aligned to measuring those outcomes and establish the criteria they will use to assess the quality of student work (DuFour & Fullan, 2013).

Mattos, et al. (2016) argues that the second question serves as the linchpin of the PLC process. In order to answer this question, a team must agree on what students must know and be able to do. Then, once the assessment is given, the team is then able to respond to the third and fourth questions of a PLC of "How will we respond to students who have not learned?" and "How will we enrich and extend for those who are already proficient?" So, the driving questions of a PLC flow up and down from this critical second question.

Collaborative teams use team-created common formative assessments to ensure all students who are in the same curriculum and are expected to acquire the same knowledge, concepts, and/or skills are assessed using the same instrument or process, at the same time or within a very narrow window of time. The team then uses the evidence of student learning gathered from their common formative assessment to inform their individual and collective practice in four ways (DuFour, et al., 2016, p. 136):

- To inform each teacher of individual students who need intervention because they are struggling to learn or who need enrichment because they are already proficient;
- To inform students of the next steps they must take in their learning;
- To inform each member of the team of his/her individual strengths and weaknesses in teaching particular skills so each member can provide or solicit help from colleagues on the team; and
- To inform the team of areas where many students are struggling so that the team can develop and implement better strategies for teaching those areas.

As part of a balanced assessment system, evidence of student learning is elicited in many ways and for a variety of purposes, from large scale district and state assessments to the day-to-day use of the formative assessment process. Common formative assessments are only one element of a balanced assessment system. The system also relies on individual teacher's day-to-day assessments, unit summative assessments, interim district benchmark assessments and state and national assessments (DuFour, et al., 2016). The use of common formative assessments does not take away from teachers' autonomy; individual teachers are still empowered to use a variety of instructional strategies and administer their own quizzes and assignments to assess student understanding minute-by-minute, day-by-day while teaching a given unit in order to make decisions about where to go next in their daily instruction (Mattos, et al., 2016).

Creating Common Assessments

In order for educators to help students acquire the essential knowledge, concepts and/or skills, for the unit they must create assessments that provide information on each student's proficiency on the intended learning outcomes in a timely manner. DuFour, et al. (2016) recommends that the first step be the same as the first step in every aspect of the PLC process - the team must spend time learning together. Collaborative teams must engage in collective inquiry regarding best practices in monitoring deeper learning of their students and apply those insights as they work to create common formative assessments and the end-of-unit assessment.

When creating common assessment aligned to the essential learning goals for the unit, the team may need to write some items for scratch or use aligned items from other sources, such as publishers' tests, released items from state or national assessments or past exams. The format of the assessment should reflect the essential learning the team is assessing and provide the most useful information about each student's proficiency (Mattos, et al., 2016). What is critically important is that the level of rigor of the items used are aligned to the depth of the standards being assessed. When there is a disconnect between the intended learning outcome and the assessment question, the assessment is no longer valid. Ensuring that each learning goal clearly connects to specific items or key features within assessment items is a key alignment strategy (Bailey & Jakicic, 2017).

As teams work collaboratively to create their common assessments, they can use the following steps to help structure the work (Bailey & Jakicic, 2017):

1. Determine which essential learning goals from the unit to include on the assessment.
2. Discuss the cognitive demand associated with each learning goal.
3. Decide what type of assessment item to use and how many will be necessary to ensure reliability.
4. Match the rigor and the learning goal to the type of item that will best assess it.
5. Decide how many questions the student must get correct or what level of a rubric or other established criteria the student must achieve in order to be considered proficient.
6. Review the assessment plan to determine how much time the assessment will take.

The length of the assessment is dependent on its purpose and the number of learning goals being assessed. Mattos, et al. (2016) suggests creating common assessment that focus on smaller chunks will yield deeper understanding of the learning, help identify potential problems earlier and provide a more specific focus for interventions. In general, smaller, more frequent assessments over fewer learning goals are more likely to generate the most focused evidence of student learning.

All team members must review, discuss and agree that each item is clearly aligned to one of the learning goals being assessed in order for it to be used on the assessment. The process of teachers grappling with the type of evidence they need to gather to assess student learning is more important than the end product of the assessment itself (Mattos, et al., 2016). As the team engages in professional discourse on the type of evidence required to determine if students have reached the intended learning outcomes, it will also impact their understanding of the type of learning experiences students will need in order to reach the expectations and possible ways to scaffold and support their learning.

While common assessments provide teams with important information on student learning, they need to gather evidence from a variety of sources. Mattos, et al. (2016) cautions that "relying on any one type, method, model, or format of assessment would be a seriously flawed assessment strategy. Assessment of a student's work should provide a rich array of information on his or her progress and achievement. The challenge is to match appropriate assessment strategies to curricular goals and instructional methodologies'' (p. 104).

Analyzing the Results

After administering any common formative assessment and the end-of-unit assessment, teams need to meet in a timely manner to discuss, analyze and respond to their assessment data. As collaborative teams work to analyze the data, they must look at the results through both a student-focused lens and a teacher-focused lens (Garcia, et al., 2015). Analyzing the results through a teacher-focused lens requires the team to look critically at their instructional practices used in the teaching of the content and identify strengths and weaknesses. This discussion can assist teams as they plan for student intervention and enrichment and to make adjustments for future instruction. The following questions can support teams as they analyze their results through a teacher- focused lens (Garcia, et al., 2015, p. 61):

- What instructional strategies appeared to work well?
- What instructional strategy or practice failed to produce results for the whole group as well the subgroups?
- According to the data, what lesson or activity should the team reconsider?
- What questions need to be reviewed and changed on the assessment?

In terms of a student-focused lens, the team uses the results to identify students, skill-by-skill, who did not reach proficiency who require additional time and support, as well as students who were proficient and would benefit from extending and enriching their learning. The following questions can support teams as they analyze their results through a student- focused lens (Garcia, et al., 2015, p. 61):

- How many students achieved a level well above proficiency, how many achieved a level just above proficiency, and how many did not achieve proficiency?
- What knowledge, concept and/or skills appeared to be especially difficult?
- What patterns emerged in terms of student performance by question difficulty?
- What patterns emerged as far as subgroups?
- How helpful do students find the assessment to be in providing feedback on their learning?

The one activity that often creates the greatest discomfort for a team is sharing the results of student learning from the common assessments with their colleagues. To avoid this discomfort, teams will often administer the common assessment but fail to be transparent when sharing the results. Conversations tend to stay surface level as the team only speaks in generalities about student learning, and they fail to use the results to examine the effectiveness of their instruction (Dufour, 2015).

DuFour (2015) argues that when the teams fail to use the results from their common assessments to improve their individual and collective practice, it circumvents the entire PLC process. He emphasizes that "this collective analysis and professional dialogue is the crux, the very essence, of the work. It brings student learning and instructional practice into the open. It is, in short, what real PLCs do. To fail to engage in this crucial element of the process is to fail to function as a PLC. If students are to learn at high levels, educators must assign a higher priority to improving student achievement than they do to preserving tradition or avoiding discomfort" (p.187).

The use of protocols is one way to build a team's capacity to analyze evidence of student learning. Protocols provide a structure for the team's conversation as they analyze the results of common assessments in a safe environment. They help ensure all voices are heard and prompt the team to examine success as well as failure. As the team repeatedly uses the protocol when examining evidence of student learning, it builds each member's skill in the type of professional dialogue necessary to improve learning for both students and adults (DuFour, 2015).

Each year, the collaborative team should revisit the results of their analysis from the previous year as they prepare to teach the same unit. They should examine areas where students experienced difficulty on the assessments, possible reasons why students struggled and any adjustments or corrections taken to improve their ability to teach those skills or concepts more effectively. The team would then set a short-term SMART goal for the unit focused on improving student achievement from the previous year. As teachers continuously use past evidence of student learning to improve student learning for the current year, it helps to drive the continuous improvement process of a PLC (DuFour, et al., 2016).

In their book, *Learning by Doing,* Dufour and colleagues (2016) argue that the benefits of using team-developed common assessments for formative purposes are so powerful that no teacher team should be allowed to opt out of creating them. They offer the following seven reasons (pp. 142-146):

- **Common assessments promote efficiency for teachers:** If all students are expected to demonstrate the same knowledge and skills regardless of the teacher to whom they are assigned, it only makes sense that teachers would work together to assess student learning. It is ineffective and inefficient for teachers to operate as subcontractors who are stationed in proximity to others yet work in isolation. Those who are called upon to complete the same task benefit by pooling their efforts.
- **Common assessments promote equity for all students:** When schools utilize common assessments, they are more likely to ensure that students have access to the same essential learning goals within each unit, use common pacing and assess the quality of student work according to the same criteria. Schools will continue to have difficulty helping all students achieve at high standards if the teachers within them cannot develop the capacity to define a standard with specificity and assess it consistently.
- **Common assessments represent a powerful strategy for determining whether the guaranteed curriculum is being taught and, more importantly, learned**: As teachers work together to study the elements of effective assessment and critique one another's ideas for assessment, they improve their assessment literacy. Perhaps, most importantly, teachers' active engagement in the development of the assessment leads them to accept greater responsibility for the results.
- **Common assessments inform the practice of individual teachers**: Common assessments provide teachers with a basis of comparison as they learn, skill by skill, how the performance of their students is similar to and different from the other students who took the same assessment. With this information, a teacher can seek assistance from teammates on areas of concern and can share strategies and ideas on skills in which his/her students excelled.
- **Common assessments build a team's capacity to achieve its goals:** When collaborative teams of teachers have the opportunity to examine achievement indicators of all students in their course or grade level and track those indicators over time, they are able to identify and address problem areas in their curriculum. Their collective analysis can lead to adjustments to the curriculum, pacing, resources and instructional strategies designed to strengthen the academic program they offer.
- **Common assessments facilitate a systematic, collective response to students who are experiencing difficulty:** Common assessments help identify a group of students who need additional time and support to ensure their learning. Because the students are identified at the same time and because they need help with the same specific skills that

have been addressed on the common assessment, the team and school are in a position to create timely, directive and systematic interventions.

- **Common formative assessments are one of the most powerful tools for changing the professional practice**: There are two powerful levers that can persuade teachers to change their practice. The first is concrete evidence of irrefutably better results. The other is the positive peer pressure and support that come with being a team member. When people work interdependently to achieve a common goal for which all members are mutually accountable, the performance of each individual directly impacts the ability of the team to achieve its goal.

To support PLCs with implementation of this action step, the KDE has created a supplemental resource toolkit that includes resources, templates, samples and other supporting documents. The resources are located in Appendix C: Recurring Work of a PLC.

Addressing Question # 3: How will we respond when some students do not learn?

How a school responds to the third question of a PLC, "How will we respond when some students do not learn?" is one of the key distinctions between those that have fully embraced the PLC process and those that are PLC-lite. If a school is to truly act on their belief of ensuring all students learn at high levels, it must create a systematic process to respond to students who experience difficulty in their learning.

As part of a multi-tiered system of supports (MTSS) framework, schools should create and implement a schoolwide system of interventions that provides targeted and timely support to struggling students. The success of an effective schoolwide system is built upon the idea that all teachers implement and all students receive high-quality Tier I instruction at the classroom level. In general, at least 80-85% of students should meet proficiency of the essential learning goals though strong Tier 1 instruction. If this is not occurring in a school or within a specific collaborative team, then improvement efforts should focus on strengthening the quality of initial instruction at the classroom level. Fisher, et al. (2020) cautions that "bad instruction should not be covered up by having a majority of learners receiving a tiered system of support" (p. 166). Schools and/or district will never close the learning gap without an intentional focus on providing quality Tier 1 instruction along with the effective development and use of common formative assessments (Bailey & Jakicic, 2017).

However, even the most effective Tier 1 instruction will not meet the needs of all students. When teachers introduce a new essential learning goal, the team and the school must anticipate that some students will not achieve proficiency by the end of initial classroom instruction (Mattos, et al., 2016). it is impossible for a single teacher to meet the diverse needs

of all his/her students. This is why it is crucial that a school creates a systematic intervention process that ensures all struggling students receive additional time and support in addition to what an individual classroom teacher can provide (DuFour, et al., 2016).

Dufour, et al. (2016) argues in order for a multi-tiered system of supports to be effective, every faculty member has a role in the schoolwide system of interventions. As teachers work in collaborative teams through the PLC process, they take primary responsibility for determining the essential knowledge, concepts, and/or skills for each unit of instruction, teaching the curriculum and monitoring student learning. As a result, they are in the best position to identify who needs additional time and support *by student, by standard*. Within each standard, the team further breaks this down as they identify *by student, by skill*.

In *Taking Action: A Handbook for RTI at Work*, Buffum, et al. (2018) stress that the best intervention is prevention. The authors define prevention as the interventions that occur as a part of Tier I instruction at the classroom level to help close student learning gaps. This requires teacher teams to proactively identify potential challenges students might encounter and to take steps to remove those barriers. In doing so, more students are likely to experience immediate success and fewer students will need additional support beyond the Tier 1 level. Possible criteria a team might consider in identifying barriers for students include gaps in prerequisite skills, predictable developmental needs, transitional needs, and previous struggles.

As collaborative teams analyze the results from their common formative assessments and end-of-unit assessments, part of the discussion should focus on a teacher- to- teacher comparison of which teacher(s) had the greatest success with each essential learning goal. Based on this comparison, teachers should then discuss which strategies and resources led to greater student achievement. It is not about who is the best teacher, but rather a focus on what the evidence shows and how those results were obtained. Teams can then use this information to support student interventions by assigning students that struggled with specific learning goals to the teacher or teachers with the best results for that same goal. In addition, teams also should make note of these strategies and resources so the entire team can utilize them during that same unit the next time they teach it (Buffum, Mattos, & Malone, 2018).

One of the most common ways collaborative teams respond to results from common formative assessments at the Tier 1 level is to create differentiated groups based on common mistakes and misconceptions from the assessment and plan a specific lesson designed to address those issues. Whatever instructional response is used to provide the remediation, it must be different than what was used during the initial instruction. Teams can use the instructional strategies they identified as part of their data analysis that yielded the highest results on the common formative assessment (Bailey and Jakicic, 2017).

Other possible responses at the Tier 1 level include using manipulatives to make a concept more concrete, providing examples and nonexamples to help students more clearly see the concept, teaching specific scaffolding strategies like chunking text, and using graphic organizers (Bailey & Jakicic, 2017). When teams have assessed the essential learning goals through their common formative assessments and provided students additional support at the classroom level, teachers must reassess those students to ensure they are now proficient on the targeted learning goals. If they are not yet proficient, the students will be provided supplemental Tier 2 academic supports that target the specific learning goals (Bailey & Jakicic, 2017).

When teachers administer the end-of-unit assessment and analyze the results, they may find that some students have yet to reach proficiency on one or more essential learning outcomes for a given unit. In an effective RTI system, Tier 2 represents the targeted supplemental supports some students will receive to help them reach proficiency on the grade-level essential learning goals (Bailey & Jakicic, 2017). These supports are provided to students in addition to Tier 1 instruction, not in place of it. Once again, the interventions should be targeted by student, by standard. DuFour, et al. (2016) recommends that the school schedule dedicates a thirty-minute block of time at least twice a week for students to receive additional time and support to master the essential grade-level learning goals. This time is meant to be both flexible and fluid in which students should be able to move in and out of these interventions once they achieve mastery of the specific learning goals.

When designing supplemental Tier 2 academic interventions, Buffum, et al. (2018) offers the following six-step problem-solving process (pp. 164-166):

- **Identify concerns:** The teacher team uses the common end-of-unit assessment data to discuss team members' concerns regarding some of the students that were not successful. The team looks for common patterns affecting all groups of students and digs down to discover what may be impacting individual students. It also discusses concerns about the assessment itself and whether it is constructed in such a way to yield valid and reliable information about the students.
- **Determine cause:** The teacher team should consider the various streams of formative assessment information it gathers during Tier 1 instruction, as well as the end- of unit assessment results, in order to diagnose more specifically the causes leading some students not mastering the standards. Typically, this results in forming three to five different intervention groupings at a grade level or within a particular course. Each grouping reflects the different causes leading to student struggles.
- **Target desired outcome:** The teacher team now discusses exactly what desired outcomes each grouping of students must achieve as a result of the supplemental Tier 2 interventions. Rather than discussing what students have not been able to do, the team states exactly what it wants them to be able to do.

- **Design intervention steps:** Next, the teacher team brainstorms potential intervention strategies for each targeted group and shares any resources available with the staff assigned to a particular group. Many times, these strategies emerge as teacher team members compare their scores with one another. When one teacher records results that are significantly better than those of teammates, the teachers collectively inquire about how that teacher produced those results. What strategies, materials and techniques did he/she use?
- **Monitor progress:** The team now decides what tools to use to monitor the progress of students receiving the supplemental Tier 2 interventions. Often, the end-of-unit assessment questions provide much, if not all, of what teams need to know about whether a student has achieved mastery of a learning goal or goals underpinning the standard.
- **Assign lead responsibility:** The teacher team next discusses which staff members are most highly qualified to help which students. This important step should consider:
    - Which staff have special training in a particular area (for example, phonemic awareness)?
    - Which staff record stronger results on particular learning goals from the end-of-unit assessment when compared to other teachers on the team?
    - Which additional staff (administrators, counselors, instructional aides) might be trained and able to assist certain groups of students?
    - How will additional staff providing interventions gain understanding of the standards assessed, the learning goals supporting the standards and the exact causes impacting student achievement?

When every teacher in a school has a strong Tier 1 system in place, the building will begin to see a decrease in the number of students requiring Tier 2 and Tier 3 supports. In order for this to happen, it is critical that collaborative teams fully embrace the PLC process, which starts with developing clarity on the essential learning outcomes and the way in which those outcomes will be measured through team-created common assessments (Garcia, et al., 2015). Addressing the first two questions of a PLC as a part of Tier 1 instruction helps teams to create the instructional focus and ongoing assessment process necessary to provide an effective response when students struggle (DuFour, 2015).

In addition, teams must use the result of those assessments to improve their individual and collective capacity in order to provide strong Tier 1 instruction for their students. They must engage in job-embedded professional learning to address areas where the team as a whole struggle to help students reach proficiency on one or more essential learning goals. Effective Tier 1 instruction requires all teachers to use evidence-based practices that have the greatest impact on student learning while also empowering teachers to bring their own style into their

instruction. The key is to identify and leverage the right practices all students must receive regardless of the teacher they are assigned as a part of the guaranteed and viable curriculum (DuFour, 2015).

For more information about interventions and how they fit into the bigger picture of the Multi-Tiered System of Supports (MTSS) framework, please visit KDE's MTSS website.

To support PLCs with implementation of this action step, the KDE has created a supplemental resource toolkit that includes resources, templates, samples and other supporting documents. The resources are located in Appendix C: Recurring Work of a PLC.

Addressing Question # 4: How will we extend learning for those that already know it?

Highly effective PLCs recognize that they are not just obligated to help all students master the essential learning outcomes; they are obligated to ensure all students learn at the highest levels. Collaborative teams must recognize that their students are each unique with differing sets of ability. Because of this, it is likely that every student will need both interventions and extensions at different points throughout the year. When responding to the fourth question of "How will we extend learning for students who already know it?" teachers often only think about their academically gifted students. However, this question refers to any student who has achieved mastery on the current essential learning goals based on the results from their common assessments (Ferriter, 2020).

According to Dufour, et al. (2016), extension occurs when students are stretched beyond essential learning outcomes or levels of proficiency. As collaborative teams design and implement extension activities, they must ensure the activities provide students with meaningful learning experiences, not just more of the same or busywork. It involves students digging deeper into the current content. This might include (Buffum, et al., 2018):

- challenging students to look at specific concepts and ideas from different perspectives,
- apply skills to new situations or contexts,
- look for different approaches to solving a problem, or
- use the skills they have learned to create a product or new outcome.

It is easier for collaborative teams to address how they will extend learning for proficient students by spending time considering possible extension opportunities as they work through the first critical question of "What do we want our students to know and be able to do?" Knowing up front that some students might have already learned the standards or will learn

them during initial instruction, teams should discuss and identify what they can do to extend learning prior to starting the unit in instruction (DuFour, et al., 2016). The following questions can assist collaborative teams as they plan student extensions:

- What standard(s) will be used in the extension?
- What type of extension will be most beneficial to the majority of students that have demonstrated proficiency?
- How will student learning be measured for this extension?
- Which team member will lead the extension?

In addition to embedding extension activities into Tier 1 instruction, the flexible time that is built into the master schedule for providing supplemental Tier 2 academic interventions can also be used to extend learning and support for students who have already learned the essential knowledge, concepts, and/or skills for the unit (DuFour, 2015).

Providing students with additional time and support should never come at the expense of the high-achieving students. Collaborative teams should not take learning and attention away from one group of students in order to assist another group of students. When schools create and implement a system in which all students receive additional time, support and extension it in no way diminishes the attention for one group of students, but instead extends best practices to all students (Mattos, et al., 2016). In order for this to become a reality, schools and/or districts need to act on and live out the three big ideas of a PLC: (1) **a focus on learning**, (2) **a collaborative culture and collective responsibility** and (3) **a results orientation**.

To support PLCs with implementation of this action step, the KDE has created a supplemental resource toolkit that includes resources, templates, samples and other supporting documents. The resources are located in Appendix C: Recurring Work of a PLC.

Balanced Assessment

Comprehensive, Balanced System of Assessment

While understanding where our learners are and how they will know if they are successful is essential for teaching and learning, using a variety of assessment measures is not enough to ensure high-quality, reliable assessment practices. A comprehensive, balanced systems approach is needed. A comprehensive, balanced system of assessment serves a variety of purposes, uses multiple measures and meets the decision-making needs of all stakeholders from the classroom, building and district levels (Chappuis & Stiggins, 2017).

Assessment balance is best achieved at the local level because only local educational agencies (LEAs) have schools, classrooms, students and teachers. LEAs and school leaders are often tasked with:

1. Creating a comprehensive, balanced system of assessments aligned to common learning expectations;
2. Using assessment and the resulting evidence of student learning for their intended purposes; and
3. Creating conditions for effective assessment practices by ensuring that educators have the time and training they need to appropriately engage in and interpret the evidence students produce (p.4).

Educators who have been trained in and have the knowledge and skills needed for these effective practices are considered to be *assessment literate* or as possessing *assessment literacy*. *Assessment literate* teachers embed assessment results and formative assessment strategies into daily instruction to improve learning, utilize student evidence to make continual decisions about teaching and effectively communicate progress and grading practices to students. Simply stated, assessment literacy consists of an individual's understanding of the fundamental assessment concepts and procedures deemed likely to influence educational decisions (Popham, 2010).

High-quality, effective assessments provide teachers and administrators with the evidence of achievement needed to make informed short and long-term decisions to improve student learning. When students are actively engaged in the assessment process, learners have a clearer picture of how to demonstrate learning, and teachers are held accountable for the responsive changes that need to occur in their classroom practices (Erkens, 2015).

Educators need to know how students in their classrooms learn best in order to select the appropriate assessments to match students' needs. Without a clear picture of ***why*** students are engaged in any assessment and ***what*** the evidence of student learning will be used for**,** educators risk wasting resources, contributing to over-testing, and misusing and misinterpreting data about student learning. Students need a clear understanding of the learning goals behind the activities they are undertaking in classrooms. In a comprehensive, balanced system, assessments are carefully selected to align with the purpose behind the classroom learning experiences and intended learning goals (Wiliam, 2018).

While some assessments are designed to provide evidence that focuses on the big picture by offering program feedback or annual yearly progress for a school or district, other assessment tools and practices are intended to provide guidance about where to go next in teaching and learning in the classroom. Just as the assessments stakeholders use are varied, so are the decisions those stakeholders make (Chappuis & Stiggins, 2017).

Because different stakeholders need to make different kinds of educational decisions, there needs to be a variety of assessments that yield different types of evidence. There is no one-size-fits-all assessment. Assessments at all levels—from classroom to state—will work together in a system that is comprehensive, coherent and continuous. In a comprehensive, balanced system, there are four primary assessment purposes: formative, diagnostic, interim/benchmark and summative. These four assessment purposes provide a variety of evidence to support educational decision making (WestEd, 2020a).

Assessment Types and Grain Size

Formative assessment is first and foremost a **process** engaged in by students and teachers together. It happens during learning and is more than just eliciting evidence of student learning (like a quiz or an exit ticket); it requires noticing, recognizing and responding to the evidence of student learning in order to support progress toward learning standards or goals. The formative assessment process provides students and teachers with immediate feedback that can be used to adapt teaching and learning through the use of test-elicited evidence (Popham 2011). Because it immediately informs teaching and learning, formative assessment should make up most of a teacher's instructional practices (Erkens, 2017) and may help surface a misconception that content needs to be clarified before moving on to the next step in learning. For an assessment to be deemed formative, teachers must be adjusting teaching and learning based on the evidence they collect from the assessment given (Erkens, 2012).

Diagnostic assessment is a formal strategy or tool designed to measure specific student strengths and weaknesses in student learning relative to their learning standards or goals. Diagnostic assessments focus on individual students. While both the formative assessment

process and diagnostic assessments are designed to help teachers more effectively support student learning, diagnostic assessments are not an ongoing process embedded in teaching and learning. Instead, they are specific measurement tools and strategies used when educators need more detailed information about individual students to inform next steps for instruction or intervention. Diagnostic assessment can be commercially developed products or teacher-created tools and strategies. Primary spelling inventories, sight word checklists, and written/oral assessments are a few examples of diagnostic assessment when used as tools to measure and inform next steps for individual students.

Interim/Benchmark Assessment monitors students' academic progress towards longer-term goals and compares student understanding or performance against a set of learning standards or objectives. Interim or benchmark assessments may be administered at specified intervals over the course of an academic year and may be common across classes or schools. The purposes of interim or benchmark assessments are to assess curriculum, instructional strategies and pacing, monitor students' academic progress toward longer-term goals, inform school improvement planning or predict a student's end-of-year performance when well-aligned to common learning expectations. Common performance tasks and common formative assessments are often examples of interim assessments when teachers collectively and intentionally decide to use them at intervals throughout the year, such as at the end of specified units.

Summative Assessment, sometimes referred to as a culminating assessment or end-of-course assessment, typically comes at the end of a period of instruction to measure the outcome of student learning (Kibble, 2017). While formative assessments are assessments *for* learning, summative assessments are assessments *of* learning. State assessments, Advanced Placement (AP) or ACT/SAT exams often fall into the category of a summative assessment (Bailey & Jakicic, 2012). Summative assessment is used to monitor and evaluate student achievement at the group-level and inform program-level and school improvement planning. It is not intended to provide information that can inform ongoing teaching and learning of individual students, but rather it gives an overall picture of how a system is preparing students to meet the learning expectations (Erkens, 2012).

Common formative assessments are typically assessment tools created collaboratively by a team of teachers who teach the same content or grade level. Common formative assessments are given to all students at a set time in the curriculum to answer the question: How will we know if our students are learning? (Bailey & Jakicic, 2012). PLC teams develop these timely grade-level or content-specific assessments to monitor each student's learning. According to DuFour and Mattos (2016), common formative assessments are beneficial because they:

- Promote equity for students;

- Provide an effective strategy to determine if the guaranteed and viable curriculum is being taught and learned;
- Inform the practice of individual teachers;
- Promote teacher efficiency;
- Build a team's capacity to improve its program;
- Offer a powerful tool for changing adult behavior and practices; and
- Facilitate a systematic, collective response to students who need acceleration.

Common formative assessments help to ensure **equity** because they are developed with agreed-upon learning goals so that students will learn the same goals no matter which teacher they have. In developing common formative assessments, teams also must arrive at consensus as they determine what proficiency will look like. Coming to consensus is necessary to guarantee equity for all students (Bailey & Jakicic, 2012).

PLC teams use evidence to provide common data about implementation of the guaranteed curriculum and to provide information to support changes in instruction and professional learning as well as to identify specific students who may need additional interventions and support. When teachers can conduct frequent checks for understanding and "catch" students who need acceleration along the way, there are fewer students who need additional time and support at the end of a learning experience, lesson or unit. For common formative assessment to be effective within a PLC, teams must collectively decide when those checks should occur. End of unit assessments help teams better evaluate curricular and intervention program effectiveness and assist teachers in determining the strategies and instructional approaches that work best for each unit. This allows teachers to provide interventions earlier and potentially save instructional time (Eaker & Keating, 2015). **When teachers collectively and intentionally decide to use common formative assessments at intervals throughout the year, such as at the end of specified units, they are considered an interim or benchmark assessment, not an example of formative assessment.**
Regardless of the assessment type, observable evidence of what students know and can do in relation to learning expectations should be central to all assessment practice and is foundational to a comprehensive balanced system of assessment. For a system to be balanced and comprehensive, a variety of assessment types must be present, and they must be **valid** and **reliable**. Valid assessments measure what they are intended to measure; reliability pertains to how consistently an assessment measures what it intends to measure (Erkens, 2017).

Assessment types can be differentiated by several different factors including grain size (meaning the volume of learning expectations measured by the assessment), frequency and immediacy of actionable information (meaning how directly it can inform teaching and learning in the classroom). Table 4.1 shows a comparison of the four different types of assessment just described.

Table 4.1. *Four Assessment Types by Grain Size*

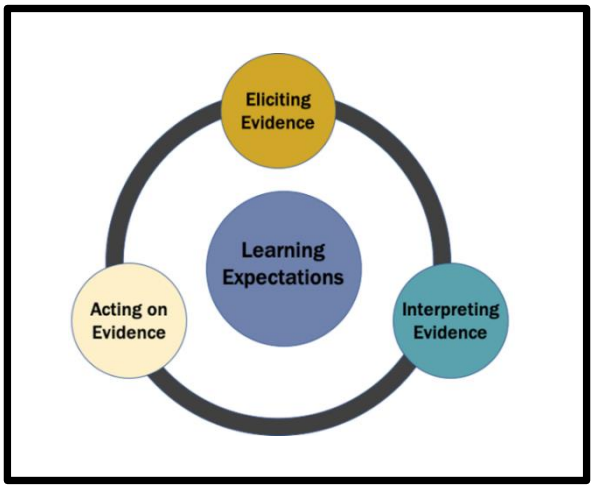
Assessment Type	Grain-Size	Frequency	Immediacy of Actionable Information
Formative	Small	Minute-by-minute, day-by-day	Immediately informs teaching and learning
Diagnostic	Small	As needed	Immediately informs teaching and learning
Interim	Medium	Intervals throughout the year	Supports future planning
Summative	Large	End-of-learning periods, often the end of the year	Informs decisions at the programmatic level

Diagnostic assessment and the **formative assessment** process are both small grain-sizes, meaning they focus on a small group of learning expectations or standards, and they both provide information that can rapidly inform teaching and learning in the classroom. The key difference between them is that diagnostic assessment is a measurement tool designed to identify specific strengths and weaknesses in *individual students*. However, both formative and diagnostic assessments can provide information about specific students who could benefit from intervention groups or extended learning opportunities. **Interim assessment** usually focuses on a broader group of learning expectations, takes place at designated intervals throughout the year and is designed to inform future instructional planning. It informs a grade-level team about specific standards for which their students are still struggling and supports planning to reteach or bring in different high-quality instructional resources for that content. Finally, **summative assessments** are of the largest grain size as they measure students' knowledge and skills on a collection of learning standards at the end of a learning period or year. Summative assessment informs school, district and state leaders about the effectiveness of various programs (i.e. classroom instructional strategies, intervention or school/district-wide curriculum) to decide what is working and what is not.

Evidence of Student Learning No matter the type of assessment, observable evidence of what students know and can do in relation to the learning expectations are the basis for high quality assessment practice. Identifying appropriate evidence to demonstrate student progress towards learning expectations and interpreting that evidence appropriately to inform a response requires a deep knowledge of the standards and learning expectations being measured. When evidence of student learning is used to guide the development of assessment

items and strategies and is used as the foundational rationale for why teachers are making intentional instructional decisions based on student performance, we increase the chances of developing valid and reliable high-quality assessment (WestEd, 2020a).

Figure 4.1: *Evidence of Student Learning*

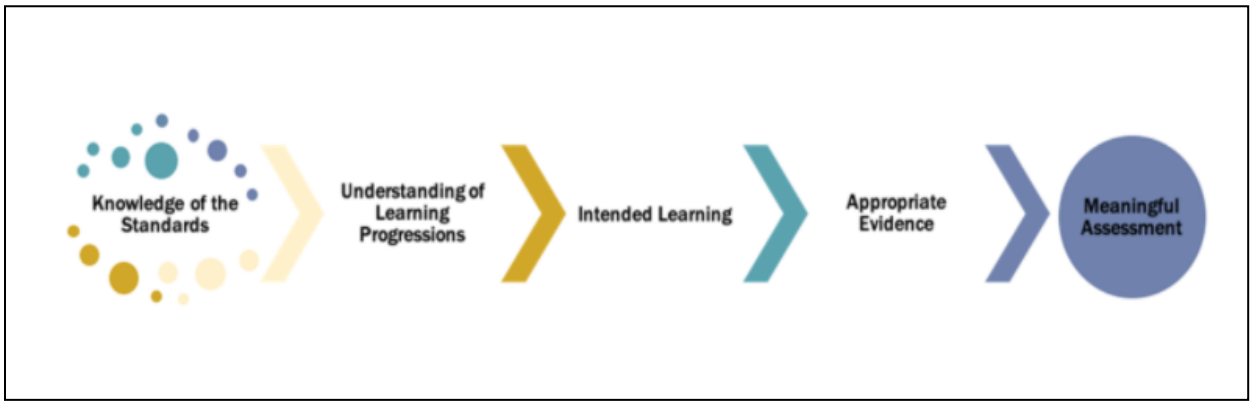


At all stages of the assessment cycle, high-quality assessment relies on a solid understanding of learning expectations being assessed. This requires clarity about the standards and the learning progressions that students travel through to achieve mastery of the standards.
With clearly articulated learning expectations as a guide, the cycle of assessment moves through the process of eliciting evidence of student learning, interpreting that evidence and, most importantly, taking action to improve teaching and learning based on that evidence (WestEd, 2020a). This ongoing cyclical process is illustrated in the assessment cycle graphic above.

There are a variety of types of assessment that provide different information to support different types of educational decision-making. But whether we focus on the formative assessment process, diagnostic, interim or summative assessment, each of these steps in the cycle is relevant to ensure stakeholders have meaningful information about student learning, which is used to move student learning forward.

For any kind of high-quality assessment, educators must first know what it is that you are measuring and identify what constitutes achievement. To begin this process, it is crucial to have a clear and deep understanding of the specific expectations articulated in the standards, including clarity about the level of cognitive complexity intended within the skills in each of those standards.

Figure 4.2. *Process for Developing a Meaningful Assessment*



Arriving at a high-quality assessment also requires understanding the learning progressions that lead to the standards. A **learning progression** is the student learning pathway that leads toward the standards; it is not the same as the scope and sequence in curricular materials, but rather is about how students progress in their learning - their steps to get to their destination, so to speak. Being clear about where students are in the learning progression helps teachers collect meaningful evidence about how successful they are in their instruction and how successful students are in their understanding of that instruction. In the formative assessment process, this involves establishing learning goals (what students should know and be able to do by the end of the learning period) and success criteria (observable evidence that teachers and students will use to decide how students are progressing toward their learning goals).

Formative Assessment Process

The formative assessment **process** provides students and teachers with immediate feedback to inform teaching and learning (Erkens, 2017). *Merriam Webster's Dictionary* defines the word *formative* as "capable of alteration by growth and development." This suggests that formative assessment should shape instruction (Wiliam, 2018). The Council of Chief State School Officers (CCSSO) defines formative assessment as a planned, ongoing process used by all students and teachers during learning and teaching to elicit and use evidence of student learning to improve student understanding of intended disciplinary learning outcomes and support students to become self-directed learners (CCSSO, 2020). While tests are *used* during the formative assessment process to provide evidence, it is important to note that the responsive adjustments that teachers and students make during the learning progression based on that evidence is what qualifies an assessment as formative (Popham, 2011).

In order to determine if students have mastered the knowledge, content and/or skills contained in the standards or not, the formative assessment process directs teachers to collect evidence. If the assessment-elicited evidence indicates that instruction is going well, both teachers and

students continue to do what has been working. If the elicited evidence indicates that students are not progressing as intended, then the teacher makes immediate instructional changes and/or encourages students to adjust their own learning approaches (Popham, 2011).

When students can adjust based on the actionable feedback from others (through self-assessment, teacher and peer feedback) to improve their current level of work or understanding of a concept or principle, we describe those students as **self-regulated** or **self-directed** learners. Students who are self-regulated learners become "drivers" of their own learning and are able to independently manage evidence and feedback to continually move their learning forward (WestEd, 2020a).

Many misconceptions around formative assessment exist in education today. Educators from the late 1990's often referred to formative assessment in terms of a tool or test (Wiliam, 2018); however, formative assessment is **not**:

- A particular kind of test, tool, product or strategy;
- A one-time event;
- Used to generate a grade or score;
- "Just good teaching"; or
- Something new.

Exit tickets are one of the most frequently cited examples of formative assessment; however, an exit ticket is a ***strategy*** that asks students to complete a specific task and hand it in before they leave class. It is important to remember that formative assessment is a ***process*** not the specific *tool* or *strategy*. So, in and of itself, an exit ticket is not considered formative assessment. For an exit ticket to be a true example of formative assessment it needs to involve analysis and feedback or a pedagogical response that engages students in their own learning. If a teacher asks students to complete an exit ticket for accountability but does not adjust teaching and learning based on the evidence of student learning provided in the exit ticket, it is not formative assessment (WestEd, 2020a).

Why Formative Assessment is Needed

When the formative assessment process is implemented in an intentional and purposeful way, it can greatly impact student achievement because "we (as school and district leaders) are improving teacher quality by improving teacher practice (Wiliam, 2018)." According to Dylan Wiliam (2018), by focusing teachers' attention on minute-by-minute and day-to-day formative assessment, we are likely to see the greatest impact on student outcomes (p. 27). Teachers who implement the formative assessment process of noticing, recognizing and responding to the evidence of student learning help students move towards established learning goals at an accelerated rate. When this process is a part of daily teaching and learning practice, formative

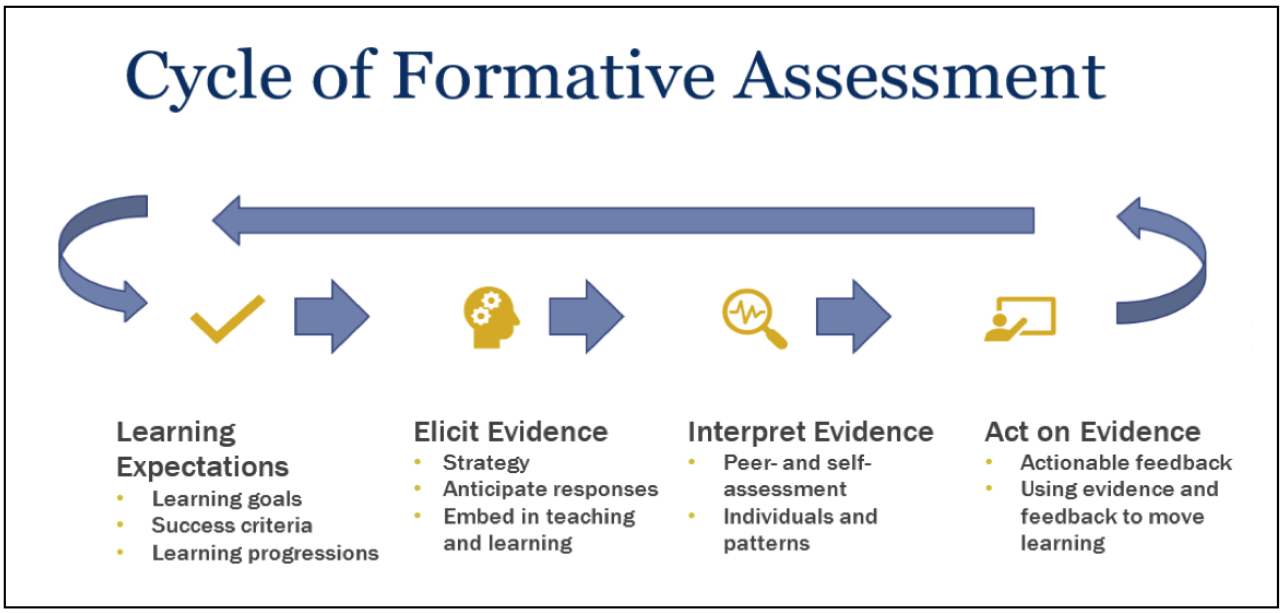
assessment can help foster self-regulation and ownership as students become more active participants in the learning process (WestEd, 2020a).

In addition to promoting ownership and self-regulation, formative assessment gives students the feedback needed for possible next steps to help them reach their intended learning outcomes. When students receive feedback around *how* they are doing (where they are along a learning progression) and what their next steps need to be to reach the next level in their learning, they have a clear understanding of *why* the work they are doing is relevant and are more likely to be motivated to get there (Clarke & Hattie, 2019). The formative assessment process gives teachers the feedback they need to determine how effective their instruction was in helping students reach their learning goals by helping to identify students who might need additional instructional support or enrichment (Bailey & Jakicic, 2012).

Cycle of Formative Assessment

The assessment cycle is based on the idea that all assessment is about using evidence of student learning to determine what students know and can do in order to inform appropriate decisions about teaching and learning. This applies to all high-quality assessment, regardless of its type or purpose. Learning expectations are represented at the center of this cycle (see figure 3.2) because at all stages of the cycle, high-quality assessment relies on a solid understanding of learning expectations being measured and the evidence that will show students' progress toward the learning expectations. This requires clarity about the standards and the learning progressions that students travel through to achieve the standards. With the clearly articulated learning expectations as a guide, the cycle of assessment moves through the process of eliciting evidence of student learning, interpreting that evidence and, most importantly, taking action to improve teaching and learning based on the evidence (WestEd 2020a). Figure 4.3 takes a closer look at the cycle of assessment in the specific context of formative assessment. You will see that the practices identified in Figure 4.2 are represented here as well as some additional components within each stage in the cycle.

Figure 4.3. *Cycle of Formative Assessment*



- **Learning Expectations:** Establishing learning goals and success criteria is an essential entry point for the formative assessment process. Learning goals, also known as *learning intentions*, *outcomes*, *objectives*, *aims* and *targets* (Almarode, et al., 2019), describe what students will learn in a learning period (as in a lesson or unit). Learning goals are not an agenda of tasks to complete or curriculum resources listed from a lesson or day (p.30), but rather they communicate to students a destination - where they are going in their learning journey (p.32).

  Success criteria describe the evidence students must produce to demonstrate that they have achieved the learning goals and are sometimes referred to as *key competencies* or *evidence of learning* (p. 39). Sections D and E that follow provide an in-depth look at eliciting and acting on *evidence of learning*. Students should have a strong understanding of *what* they are supposed to learn and *how* they will know and show when they are successful. As mentioned in the previous section, learning goals and success criteria should be aligned to the learning expectations or standards associated with the learning progressions (WestEd, 2020a).

- **Eliciting Evidence:** Learning goals and success criteria should guide the design of strategies to elicit evidence of student learning, often in a variety of ways over the course of a learning period. This may include a wide range of tasks like populating a graphic organizer or using math manipulatives to represent students' thinking, observation, discussion and questioning. Teachers should provide strategies, activities and tasks that make thinking visible and allow both the teacher and students to observe progress (Almarode, et al., 2019).

- **Interpreting Evidence:** To support teachers in taking real-time pedagogical action, it helps to anticipate common potential student responses in advance and, based on the learning progressions, have pedagogical actions aligned to these responses at the ready. (WestEd, 2020a). By having a keen awareness of where students are along a learning progression and knowing the specific needs of individual learners in their classrooms, teachers can anticipate potential student responses based on patterns they have observed in previous lessons or units of instruction. Using student knowledge and pattern observations helps teachers in interpreting the evidence they've collected to provide meaningful feedback to students (Almarode, et al., 2019).
- **Acting on Evidence:** Formative assessment is ultimately about what comes next for students to move toward their learning goals. Students and teachers need to work together so that they all understand their next steps. The evidence elicited from the formative assessment process should feed-forward learning, meaning it should equip students to act on their own (Clarke & Hattie, 2019). Students and teachers need to know what to do with the evidence they have collected in order to respond appropriately and continuously propel learning forward (p. 5).

Learning Goals and Success Criteria

Learning goals and success criteria drive the formative assessment process by supporting both student and teacher understanding of what successful learning of the standards will look like. At the heart of quality assessment practices, there is an emphasis on where learners are heading and how they will know if they are successful (WestEd, 2020a). Learning goals and success criteria are the barometer that teachers and students can use to monitor how effective their efforts are in moving towards mastery of the student learning goals. As previously mentioned in CCSSO's definition of formative assessment, the ultimate purpose is for students to understand disciplinary learning goals and become self-directed learners (WestEd, 2019). To achieve this effectively, CCSSO (2020) suggests that students and teachers integrate and embed the following **key formative practices** in a collaborative and respectful classroom environment:

- Clarifying learning goals and success criteria within a broader progression of learning;
- Eliciting and analyzing evidence of student thinking;
- Engaging in self-assessment and peer feedback;
- Providing actionable feedback; and
- Using evidence and feedback to move learning forward.

These key practices are not a list of teacher actions; instead, they are a list of actions students and teachers must engage in together. When students and teachers can both clearly articulate the learning goals and success criteria, students are more likely to become self-regulated learners and "drivers" of their own learning because they know their destination (learning goals) and the directions needed to get there (success criteria). While all of these formative practices are important, if we fail to clearly communicate the learning goals and success criteria to students at regular intervals throughout their broader progression of learning, we fail to help students answer the three foundational questions in the formative assessment process illustrated in Figure 4.4 below:

- "Where am I going?"
- "Where am I now?"
- "Where to next?" (Wiliam, 2018)

Figure 4.4. *Formative Assessment Cycle*

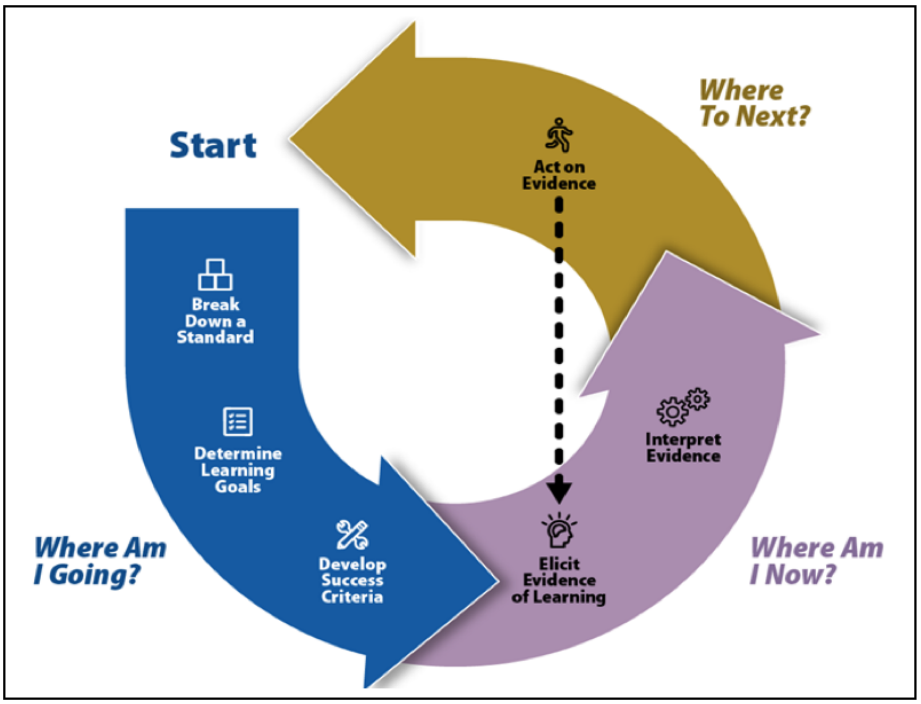


Figure 4.4 identifies the specific practices that make up the formative assessment cycle and illustrates the practices that are grouped with each of the three critical questions. The practices in blue help teachers and students answer the question, "Where am I going?" by establishing what students should be learning and what it will look like when they have learned it. These three practices (breaking down a standard, determining learning goals and developing success criteria) form the foundation for the remaining two sections (Where Am I Now? and Where to Next?). Teacher and student decisions about what evidence to elicit, how to interpret that

evidence and how to respond to that evidence all take place in the context of the established learning goals and success criteria.

The practices in purple answer the question, “Where am I now?” by eliciting evidence of student learning and making sense of that evidence. By interpreting learning evidence, students are able to determine where they are in relation to the learning goals. Finally, the practices in yellow answer the question, “Where to next?”. In this stage of the formative assessment cycle, teachers and students act on evidence in order to move students toward their intended learning goals. As the graphic illustrates, the formative assessment process is a continuous cycle. It isn’t a test or event that gets checked off the list, but rather an ongoing process that guides both learning and teaching. As students meet their goals, they circle back around and move towards a new cycle of learning.

Figure 4.5. *Starting with the Standards*

The *Kentucky Academic Standards* reflect the disciplinary knowledge and skills that students must achieve by the end of each grade level or course. These standards guide teaching and learning but aren’t achieved in a single lesson. Instead, learning happens along a pathway or progression that leads toward mastery of the standards. **Learning goals** represent the lesson-sized learning that students progress through as they make progress toward the standards. Supporting students to achieve the standards over the course of the school year demands not only a deep familiarity with the standards but also clarity about the *sequence* of learning that students will move through on their path to the end-of-year standards (WestEd, 2020a). It is the culmination of the achieved learning goals from multiple lessons that ultimately should lead to a mastery of the standards at the end of a course or grade level (See Figure 4.5).

Breaking Down the Standards

Establishing learning goals begins with clarity about grade-level academic standards and the progression of learning that leads to those standards. The process of breaking down a standard supports better understanding and the progression of learning within and between standards. When breaking down a standard, teachers should reflect and ask questions such as:

- What is the goal of the standard?
- How does the standard build from prior and support future learning?
- What disciplinary practices are students engaging in?

Reflecting on these questions helps teachers and leaders better understand the depth of the *Kentucky Academic Standards* and the learning goals best aligned to those standards. The Kentucky Department of Education has created educator resources for reading and writing, mathematics, social studies and science that build knowledge about the standards and help educators break down standards to support teaching and learning. To learn more about the *Kentucky Academic Standards*, consider reviewing the Getting to Know the KAS Modules or the Breaking Down a Standard Resources. These resources can support educators in considering the prior knowledge and progression of learning for each standard in order to guide instruction and formative assessment.

Why Clarity is Crucial

In his book, *Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement*, John Hattie (2009) identifies the practices and strategies in education having the greatest positive impact on student learning. His meta-analyses ranked the practices and strategies according to how powerful they were in eliciting change and were given a numerical value termed an **effect size**. Any effect size greater than 0.40 is considered to have a positive impact (effect) on student learning, while any effect size less than 0.40 is considered to have a lower or negative impact on student learning. Hattie's findings identified teacher clarity as having an effect size of 0.75, which suggests that, when implemented effectively, clarity around student learning goals and success criteria has the potential to almost double student learning growth. This research reinforces how important it is for teachers to know their standards and where students are along the pathway to reaching those standards. Having this increased level of clarity allows teachers to provide more relevant and explicit feedback to help accelerate student learning (Hattie, 2009).

Researcher Frank Fendick (1990) suggests that teacher clarity is more than just learning goals and success criteria. Fendick describes four practices that combine to create clarity:

- **Clarity of Organization:** Assignments, activities or lesson tasks aligned to learning goals and success criteria;
- **Clarity of Explanation:** A student's ability to understand relevant and accurate content information;
- **Clarity of Examples and Guided Practice:** Using explanatory and demonstrative lesson information to gradually move students to independence with less-scaffolded support; and

- **Clarity of Assessment of Student Learning:** Teachers eliciting and acting upon the regular feedback they receive from students (verbal and written).

While we have discussed how learning goals and success criteria (Clarity of Organization) are foundational to the formative assessment cycle teachers also need to practice Clarity of Assessment in order to collect meaningful evidence *from students* to offer meaningful feedback *to students* about next steps in their learning. This section will focus most heavily on Clarity of Organization and Clarity of Assessment of Student Learning, although all support one another within the formative assessment cycle (Fisher, Frey & Hattie, 2020).

Determining Learning Goals and Developing Success Criteria

As mentioned earlier, establishing learning goals and success criteria is an essential entry point for the formative assessment process. Learning goals, also known as *learning intentions*, *outcomes*, *objectives*, *aims* and *targets* (Almarode, et al., 2019) describe what students will learn in a learning period (as in a lesson or series of lessons). In their research around the formative assessment process, authors Kim Bailey and Chris Jakicic emphasize the need to establish a clear connection between the learning goals and success criteria, the instruction that is taking place and the assessments that teachers implement (Bailey & Jakicic, 2012). Establishing this clear connection gives self-directed learners the increased clarity they need to understand what they are learning and how to get there (WestEd, 2020a).

Learning goals and success criteria work in tandem to help students understand where they are headed, helping them to eventually become self-regulated learners**.** If a lesson (or series of lessons) is a *journey* that students and teachers take together, learning goals represent to students the *destination* of their journey, signaling clearly *what* they are learning and *why* it is important. Success criteria demonstrate to students what it looks like to be successful in achieving the learning goals; success criteria inform both teachers and students and represent the *checkpoints* along the route. When aligned to student learning goals, success criteria give students specific information to understand their progress and adjust to move their learning forward through observable demonstrations. These observable demonstrations are what Frank Fendick refers to as Clarity of Examples and Guided Practice in his four practices that create clarity mentioned previously in this section (Fisher, et al., 2020).

Learning goals clearly articulate to students the most important learning in a lesson, not the activities or experiences they will have in the lesson. While learning goals should be aligned to the standards, they do not need to reflect *all* the learning encompassed in the standard. Instead, learning goals should build towards the learning necessary to achieve mastery of the grade-level standard by the end of the course or year. In order to make learning goals achievable for students within the context of a *lesson*, they should be written in language that is

accessible and comprehensible for students (Clarity of Explanation). Learning goals should be a guide both for teaching *and* for learning. To create meaningful learning goals that support student learning throughout the lesson and guide the formative assessment process, WestEd (2020a) suggests keeping in mind the following **key criteria when developing learning goals**:

- **Aligned**: The learning goals should align to the standards and build toward the content and cognitive complexity of the standard.
- **Achievable:** Learning goals should be achievable during the lesson. They do not need to reflect the entirety of the learning reflected in the standard(s).
- **Accessible Language:** Learning goals must be written in student-friendly language, clear enough for students to use to guide their own learning and make sense of them.
- **Focused on Student Learning**: Learning goals should focus on what students will learn, not on what they will do in the lesson. They should not be just a restatement of the lesson topic.
    - Learning goals are lesson-sized, not isolated or discrete. The learning they describe is aligned to a standard and connected to other prior, concurrent and future learning.
- **Worth Learning**: Learning goals should focus on the most important learning of the lesson and students should be able to understand and articulate why they are focusing on this learning.
    - Learning goals are part of an extensive progression of learning that builds from learning goals through the progression of learning and to the standards.

An example of a learning goal aligned to a Kentucky Reading and Writing standard that is potentially attainable during a lesson could be:

Grade Level/Content Area	Standard	Learning Goals
First Grade Reading & Writing Interdisciplinary Literacy Practice 5: Collaborate with others to create meaning.	**RL.1.3:** Describe characters, settings and major events in a story, using key details in order to make meaning of the story development.	Notice and talk about the setting, characters and big events in the stories we read.

- **Aligned to the Standards:** You can see that this learning goal is aligned to the standards, but it doesn't reflect the entire content standard. In this lesson, students are working on identifying characters, setting and major events and beginning to talk about it with their

peers. As students progress in their learning, their learning goals will likely expand to incorporate telling or giving an account of the characters, settings and major events in verbal and/or written form and using these elements to make meaning of the story development. This lesson also aligns to Interdisciplinary Literacy Practice 5: Collaborate with others to create meaning.

- **Achievable:** While we don't know how long this lesson is, it seems reasonable to imagine that this learning goal could be accomplished by first graders during a lesson.
- **Accessible Language:** Presuming that students have been introduced to the content in the standard (setting, characters and events), this learning goal is written in a way that allows a first grader to understand what they are working to learn.
- **Focused on Student Learning**: Students will likely undertake a variety of literacy activities in this lesson, perhaps including tasks focused on decoding and sentence-level reading comprehension, but this learning goal signals to students the most important learning in the lesson (to notice these key elements in their story and be able to talk about them) and provides tools so that they begin to develop the skills to manage their own learning.
- **Worth Learning**: This learning goal tells students that being a reader means noticing what is going on in a story and communicating with others about the reading.

As illustrated in Figure 4.4, success criteria in tandem with learning goals answer the question, "Where am I going?" because they are aligned tightly with one another and, therefore, the standards. Like learning goals, success criteria are a guide for both teachers and students. Success criteria are not checklists, activities in a lesson or a set of procedural expectations; they should reflect the expected learning of the lesson. Learning goals might be "invisible" because they often happen inside a student's head; one cannot directly observe things like "knowing" or "understanding." Because of this, success criteria should always be written as performances of learning that one can observe. It is what students will say, do, make or write that will make the status of their learning visible (WestEd, 2020a). Accessible learning goals and success criteria enable students to participate in and contribute to the learning community by evaluating their own and their peers' learning. When students internalize learning goals and success criteria, it helps them make meaning of challenging content and enables students to see the relevance in what they are learning. WestEd provides some **key considerations for developing meaningful success criteria**. According to WestEd success criteria should be:

- **Aligned to the Learning Goals:** Success criteria articulate for students how they will show that they are meeting their learning goals, so it follows that success criteria must be tightly aligned to the learning goals so they truly reflect demonstration of that learning.

- **Observable:** Success criteria must be visible to both teachers and students.
- **Accessible Language:** Like learning goals, success criteria are critical tools for students to manage their own learning, so the success criteria must be communicated clearly to students so they understand how they will show what they have learned.
- **Focused on Student Learning**: Success criteria should focus on what it will look like for students to show their learning and should not reflect the activities in the lesson or some of the procedural aspects of a task (i.e., completing a worksheet).
- **Demonstrable:** Finally, success criteria should be something students can accomplish and demonstrate within the course of the lesson so that they can actively monitor their progress toward the learning goals.

An example of first grade success criteria for Reading and Writing aligned to the learning goal/standard:

Standard	Learning Goals	Success Criteria
RL.1.3: Describe characters, settings and major events in a story, using key details in order to make meaning of the story development.	Notice and talk about the setting, characters and big events in the stories we read.	I can use a five-finger retell to tell my reading buddy about my book. I can listen to my reading buddy and ask questions to learn more about their book.

- **Aligned to the Learning Goals:** These success criteria are aligned to the learning goal, providing students a structured way to share what they notice about the key elements of their story.
- **Observable**: These success criteria are observable both to students, their peers and their teacher. They make students' thinking public.
- **Accessible Language**: If students are familiar with or provided clear instruction about what the five-finger retell strategy is and perhaps have access to an anchor chart to remind them, these success criteria could be a clear guide for a first-grade student.
- **Focused on Student Learning**: These success criteria direct students to the most important learning in this lesson, not to everything they will do in the lesson.
- **Demonstrable**: It is reasonable to imagine that a lesson could afford students the opportunity to demonstrate their learning through these success criteria.

Engaging Students in Learning Goals and Success Criteria

Students should be at the center of classroom interactions and decisions if our assessment practices are truly focused on learning. By asking students to engage in activities that directly relate to the learning goals and success criteria, students feel respected by their teachers and see the school experience as purposeful and coherent (Erkens & Schimmer, 2017). Furthermore, for teachers to engage students in the learning goals and success criteria, it is imperative that teachers find **clarity** in the standards for themselves in order to translate those standards into clear learning goals for students. If teachers are unclear about what students must know and be able to do, students will also be unclear and unable to own their learning (Almarode, et al., 2019). Figure 4.6 below illustrates the crucial role that clarity plays in engaging students in the creation of learning goals and success criteria.

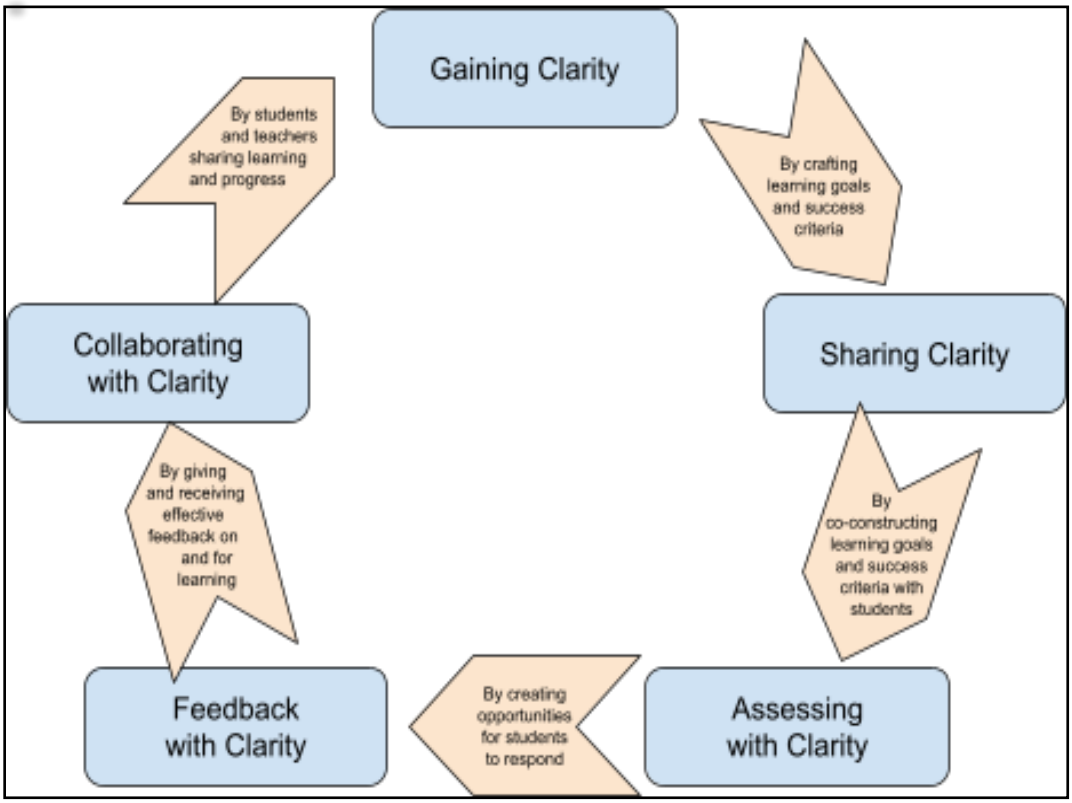
Student investment (or ownership) is the degree to which students invest in their own learning. When students are invested in their own learning, they are more engaged and motivated and, therefore, more apt to reach their learning goals. Invested students see the relevance in what they are learning and understand why they are learning it because they have teachers who are intentionally and consistently making learning goals and learning progressions transparent for them. According to Cassandra Erkens and Tom Schimmer (2017), highly effective teachers who seek to promote student investment incorporate high levels of engagement and reflection by:

- Asking thought-provoking questions;
- Affirming student understandings and confidence;
- Clearing up misconceptions;
- Monitoring the impact of assessments and instructional practices; and
- Continually seeking feedback from students regarding the classroom culture, assessments and practices to make responsive adjustments to those as needed.

Because the formative assessment process requires active engagement by students in their own learning, learning goals and success criteria cannot support **active engagement** if students do not fully understand them. Teachers can actively engage students in the learning goals and success criteria by making connections to previous learning experiences, building understanding through examples, and empowering students to reflect on their progress using learning goals and success criteria throughout lessons. Success criteria can be made more meaningful by examining examples with students. By unpacking examples that fully meet the success criteria (as well as those that do not) and emphasizing the next steps that could improve the example to fully meet the success criteria, teachers are able to make the success criteria concrete for students and model how students can use the evidence of their learning to propel learning forward (WestEd, 2020a). Through this process teachers can develop success

criteria with students, known as **co-constructing**, to ensure clarity and encourage the kind of metacognitive thinking that can allow students to become self-directed learners.

Figure 4.6. *Importance of Clarity*



*Adapted from content in *Clarity for Learning* (Almarode, et al., 2019).

Co-Constructing Success Criteria

In her book, *Clarity for Learning*, Shirley Clarke (2019) claims that "The worst learning scenario is to be unaware of expectations or how your work will be judged and to have no guidelines about how to achieve the objective in the first place." (p. 70). This ambiguity in expectations and next steps is diminished when teachers take the time to co-construct success criteria with students. While some educators argue they don't have time to co-construct success criteria with students, doing so often reduces the amount of time overall teachers spend reviewing and reteaching content later to students (Almarode, et al., 2019).

Co-constructing increases the likelihood that students will become self-regulated learners because the process helps students internalize what they are learning and provides students with the tools necessary to monitor their own progress during a lesson (Gerzon, 2020). When students know the intended goal or standard that they are aiming for in a lesson, they are better able to compare their *actual* level of performance against the *intended* performance

level that has been shared. Intended performance levels can be clearly articulated through modeling, worked examples and exemplars.

- **Modeling** involves explicitly demonstrating to students what the expectation looks and sounds like, typically through a process, so students know what they are expected to later do. Chefs often model how to complete a recipe, while a writer may model how to write an introductory paragraph. When we model, we are providing the information necessary for the learner to replicate or imitate our process to arrive at the same or a similar result (Almarode, et al., 2019).
- **Worked examples** are often shared so students know how to solve a problem or perform a task. They can be shared as a fully completed problem or worked examples that show progress over time. Progress over time worked examples are often used to illustrate steps in a progression (i.e., a writing process or mathematical equation) or to share a person's thought process.
- **Exemplars** are high-quality examples that show students what their work can look like if they meet or exceed the success criteria. Exemplars are helpful when teachers want to challenge students to reach higher levels of performance and can act as springboards for discussions around specific criteria that make the examples high-quality. Using a variety of the examples above demonstrates to students that there are multiple pathways they can take as learners to meet or exceed the success criteria; it keeps learning interesting and engagement high (p. 83).

While there is no set right or wrong way to co-construct success criteria with students, any experience that clarifies learning goals and success criteria with students will have a positive impact on their learning. Once teachers have a clear understanding of the standards, have developed the learning goals and success criteria, and have determined the examples, models and exemplars they will use, they are then ready to begin co-constructing success criteria with students (p. 81). In their book *Clarity for Learning*, authors John Almarode and Kara Vandas suggest the following steps as a general framework for co-constructing success criteria with students.

Steps to Co-Constructing Success Criteria

1. Decide *when* you will co-construct success criteria with students.
2. Collect the models, worked examples and exemplars you will use, such as:
    - Attainment of the learning goal(s)/standard examples;
    - Exceeding the learning goal (exemplars) examples;
    - Works in progress or non-examples; or
    - Processes, steps or various approaches to attain the same criteria.
3. Determine your approach for sharing criteria with students. This could include:

- Teacher or student modeling demonstration with a think-aloud;
- Modeling worked examples and posting for later reference;
- Studying and analyzing multiple exemplars in small groups to develop success criteria; or
- Determining which exemplars and examples are better through a comparison between lower-quality examples and nonexamples.

4. Begin generating success criteria with students. Make sure that:
    - After sharing modeling, worked examples and exemplars, teachers allow students to share their criteria; and
    - Based on the knowledge of the standards and expectations, the teacher adds any missing success criteria he/she may notice.
5. Sort and organize success criteria into categories to create a(n):
    - Checklist;
    - T-Chart;
    - Rubric (including meets/exceeds learning expectations portions of rubric); and
    - Additional method for representing the criteria.
6. Model/practice using the criteria to provide feedback and set personal goals. Which criteria should be worked toward next?
7. As learning deepens, revise success criteria and student goals over time.

Strategies to Co-Construct Success Criteria

In the *Steps to Co-Constructing Success Criteria* listed above, step 3 encourages teachers to determine their approach for sharing criteria with students. The following strategies from Nancy Gerzon (2020) provide teachers with several suggested strategies they could use to approach demonstrating success criteria to students:

- **Demonstrating a Skill:** The teacher demonstrates a specific skill and asks students, "What did I just do?" as a way of gathering the criteria.
- **Demonstrating Good and Bad:** The teacher demonstrates how to do the skill well and how to do it poorly and asks students to identify key features of a successful performance.
- **Working Through It:** Teacher engages students in the analysis of a graph, diagram or text and discusses the specific steps to interpret it.
- **Sloppy Success Criteria**: Teacher provides students with an example that contains errors, along with the success criteria, and asks them what has gone wrong. Students analyze the errors and correct the success criteria (WestEd, 2020a).

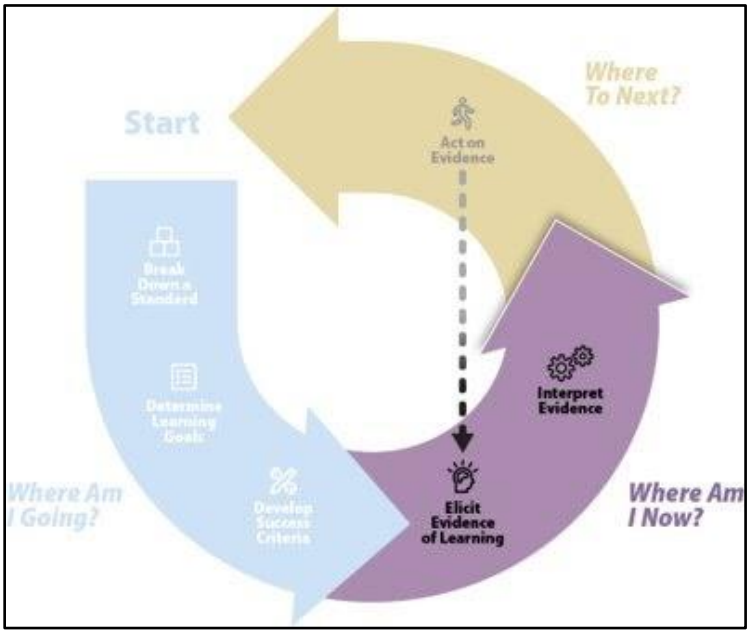
A Word on Goal Setting with Students

Once students have a better understanding of what success looks and feels like through the co-construction process, they will be empowered to more accurately self-assess their own learning progress and achievement. Steps 6 and 7 above set the stage for students to begin to set goals and determine their next steps based on the success criteria. When using a pre-assessment or other formative evidence of student learning, paired with the co-construction process, students can be asked which success criteria they have successfully met and which they need to work towards next. By establishing regular reflective conversations or structures in their classrooms, teachers enable students to visibly see the progress they are making towards accomplishing all the success criteria (Almarode, et al., 2019). Seeing their successful progress builds students' self-efficacy and sets them up for moving along an upward trajectory of learning (Hattie, et al., 2016).

Eliciting Evidence of Student Learning

As emphasized previously in this framework, understanding where learners are heading and how they will know if they are successful is essential for teaching and learning. Once students and teachers understand where they are headed in their learning, their focus then shifts to the second question, "Where am I now?" as illustrated in Figure 4.7.

Figure 4.7. *Where Am I Now? Eliciting Evidence*



Students and teachers should understand their current status so that they can make decisions to move learning forward (Chappuis, et al., 2017). This starts with eliciting meaningful evidence

that can be used to interpret student learning and inform next steps. The primary way that educators elicit meaningful evidence is through assessment. Assessment helps educators measure effectiveness and informs their educational decision-making by:

- Measuring the impact of our policies, practices and programs;
- Supporting equity by providing insight into the educational outcomes of different subgroups;
- Making comparisons between students, groups and systems;
- Providing information to inform continuous improvement;
- Supporting teaching and learning of the guaranteed curriculum;
- Informing decisions about classroom practice, instructional support and intervention; or
- Providing guidance about next steps for teachers and students in a classroom (WestEd, 2020a).

Key Considerations for Evidence of Student Learning

Evidence of student learning is a key component of the formative assessment process because it informs student and teacher decisions about next steps to move students towards their learning goals. While there are a multitude of strategies for eliciting evidence of student learning, WestEd (2020a) suggests the following key considerations:

- Design and implement evidence intentionally.
- Make student learning visible.
- Inform students and teachers about next steps to encourage student self-regulation.
- Embed opportunities to elicit evidence during learning.

As a key element of the lesson design process, eliciting evidence should be part of a strategic plan to support students in their intended learning, so it's not done on-the-fly (Wiliam, 2018). While teachers are encouraged to adjust their evidence-gathering strategies while teaching, the central purpose of eliciting evidence should be focused on making student learning visible, such as collecting evidence as students engage in a performance that makes thinking into a tangible product. This could include opportunities during teacher-to-student interactions, peer interactions or examinations of student work. The goal should be for students to begin to manage their own learning beyond just "meeting" or "not meeting" the success criteria (WestEd, 2020a). Teachers should have a firm understanding of where students are along their learning progression to inform not only where they need to go next in their instruction, but also determine the type of feedback that will be most effective in helping students understand, "What am I good at?"; "What do I need to work on?" and "What should I do next?" (Chappuis, et al., 2017).

Formative assessment practices keep teachers in touch with student learning and students in touch with their own progress. These practices help develop students' understanding that their actions can make a positive impact on their achievement (Chappuis, et al., 2017). Students need to see the formative assessment process as an integral and embedded part of teaching and learning (Wiliam, 2018). The process of eliciting evidence should occur during learning so that the information collected can immediately inform next steps by continually checking to see that students are making progress (WestEd, 2020a). When evidence is *not* collected during instruction, teachers are unable to determine when progress is not being made until it is often too late. This wastes valuable instructional time because teachers are unable to make timely adjustments to their instructional practices when they are needed most.

Supporting Students to Manage Their Own Learning

In the previous section we learned that by asking students to engage in activities that directly relate to the learning goals and success criteria, students feel respected by their teachers and see the school experience as purposeful and coherent (Erkens, et al., 2017), but how do the choices we make about eliciting evidence of student learning impact student feelings of respect, purpose and coherence? Engaging students in meaningful opportunities to share and reflect on their learning allows them to become managers of their own learning. When students understand what they are learning and why they are learning it, motivation and engagement increase as students begin to become more metacognitive in their thinking, recognizing and monitoring their work to become self-directed learners. Students are able to continuously self-monitor and feel in control of their growth process when they see for themselves that they are close to reaching their learning goals, thus replacing fear and anxiety with confidence and persistence. By providing students with a clear and understandable vision of their intended learning, we are increasing their motivation and achievement because our instruction is being guided by clearly defined goals (Chappuis, et al., 2017).

What is Meaningful Evidence?

For evidence of student learning to provide students and teachers with the information they need to make well-informed decisions, the evidence must be meaningful. This requires thoughtful planning to ensure that the information gathered is telling students and teachers what they need to know. It is essential that the evidence gathered is **aligned** to the learning goals and success criteria. When the evidence is aligned, students and teachers will be able to understand how they are progressing toward the learning expectations of the lesson and students will see the evidence elicited as purposeful and coherent. Because quality designs begin with the end in mind, classroom assessment should uncover the discrepancy between where students are and where they need to be in their learning (Erkens, et al., 2017). Ensuring

that evidence gathered is aligned to the learning goals ensures that evidence gathered can reasonably represent the specific learning of the lesson (WestEd, 2020a).

As you may recall from the previous section, learning goals represent a "lesson-sized" step in a learning progression toward the end-of-year grade level standards. Learning progressions represent the path that learners will travel to reach their lesson destination (learning goals). Success criteria reflect the way that students will demonstrate they have achieved that learning goal over the course of a lesson. So, during a lesson, evidence gathered should be designed to provide check points on student understanding leading up to the learning goal. One piece of evidence will not reflect the full content and complexity of the standard (WestEd, 2020a). Teachers should keep in mind that the evidence gathered should reflect both the content described in a learning goal, as well as the level of cognitive complexity. It is not necessary for every evidence gathering opportunity to be aligned to all aspects of the learning goal, but cumulatively, they should provide an actionable picture of student learning; the full breadth of the learning goal and how well students are able to demonstrate their learning on the success criteria.

Because various interpretations for a key skill or process outlined in a standard can exist, it is important for PLCs to establish common levels of cognitive complexity. Establishing these common understandings as a team will increase the likelihood that there is equity from classroom to classroom because teachers will have shared expectations regarding the degree of rigor for each of the standard components (Erkens, et al., 2017).

While there are multiple frameworks that exist in education to describe cognitive complexity, perhaps the most widely used is Norman Webb's Depth of Knowledge (DOK) Model. Because testing companies commonly use Webb's model in developing external assessments, teachers should consider eliciting evidence within their classrooms using the same or similar DOK levels to ensure that students are prepared for the cognitive complexity that external assessments demand. For example, Table 4.2 below details the nuances that can exist within the single word *describe*. While it might be easy for some educators to assume the word *describe* is a lower-level recall challenge, this example reinforces why teams need to carefully examine intended levels of complexity within their PLCs to reach consensus (p. 86). Below are a few examples of how the word *describe* could be employed differently at each of the four DOK levels:

Table 4.2. *Example of Word Nuances at Various DOK Levels*

Learning Goal	I can **describe** the life cycle.
DOK 1: Recall	**Describe** the four stages of the monarch butterfly's life cycle. (Requires simple recall)

DOK 2: Skill or Concept	**Describe** the differences between the first and the fourth generations of the monarch butterfly's life cycle over the course of a single year. (Requires students to discern the differences between the two types of life cycles)
DOK 3: Strategic Thinking	**Describe** a model that represents the relationships that exist between the life cycle of a monarch butterfly and its migration patterns. (Requires a deep understanding of the life cycle and for students to determine how best to represent it when blended with another concept)
DOK 4: Extended Thinking	**Describe** and illustrate the commonalities in life cycle patterns among three migratory creatures. (Requires students to investigate, think and process through multiple conditions of the problem)

*Adapted from *Essential Assessment* (Erkens, et al., 2017).

In addition to being aligned to the learning goals and success criteria, for elicited evidence to be deemed meaningful, it should provide **multiple sources of meaningful evidence** at various points throughout the lesson. Because there is no one-size-fits-all regarding eliciting evidence of student learning, multiple sources can offer a broader, holistic view of student thinking and allow teachers to take pedagogical action. This is because students and teachers need different information at different points in a lesson to make sure that student learning is moving forward, and students and teachers need nuanced information about where students are in their learning. One question or task is unlikely to provide the full picture of student learning necessary to make well-informed decisions (WestEd, 2020a).

The *Kentucky Academic Standards for Reading and Writing, Mathematics, Social Studies and Science* include student practices which emphasize **disciplinary discourse and meaning making practices**. According to researchers Margaret Heritage & E. Caroline Wylie (2020), evidence should be elicited that encourages the sharing and building on of thinking rooted in disciplines, including:

- Interactions and exchanges that promote new ways of thinking and promote connection and inquiry;
- Questions that invite deeper reflection and answers that must be justified and connected;
- Discussion and argumentation; and
- Professional engagement with the subject matter.

Disciplinary discourse makes thinking visible in ways that can support the formative assessment process and supports the development of deeper understanding through collective meaning-making. As teachers design lessons that integrate meaningful opportunities to elicit evidence of

student learning, priority should be given to strategies that engage students deeply in disciplinary discourse. This means more than just talking about the content in a classroom, but rather opportunities to share and build upon thinking rooted in the discipline (WestEd, 2020a).

Strategies to Elicit Evidence

In planning future lessons, it is important for teachers to think about the kinds of evidence that could be gathered during a lesson that will best elicit the information they need to determine if students are progressing toward their learning goals (WestEd, 2020b). Teachers should intentionally design opportunities to elicit evidence that will make student thinking visible and give teachers and students a full picture of where students are along their learning journey. As mentioned earlier, regardless of the discipline or lesson content, teachers should continually be thinking about what strategies would:

- Be aligned?
- Elicit multiple sources of meaningful evidence?
- Prioritize disciplinary discourse and practices? (WestEd, 2020a).

The example below reflects a learning goal and success criteria aligned to the *Kentucky Academic Standards for Reading and Writing* for grade 6.

Standard	Learning Goal	Success Criteria
C.6.1.c: Support claim(s) with clear reasons and relevant evidence, using credible sources, acknowledging opposing claims, and demonstrating an understanding of the topic or text.	Identify relevant evidence from different texts to support a claim.	Annotate texts to identify strong evidence to support my claim and note how I might use it in my essay.

Over the course of the lesson, students will learn to identify relevant evidence from multiple texts to support a claim. They will later demonstrate their learning by annotating the texts to flag strong evidence and ideas for use in their own essays. Some **suggested strategies to elicit evidence** that could be integrated into this example lesson could include:

- Opportunities for students to share their opinions and experiences related to the claim by guiding students to record the opinions or experiences for use during classroom discussions (peer and teacher led).; conducting peer discussion around the relevance of different articles on a specific topic;
- Facilitating a teacher quick review of the evidence students have highlighted in the text;

- Initiating individual discussions with students about highlighted passages in the text; and
- Establishing partner work about specific, selected passages and how students might use them in their essay through an assessment conversation with the teacher about evidence. Some suggested prompts might include:
    - How does this example support your claim?
    - How does this example connect with the previous example you chose?
    - How well does this evidence support the claim?
    - How might you revise your evidence to better support the claim?

Thus, these examples:

- Are **aligned** to the learning goals and success criteria and are focused on understanding how students are moving forward as they learn to identify relevant evidence from different texts to support a specific claim;
- **Offer multiple opportunities** for students to demonstrate their thinking in front of their peers and teacher; and
- **Prioritize** ways for students to engage in **disciplinary discourse** with their peers and their teacher, deepening their understanding and the development of disciplinary literacy skills.

Eliciting evidence in a **remote learning** setting may require different strategies, but still should focus on the same priorities (Fisher, et al., 2020). For example, teachers may elicit evidence of student learning through disciplinary discourse using breakout rooms and commenting on each idea using a collaboration tool (e.g., Google Docs). Teachers can float between breakout rooms to listen in on student discussions or could pull students into a one-on-one breakout room for quick individual discussions with the teacher. Distance learning structures such as these allow teachers to collect the evidence they need to inform next steps, while providing students with multiple opportunities to demonstrate their thinking, deepen their understanding and develop their disciplinary literacy skills (WestEd, 2020a).

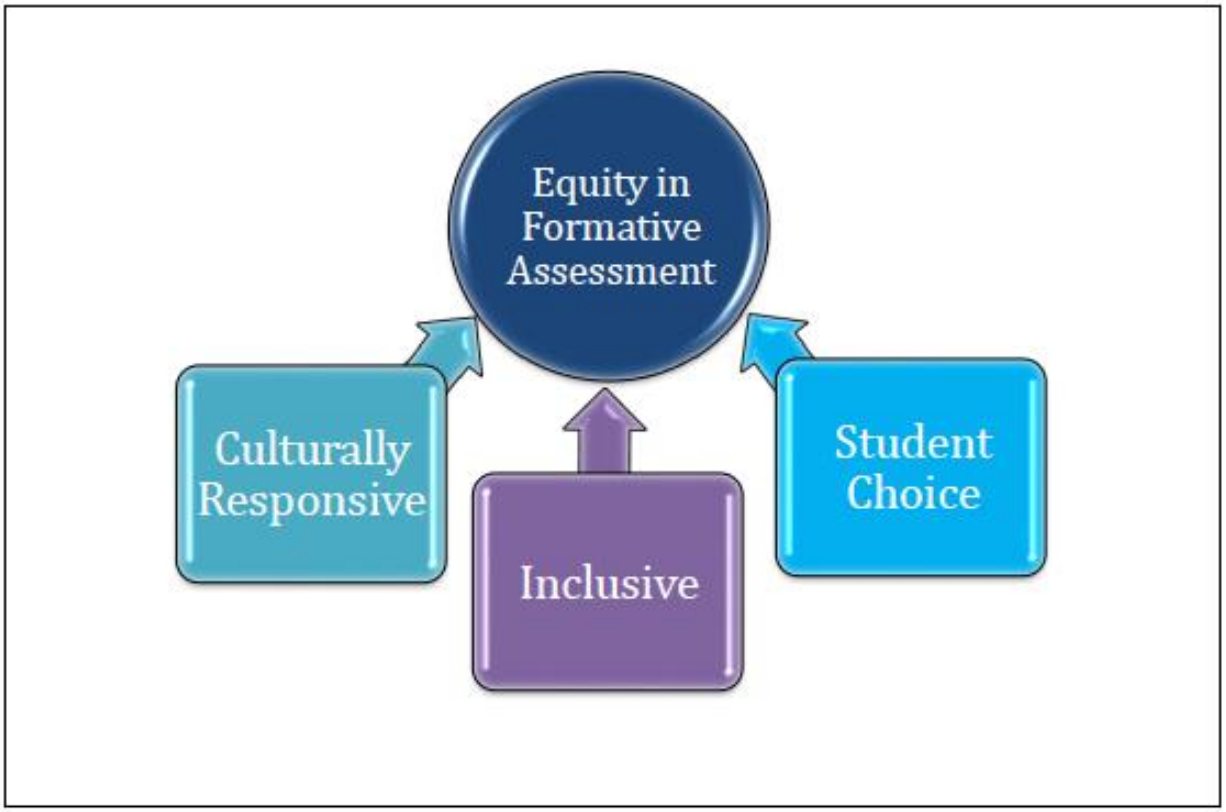
Eliminating Barriers: Why Equity Matters in Formative Assessment

As we have discussed previously, planning for formative assessment involves intentional design to ensure that both students and teachers elicit meaningful evidence. Another aspect of this intentional design is ensuring that the evidence elicited is not clouded by unnecessary barriers that get in the way of students showing their learning. Equitable formative assessment ensures that all students, regardless of their unique experiences and qualities, can engage meaningfully in the formative assessment process and have an opportunity to show their thinking. Formative assessment is equitable when *every* student:

- Can fully engage in the formative assessment process;
- Is able to provide accurate evidence of what they know and can do;
- Receives feedback and support based on where they are in their learning; and
- Can build capacity to manage their own learning (WestEd, 2020a).

When eliciting evidence of student learning, teachers should consider how to ensure that all students can fully access the opportunity to make their thinking public in order to move their learning forward. When teachers use formative assessment the right way, they build meaningful relationships within their classrooms (Erkens, et al., 2017), but to do so requires an intentional design and use of strategies to ensure that opportunities to elicit evidence of learning are culturally responsive, inclusive and offer student choice. Strategies to elicit evidence should get at what students know and think rather than ignoring or hiding their thinking. Attending to these considerations in the design of strategies to elicit evidence of student learning can help build a classroom culture in which students are engaged and motivated to share their learning and students feel empowered to manage their own learning (WestEd, 2020b).

Figure 4.8. *Equity in Formative Assessment*



Culturally Responsive Formative Assessment

Culturally responsive instruction is a mindset that respects and values each student's culture, experiences and history and holds all students to high expectations (WestEd, 2020a). According to Gloria Ladson-Billings (2020), culturally relevant and responsive instruction promotes cultural competence, academic success and sociopolitical consciousness. To incorporate culturally responsive instruction requires an open mindset, intentional planning, strategic teacher actions and carefully planned student learning experiences. Effective formative assessment practice involves providing engaging instruction where students experience grade level tasks that build interest tied to their background knowledge and culture. By acknowledging students' ethnic, racial and linguistic identities within the context of their grade level work, we are providing students with formative assessment opportunities that are engaging, affirming and meaningful (Ladson-Billings, 2020). Culturally relevant and responsive instruction is important for formative assessment because it creates a classroom culture where all students are invited to effectively manage their own learning, and it allows students to provide evidence of student learning that truly demonstrates what students know and can do, unclouded by barriers and biases (WestEd, 2020b).

Bringing culturally responsive instruction into formative assessment practice requires considering each student's strengths and growth areas as one plans to elicit evidence of student learning. This means eliciting evidence of learning in ways that allow students to tap their cultural strengths, individual curiosities, learning styles and home language knowledge. Students engage in learning and sharing evidence of their learning in ways that are relevant and value their strengths and experiences. When considering culturally-responsive design in formative assessment, teachers should ask themselves, "Does this opportunity to share student learning allow each of my students to bring their cultural and language strengths to bear?" and "Does this opportunity disadvantage students who may not have prior knowledge related to the context?" (WestEd, 2020a).

Strategies for Culturally Responsive Formative Assessment

Culturally responsive formative assessment creates opportunities for students to provide and reflect on evidence of their own learning that truly reflects what they know and can do. Some examples of **strategies to support culturally responsive formative assessment** include:

- Welcoming students' full identity into learning by helping them activate prior knowledge that taps into their culture, language and history;
- Helping students make explicit connections between their own lives, what they are learning and the ways they are showing it;

- Giving students opportunities to celebrate and share their culture, language, experiences and community as they provide evidence of their learning**;** or
- Giving students opportunities to connect and apply their real world lived experiences to local community-based issues (Ladson-Billings, 2020).

Teachers should reflect on how they can bring a culturally responsive mindset to their formative assessment practice by considering:

- How can I demonstrate that I value my students' cultural and language strengths, experiences and histories?
- In what ways can formative assessment be culturally responsive in my classroom?
- How can I elicit evidence of student learning that values my students' broad range of strengths and experiences?
- How can culturally responsive formative assessment support student learning? (WestEd, 2020a).

Inclusive Formative Assessment

Formative assessment practices are inclusive when all students can fully access and engage in ways that allow them to demonstrate what they know and can do. Educators should plan to design evidence-gathering opportunities that ensure that all students are able to fully understand the language, symbols and information with which they are engaging, regardless of prior knowledge, language background or disability. This can mean representing information in different ways, explicitly teaching key vocabulary and symbols and checking for understanding (WestEd, 2020a).

It also means that all students, including English learners, students with disabilities, students of various racial and ethnic backgrounds, and students with a variety of learning styles, can be successful in expressing themselves. Teachers should regularly consider, "Does this opportunity allow each of my students to be successful in sharing what they know and can do?" This may include appropriate scaffolds and options to support expression that focuses on the learning, not on mandatory modes of expression that may pose barriers such as assessment bias.

Assessment bias refers to the "qualities of a test that can offend or unfairly penalize test-takers because of personal qualities such as gender, race, ethnicity, religion, or similar group-defining characteristics" (Popham, 2010). Inclusive education considers the diversity of all learners and is grounded in the premise that all students are special, have the potential to learn and deserve to be supported (Opertti, 2017). Inclusion in formative assessment seeks to eliminate biases and barriers by ensuring that all students receive equitable learning opportunities (WestEd, 2020a). According to WestEd some **Strategies for Inclusive Formative Assessment** include:

- **Knowing Your Learners:** Inclusive formative assessment practices start with understanding your learners. This means not only understanding and planning formative assessment to meet the specific learning needs of students with disabilities and English learners, but also understanding the needs of *all* students since learners have their own unique styles and methods for interacting (Erkens, et al., 2017).
- **Presenting Information Using Multiple Formats**: Providing information in a variety of formats (e.g., text, audio, video, images, graphs and charts) can ensure that diverse learners have access to the information they need to learn. Consider how specific learners access information and provide alternatives that can ensure their success (WestEd, 2020a).
- **Offering Students Options for Providing Evidence:** Formative assessment relies on eliciting evidence of student learning that can inform the students and the teacher about where students are in their learning. Allowing students different ways to share that evidence can help ensure that the evidence is meaningful. For example, could students present research findings as a written text, oral presentation or series of charts and still provide specific information about their progress toward the learning goals? Would that allow more students to be successful and provide a more accurate picture of where they are in their learning?
- **Using Appropriate Scaffolds and Accessibility Supports:** Students should be provided appropriate scaffolds, accommodations and accessibility supports to allow them to fully engage in the formative assessment process, including not only providing evidence of their learning, but also in the self, peer and teacher feedback that will inform next steps in learning.
- **Inviting Students to Provide Feedback:** Students should be invited to provide feedback on ways that the formative assessment process could be more inclusive. Did the accessibility support provided to students help them? Are there other strategies that could allow students to more effectively share their learning?
- **Considering Students' Remote Learning Environments:** This includes computer access, sufficient internet bandwidth, access to learning support, and the availability of a workspace that allows them to meet the learning goals and success criteria. This may mean allowing students to keep their camera off to conserve bandwidth, providing print materials, connecting with students by phone or allowing them to work during evening hours when they may have access to adult support at home. While teachers don't usually have control over these conditions, understanding them can support planning for alternative ways for students to access materials and share evidence of their learning (Fisher, et al., 2020).

Student Choice in Formative Assessment

The goal of formative assessment is not only to ensure that students meet their learning goals, but also that they develop the skills to manage their own learning (also known as self-regulation). According to Cassandra Erkens (2017), self-regulation is "an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behavior" (p. 113). When students have the autonomy or power to take ownership over their learning, students are said to have **agency**. Offering student choice builds student agency and ownership of learning, which is essential for the formative assessment process. The design of the range of evidence gathering strategies in a lesson should provide choice, autonomy and relevance for students. This promotes motivation and engagement and allows students to see themselves as the primary managers of their own learning (WestEd, 2020a). When considering **strategies for student choice in formative assessment,** teachers should:

- Start with clarity about the learning goals.
- Engage students in co-constructing success criteria.
- Offer multiple ways for students to share evidence of their learning.
- Welcome student ideas about reasonable alternatives to share evidence.
- Value different ways that students approach their learning.

Student choice should be anchored in strong teacher and student clarity about the specific learning goals so that teachers can determine where choice is appropriate and can improve the learning for students. Engaging students in co-constructing success criteria can give students a voice in how they show where they are in their learning. By providing students with different options about how they can share evidence of their learning, teachers help to ensure that students understand the specific learning they are focused on, no matter how they choose to share their ideas, and teachers create a safe classroom climate in which students have real opportunities to suggest alternatives and improvements (WestEd, 2020b).

Planning Evidence-Gathering Opportunities

Lesson Design Considerations: Different Evidence at Different Times

Years ago, psychologist David Ausubel (1968) argued that what the learner knows is the most important factor influencing student learning, and it is the teacher's job to ascertain this and plan accordingly (Wiliam, 2018). Teachers regularly plan the instructional activities that take place in their classrooms, but oftentimes, planning to elicit evidence from those activities are done "on the fly" (p. 83). Designing lessons that elicit meaningful evidence of student learning that can support students and teachers to move their learning forward is critical to the formative assessment process.

Over the course of a lesson, students are working on different things and in different ways as they build up to demonstrating their learning through the success criteria. This is important to keep in mind in designing evidence-gathering opportunities throughout a lesson because specific aspects of student thinking are more important at different points in the lesson. While some educators rely too heavily on only assessing students at the end or conclusion of a lesson, knowing *why* they are eliciting specific evidence and determining the aspects of student thinking they *most* want to focus on will help teachers decide where in the lesson they should elicit the evidence (WestEd, 2020a).

There are a multitude of evidence-gathering opportunities that can be employed throughout a lesson. The **beginning of a lesson** could include identifying prior knowledge, clarifying misconceptions or checking for understanding about learning goals and success criteria (just to name a few), while the **middle of a lesson** might include checking for understanding on key concepts and skills that build to the learning goals, providing opportunities for individual and collaborative sense-making or clarifying student misconceptions. The **end of a lesson** could include sharing progress toward success criteria or fine-tuning learning and performance toward success criteria (WestEd, 2020a). For discipline-specific examples of eliciting evidence at the beginning, middle or end of a lesson, visit Module 4: Eliciting Evidence of Student Learning found on the balanced assessment professional learning modules page.

It is important to ensure that over the course of a lesson, evidence-gathering strategies are aligned to disciplinary discourse and practices from multiple sources are prioritized. By engaging students in evidence-gathering opportunities that employ a **variety** of tasks and participation structures, teachers provide opportunities for a broader and well-informed view on student learning. When a variety of evidence is collected, teachers are more apt to determine when student learning is on track and when misconceptions are leading them in a different direction (Wiliam, 2018). These different tasks and structures should be aligned both to the learning goals and success criteria, but also to where students are during a lesson. Table 4.3 below provides a few examples of tasks and the corresponding participation structures teachers could incorporate in their classrooms (WestEd, 2020a).

Table 4.3. *Variety of Tasks and Participant Structures*

Participant Structure	Classroom Talk	Student Work	Peer and Self-Assessment
Independent	Conference with teacher	Written response, essay, jigsaw	Thumbs up/thumbs down, exit ticket, reflection journal

Participant Structure	Classroom Talk	Student Work	Peer and Self-Assessment
Pair	Turn and talk, peer conference, teacher and peer questioning, pair share, elbow partners	Presentation, work plan, graphic organizer, reading guide	Peer conference using a rubric, peer editing
Small Group	Teacher and peer questioning, discussion, share work	Presentation, work plan, graphic organizer, reading guide, jigsaw	Carousel, group presentation feedback
Whole Class	Teacher and peer questioning, classroom discussion	Class play, Four Corners, debate	Gallery walk, parking lot

Evidence-Gathering Routines

Evidence-gathering routines are critical to informing students and teachers about next steps in their learning. There are many evidence-gathering routines that are likely already in place in classrooms that teachers can leverage. The key is for teachers to choose routines which elicit evidence at different points throughout their lessons and to select strategies that best help to fuel the formative assessment process by maximizing equity, fairness and choice. According to WestEd, teachers can elicit meaningful evidence through **five primary evidence gathering routines**: activating prior knowledge, academic dialogue, questioning, observation and analysis of student work, and peer and self-assessment (2020b).

Routine #1: Elicit Evidence Through Activating Prior Knowledge

Activating prior knowledge is an important instructional strategy that can help students connect things they already know with new learning. It also is an opportunity to invite students' cultural strengths, language knowledge and personal identity into the learning and to promote engagement. Prior knowledge activities are also important opportunities to elicit evidence about where students are in their learning coming into a lesson. This helps to inform teacher decisions about building up background knowledge, clarifying misunderstandings and informing how to help all students find entry points into lessons.

Prior knowledge activation opportunities are often provided at the beginning of a lesson, but they can be employed throughout a lesson, whenever it is useful to connect what students are learning with what they might already know. The ***Kentucky Academic Standards*** provide

specific information about the vertical alignment of the standards that could be a helpful resource in planning to identify students' prior content knowledge.

- **In Mathematics:** Each mathematical standard (K-8) presents coherence in the clarifications section, providing links to the matching standard from the preceding and following grade.
- **In Reading & Writing:** The reading and writing standards also each offer progression information, linking to the matching standard in the preceding and following grade.
- **In Science:** The standards offer articulation of the Disciplinary Core Ideas (DCI) across grade levels.
- **In Social Studies:** The social studies standards are intended to convey the importance of both conceptual knowledge and understanding within four disciplinary strands in social studies (civics, geography, economics and history) and the development of the inquiry practices of questioning, investigating, using evidence and communicating conclusions. The complexity of the standards within the concepts and practices progresses from kindergarten through high school.

Routine #2: Elicit Evidence Through Academic Dialogue

Engaging in academic dialogue allows students to both share and develop their thinking. It supports exploration of ideas, connections and inquiry. When students talk, teachers (and students themselves) can better understand what students know, the strategies they are using and how they are thinking about the content. When structured equitably, eliciting evidence through academic dialogue should:

- Build a classroom culture that encourages questions, suggestions and learning from mistakes within small and whole group structures.
- Establish opportunities to explore multiple viewpoints and solutions.
- Ensure dialogue allows for equitable participation by all students.
- Establish consistent use of both large and small group dialogue.
- Anchor discussion in disciplinary practices and discourse to make meaning in the subject area (when aligned to learning goals and success criteria).
- Provide an opportunity for culturally responsive formative assessment that is fair and accessible to all students (WestEd, 2020b).

Routine #3: Elicit Evidence Through Questioning

Asking questions is a key aspect of the way that students and teachers interact in classrooms. However, questions that focus on right or wrong answers or student questions that generate a closed exchange, don't generate meaningful evidence of student learning to inform the formative assessment process. When intentionally designed and implemented, effective questions are a powerful tool to gather evidence of student learning, as well as to guide

students to manage their own learning through the next steps of the formative assessment process. Teachers seeking to gather meaningful evidence through questioning should:

- Plan questions in advance.
  - Develop questions that will elicit thinking at key points in the lesson.
  - Sequence questions to address growth in student knowledge and skills over the course of the lesson.
- Apply the research on effective questioning.
  - Allow for adequate wait time.
  - Integrate questions that encourage higher-order thinking.
  - Employ pre-thinking strategies (pair/share, pre-write) when asking cognitively complex questions.
- Use questions to engage in assessment conversations.
  - Build on student thinking to make connections. (*How would this connect to what we studied in our last unit on motion?*)
  - Challenge students to prove their thinking. (*What evidence do you have to prove that?*)
  - Probe students' ideas and misconceptions. (*What would it look like if…?*)
  - Bring other student voices into the conversation. (*What do you think about what was just said? Can you build on his response?*)
  - Engage others to elicit different thinking. (*Can you think of a different way to approach that problem?*)

Assessment conversations differ from typical teacher question/student answer interactions in that they are designed to explore student thinking. Teachers should identify the questioning routines that they find most powerful to help them plan for those strategies in advance. For example, mathematics teachers looking for resources to support questioning might choose to reference the *Kentucky Academic Standards* resource: Engaging the SMPs: Look Fors and Question Stems. By thinking through the kind of evidence of student learning specific questions elicit, and how they use that evidence, teachers are better able to plan questioning routines that ensure evidence is meaningful, fair and offers choice. Through modeling of routines and structures, students begin to internalize the questioning stems they hear their teachers using and can begin to support the learning of others by replicating similar stems with their peers (WestEd, 2020a).

Routine #4: Elicit Evidence Through Observation and Analysis of Student Work

Student work can take a variety of forms. With thoughtful design, it can be a powerful way to elicit evidence of student learning. Students who review work and understand the qualities of that work have an increased understanding of how to grow in their own achievement (Erkens, et al., 2017). When planning to elicit evidence of student learning, teachers should keep in mind

that any evidence collected needs to focus on making student thinking visible so that it can inform next steps in learning. It also can prioritize disciplinary practices and discourse to ensure that student thinking is anchored in the specific disciplinary learning outlined in the standards. Some **examples of student work that elicit evidence** of this type could include:

- Drawings;
- Investigations;
- Diagrams;
- Student writing;
- Graphs;
- Graphic organizers;
- Concept maps;
- Detailed outlines;
- Model building; or
- Student notes (WestEd, 2020b).

Regardless of which type of evidence students are asked to elicit, teachers should intentionally design evidence-gathering opportunities that are fair and promote choice and autonomy so that students can accurately show their thinking and begin to manage their own learning. Teachers should ensure that students fully understand the language, symbols and information with which they are engaging and that they have the appropriate scaffolds and options to support expression of that learning (WestEd, 2020a).

Routine #5: Elicit Evidence Through Peer and Self-Assessment

Teachers are not the only ones responsible for eliciting evidence of student learning in the formative assessment process. Students also play a key role by developing the metacognitive skills that allow them to see that by making their ideas and learning visible, they are providing evidence of their own learning. Once they understand this, students can better elicit and interpret the evidence they collect from themselves and their peers (Wiliam, 2018). While this isn't something most students do automatically, through modeling, direct instruction and structured opportunities, students can become effective at eliciting and using evidence of learning. Providing these supports is the teacher's role (p.83). While peer and self-assessment routines are designed to help students manage their own learning, it is also an opportunity for teachers to gain insight into students' thinking as they elicit and use evidence from their peers (WestEd, 2020a).

Additional Planning Resources

In addition to the *Kentucky Academic Standards* resources listed for activating prior knowledge above, KDE offers additional resources to support teachers in offering standards-aligned lessons. These resources include content-specific protocols for reviewing assignments as well as

example assignments. For a more in-depth analysis of these resources for mathematics, reading and writing, or social studies, consider reviewing the KDE's Assignment Review Protocols or Student Assignment Library Resources.

Interpreting Evidence of Student Learning

As emphasized earlier in this framework, understanding where learners are heading and how they will know if they are successful is essential for teaching and learning and is a key aspect of quality assessment practices. Knowing if students are successful throughout the formative assessment process requires that teachers and students continually interpret meaningful evidence elicited from student learning. Evidence is defined as any student learning that can be observed, and it is understood in relation to the specific learning goals that students are working toward. This continuous, ongoing process of interpretation is often referred to as **evidence-based interpretation** and is used to engage students and teachers in identifying where students are along their learning progression and where they need to go next based on a careful analysis of student artifacts.

Teachers can better understand a students' learning development when they move beyond just knowing which students "got it" or "didn't get it." Knowing whether an assignment is complete or incomplete does not provide any actionable evidence that can be used to move learning forward. When teachers have clarity on the disciplinary and cognitive path towards learning goals and can clearly communicate that information to students through regular, ongoing feedback, students are better able to develop the skills to become self-directed learners and move their learning forward (WestEd, 2020a). Students who can conduct self-assessment and interpret evidence of their own learning are continually developing the skills necessary for becoming self-regulated learners (Chappuis, et al., 2017).

Engaging Students with Interpreting Evidence of Learning

Student engagement is key to the interpreting of evidence and allows teachers and students to meaningfully engage in the formative assessment process by embracing opportunities to make learning public. When students are engaged in interpreting the evidence of learning they produce, they are developing the skills of metacognition (thinking about their thinking) and self-regulation (WestEd, 2020a). Because metacognition involves knowing what one knows and can do, growing research suggests that the most effective learners are self-regulating learners. When we train students to reflect on evidence of their learning and be metacognitive, their performance in the classroom is improved (Wiliam, 2018).

According to John Hattie's research (2009), metacognitive strategies have an effect size of 0.69. Together, disinhibition - the skill of not being distracted or stuck, updating/monitoring what we are learning, and being skilled at shifting between tasks to attack problems combine to form what is referred to as metacognition or self-regulation (Clarke & Hattie, 2019). Self-regulated learners monitor their learning by comparing their work against specific learning goals and success criteria and the ideas of their peers, making adaptations to their learning strategies as they see fit. When self-regulated learners engage in this process, they can make connections between behaviors exhibited during the learning process and evidence of learning produced, thus strengthening their own understanding and the understanding of those around them (WestEd, 2020a).

Classroom Culture and Evidence

Climate and culture are often used interchangeably. However, the two are not synonyms. **Culture** reflects the norms, values, beliefs and traditions that are transmitted historically over time. Culture influences climate but is more fluid in nature. **Climate** is how members of a community experience that community, the mood of the community per se. The formative assessment process, in which students and teachers must work together to move students toward their disciplinary learning expectations and to become self-directed learners, relies on both classroom culture and climate (WestEd, 2020a). In order to sustain the work of formative assessment, the classroom culture must be carefully monitored and structured (Erkens, et al., 2017).

How can classroom culture support students to use evidence of their own learning? Students can become the kind of self-directed, engaged learners who can recognize evidence of their own learning, embrace opportunities to make their learning public and engage with evidence when the classroom culture empowers them to engage fully in the formative assessment process (WestEd, 2020a). In the book, *Visible Learning Feedback* (2019), authors John Hattie and Shirley Clarke share the following **seven key elements of an effective feedback culture** (p. 8):

Key Element #1: Feedback resides within a framework of formative assessment.
Feedback is one of the key ingredients of formative assessment. Improving learning through assessment requires that educators involve students in their own learning and self-assessment by sharing learning goals with them, helping students understand next steps, knowing how to take those steps and how best to improve. This is underpinned with the belief that all students can improve and that assessment has a tremendous influence on students' motivation and self-esteem (p. 9).

Key Element #2: Our goal for all learners is to give them the motivation, curiosity and willingness to learn and deepen current understandings (what Hattie refers to as "the skill, will, and thrill").

- **The Skill:** Knowing and building on what students bring to the classroom by teaching students the skills to own their own learning (leads to students' self-feedback);
- **The Will:** The learning dispositions students hold and bring to learning experiences; and
- **The Thrill:** Motivating students to be invested in achieving the success criteria through co-construction and involving them in self-assessment (p.13).

Key Element #3: Spaced and deliberate practice, metacognition, embedded challenge mindsets and mind frames are effective.

- Spaced practice elicits improvement when teachers plan practice that is deliberate and the result of continual ongoing feedback. Massed practice - that is practice opportunities given in large amounts or within a shorter time frame - is not effective.
- A growth mindset - the belief that one's skills, qualities and intelligence can develop over time with work - is enabling and most effective when students are in situations of "not knowing" and need to invest in learning more, such as when they make mistakes.
- Positive teacher mind frames go a long way to ensure authentic and effective feedback strategies for students. Positive mind frames bring about feelings of value and self-efficacy in students, which can have a more desirable impact on learning outcomes (p. 23).

Key Element #4: The key to new learning is for the normalizing and celebration of error.
Students should feel safe to take risks in learning and make mistakes. Students are more enabled and invested in learning when they are in situations of "not knowing" and make mistakes (p. 13). Errors invite learning opportunities and should not be seen as shameful or embarrassing (p. 27) since making errors and having opportunities to correct those errors.

Key Element #5: Mixed ability grouping maximizes equity in learning.
Mixed ability grouping can help to build motivation, social skills and independence and raise standards because students become more engaged in their own learning. Placing students in similar ability groups has negative equity effects because students in the top or bottom groups wonder why they should invest in their learning when the system has already made its decision (p. 38).

Key Element #6: Feedback should be task related, not ego driven.
Mixing feedback about learning with praise "interferes with and dilutes the message about learning." While praise for effort or praising specific student behaviors can sometimes prove

helpful at building relationships, the most effective praise type is praise given to students for performing an activity well against various criteria (p.44).

Key Element #7: External rewards act as negative feedback. We need to motivate students intrinsically to want to learn.

Programed instruction, praise, punishment and extrinsic rewards are the least effective forms of feedback. Hattie has determined that extrinsic rewards have a negative effect size of -0.34 on task performance. The use of extrinsic rewards also has been found to undermine engagement and regulation (p. 46).

Effective Student and Teacher Feedback

James Popham defines formative assessment as "a planned process in which assessment-elicited evidence of students' status is used by *teachers* to adjust their ongoing instructional practices or by *students* to adjust their current learning tactics" (2010). This definition highlights the key role students can play in the assessment process, and at the heart of students' self-assessment and peer assessment lies feedback (Bailey & Jakicic, 2012).

Feedback remains one of the most powerful influences on student achievement (Hattie, 2009). Used as a basis for improvement, feedback provides information about a person's performance. When broken down into two parts, the word *feed* means to nourish, and *back* means in exchange or in return. Therefore, "feedback is meant to nourish learning through an exchange" (Almarode & Vandas, 2019).

Effective feedback helps students understand where they still need to build proficiency and guides them to employ the specific strategies needed to improve (Bailey & Jakicic, 2012). Simply put, effective feedback communicates to learners where they are and where they need to be. According to Susan Brookhart, the following **three criteria characterize effective feedback** (Almarode & Vandas, 2019):

1. **Timely -** Students have opportunities to respond to content close in time to when they were engaged in the learning and teachers provide ongoing feedback to students throughout the learning process so that adjustments and improvements can be made as needed (p.134). Feedback effectiveness is determined by whether it is delayed or immediate. Delaying feedback is helpful only when students have additional opportunities to respond through error analysis or test corrections. In most cases, immediate feedback is the most effective form of feedback because it allows learners the opportunity to make corrective modifications during their continued practice (p.135).

2. **Specific** - Giving students specific feedback regarding an action, event or process or additional steps they can take to improve on a task is more effective than general feedback (p. 135).
3. **Constructive** - Focused feedback that is specific to the learning and not just the learner and supports the learning process is considered constructive (p. 136).

There should be a focus in classrooms on timely, effective feedback and self-reporting (Bailey & Jakicic, 2012), and as John Hattie stresses in *Visible Learning*, "When teachers seek, or at least are open to, feedback from students as to what students know, what they understand, where they make errors, when they have misconceptions, when they are not engaged - then teaching and learning can be synchronized and powerful. Feedback to teachers helps make learning visible" (Hattie, 2009).

Self and Peer Assessment

The purpose of self and peer assessment is to help students manage their own learning. Students who manage their own learning can set goals, make plans, monitor their progress and adapt their approaches to learning. Essential to this process is being able to view their own work and the work of their peers critically and use it to make decisions about how to proceed in their learning (WestEd, 2020a).

Whether it's through a well-designed project, a well-written essay or a strong hypothesis, students need a clear picture of the features of quality work. Unfortunately, educators are often the ONLY ones to evaluate and categorize student work based on its quality. However, many educational experts argue that by engaging students in the process of defining quality, students are empowered to make meaning from information. Rather than simply being handed a rubric or list of criteria, students can make personal connections to information, which often results in students taking charge of their own learning. When students begin to make comparisons between their work and the indicators of quality, they are generating the kind of feedback they need to assess their own learning (Bailey & Jakicic, 2012).

If students and teachers do not have a shared understanding of the learning they are working toward and a shared sense of quality, students will not be able to appropriately manage their own learning. Teachers need to explicitly teach self-assessment, give students opportunities to practice self-assessment and model the strategies students will be utilizing as embedded classroom routines within the formative assessment process (WestEd, 2020a). Helping students understand where they are in their progress compared to where they need to be increases the likelihood that students will address their own learning gaps during self-assessment opportunities (Erkens, et al., 2017).

Common View of Success

To build a common view of success, teachers can help students internalize expectations in a variety of ways. Some of these include using (WestEd, 2020a):

- **Learning goals and success criteria**: If students are to use them to guide their understanding of their own progress, they need more than just seeing the learning goals and success criteria posted on the board. To assess students using the success criteria often involves teachers and students conferencing to discuss what students are doing well and what they need to work on moving forward. By creating a box or checklist for each criterion, students can discuss each criterion they have mastered and justify that mastery through the evidence collected and demonstrated up to that point. These conferences can be conducted as an independent student reflection, between peers or teacher to student and should lead to a natural goal-setting conversation (Almarode & Vandas, 2019).
- **Transparent evaluation criteria**: Students should understand how their learning will be evaluated and what criteria will be used to determine where students are in their understanding. Regardless of the type of feedback, tool or approach used, students will ultimately need to know: What does quality look like? Who determines what quality looks like? Where am I in this learning process? Where do I need to go next? In *Hidden Lives of Learners,* we find out from Graham Nuthall's research that up to 80 percent of the feedback that students receive every day is from their peers and 80 percent of the time that peer feedback is wrong or inaccurate. Therefore, it becomes increasingly more important for teachers to model providing quality feedback to students using learning goals, success criteria and a variety of elicited evidence examples (p. 144).
- **Examples and non-examples**: Providing students with examples that can illustrate what success might look like can strengthen student understanding of what students are working toward. Examples can be used to further illustrate non-examples by showcasing common missteps students may make and possibly modeling how to improve the non-example.
    - An example of this in reading and writing could be an argument that is well supported by evidence while a non-example could be an argument that lacks relevant support.
- **A variety of approaches**: Teachers also can provide students with examples of multiple approaches that can lead to success. This acknowledges students' diverse learning needs, differing learning styles and diverse background knowledge through the ability to be successful and take ownership of their learning.
    - An example of this in social studies could be to demonstrate how different types of primary sources can be used to support an argument (political cartoons,

propaganda posters, voice recordings of oral histories, diaries, photographs, maps, economic data and letters). Teachers also can offer students choice in the lesson to empower students to take charge of their learning. For example, students could find their own primary sources or choose three sources from a set of six that the teacher has compiled.

Explicit Teaching and Modeling

Nearly everything a teacher does during a lesson can be seen as modeling, but deliberate, purposeful modeling is a powerful instructional strategy. Teaching and modeling with self and peer assessment is no different. Teachers can help students develop their self and peer assessment skills by **making intended learning visible** and modeling what it looks like to make evidence of their own learning visible. By sharing their own work and process, teachers demonstrate what it looks like to view your own ideas and work as evidence and use that evidence to make decisions (WestEd, 2020a).

Teachers can help students learn to make sense of their own learning by providing **explicit instruction and modeling of self-assessment** to demonstrate how to look at evidence of their own learning in the context of the learning goals and success criteria. (WestEd, 2020a). By thinking aloud and comparing a shared teacher example against specific success criteria to describe the ways in which the example measures up (or doesn't measure up) to those criteria, teachers are explicitly modeling the self-assessment process they hope students will replicate (Almarode, et al., 2019).

In the same way that teachers can make self-assessment explicit, they can support students in understanding where their peers are in their learning by thinking about evidence of their peers' learning in the context of the learning goals and success criteria. This requires helping students understand they have a responsibility to notice their peers' learning and to respond in ways that support progress toward the learning goals through **teaching and modeling of the peer assessment.** An example of this in social studies might involve showing students how to evaluate the reliability of a source so that students can provide feedback when evaluating peers' arguments such as (WestEd, 2020a):

- I'm not sure that I trust this source. Do you know if the author is an expert on the issue?
- Do they have experience that gives them authority?
- Do you have another source that supports, or corroborates the information in this one?

Practice

Students need the time and space to practice engaging with evidence of their own learning and the learning of their peers. For students to develop the skills that they need to be independent

learners, students need multiple opportunities to practice "underpinned by specific, clear goal-based instruction." This practice that works "hand in hand with specific skill building, deliberate teaching, feedback, and success criteria" is what is often referred to as deliberate practice (Hattie & Clarke, 2019). In order to get better at applying success criteria to their work and the work of their peers, students need opportunities to practice in an environment that makes it safe for them to manage their own learning and support the learning of their classmates through the following (WestEd, 2020a):

- **Classroom culture:** As discussed previously, students can engage in the formative assessment process when they are learning in a context that supports them to do so. To practice and improve at self and peer assessment, students need a culture that supports them to make meaning for themselves, manage their own learning, and participate and contribute to a collaborative environment; a culture that makes space for errors and mistakes as learning opportunities.
- **Low-stakes:** Students can practice and get better at meaningful self and peer assessment when they view assessment as an opportunity to understand where they are in their learning in order to make decisions about how to improve, as opposed to a way to determine if they are right or wrong, or whether they get a good grade or a bad grade. This could mean giving student pairs a set of questions to ask each other to guide peer-assessment of arguments that the students have constructed. Teachers also can gather evidence of student learning by observing students as they evaluate each other.
- **Repeated Opportunities:** Just like with other skills your students are learning, students need ongoing and repeated opportunities to practice the skills related to self and peer assessment. There is a need to progress from scaffolded self and peer assessment to being able to apply success criteria to evidence independently.
- **Feedback**: Repeated practice needs to be coupled with specific feedback about how students are doing at self and peer assessment. Students need a chance to hear their teachers' perspective on what they are doing well and how they can sharpen their peer and self-assessment skills to become more independent. Students also need opportunities to discuss their own reflections on the process. Too much feedback overwhelms the learner and can distract from the learning goals and success criteria while too little feedback leaves the student and teacher unsure as to where to go next. Feedback should be planned around the Goldilocks principle - "not too much, not too little, but just the right amount" (Almarode & Vandas, 2019).

Tools and Strategies for Interpreting Evidence

In addition to teaching, modeling and opportunities to practice, teachers can provide a variety of strategies and tools that students can use to build student responsibility, ownership and the

skills they need to manage their own learning through self and peer assessment. These tools and strategies are not intended to be a one size fits all. Teachers will need to determine which tools and strategies are developmentally appropriate for the students they teach. Some examples of tools and strategies that can support students to make sense of evidence of their learning and that of their peers include (WestEd, 2020a):

- Templates;
- Self and peer correction checklists and look-fors;
- Sentence starters;
- Student-friendly rubrics;
- Background knowledge anchor charts;
- Graphic organizers for the intended learning sequence;
- Student reflection sheets;
- Question prompts; and
- Explicit comprehension strategies.

Strategies for Interpreting Evidence of Student Thinking

When teachers interpret evidence of student learning, they are focusing both on the progress of individual students and the class or groups of students in terms of their learning progressions. As teachers look at evidence of student learning, they are looking for gaps between where students are in their learning and where they are headed. There are multiple strategies that teachers can employ to interpret evidence of student thinking including (WestEd, 2020a):

- **Probing and unpacking students' responses** in order to get an accurate idea of students' progress toward learning goals. Merely identifying a gap is not enough to support effective pedagogical action. Teachers need to understand why there is a gap in order to support students to move forward, and students need to understand what helps and what hinders their understanding so they can work together to close those learning gaps (Erkens, et al., 2017).
    - **In Reading and Writing:** For example, a teacher may look for students simply restating what is presented in a quotation in their writing, as opposed to elaborating and making connections to their overall claim in opinion/argumentative writing.
    - **In Social Studies:** In a whole class discussion, a student might begin to describe how a primary source supports an argument. Probing with questions such as, *"Say more about that. What do you mean?"* can draw out and unpack student knowledge.
- **Interpreting evidence in light of specific disciplinary misconceptions** or issues that may constrain students from reaching their learning goals. Teachers can draw on their

content knowledge as well as their understanding of how students learn disciplinary ideas and skills to anticipate these kinds of issues and support in-process pedagogical responses (WestEd, 2020a).

- **In Reading and Writing:** For example, the teacher might notice a group of students misinterpreting the diction, or word choice, in a sentence or paragraph of text, which hinders their ability to analyze and explain how those words and phrases shape meaning and/or tone in the context of the passage or larger text.
- **In Mathematics:** Teachers can encourage students to describe the process, the conceptual understanding, and informally the mathematical practices that drive a problem-solving process.
- **In Science:** For example, a demonstration of a phenomenon that cannot be explained using the misconception might help some students reason through the misconception OR having small groups construct concept maps showing connections and interrelationships can produce evidence that allows students to see and discuss differences between their own thinking and the thinking of their peers.
- **In Social Studies:** For example, before learning more about it, some students believe that the Constitutional protection of rights applies in every case, when in fact instances such as a parent searching a child's bedroom do not violate the child's Fourth Amendment rights. Evidence of this kind offers an example to teach about the difference between state action and non-state action.

- **Looking for patterns that show common errors, misconceptions or issues among groups of students**. This analysis supports direct feedback and support to individuals and groups of students. But it also should prompt reflection on and continuous improvement of the teacher's practice.
  - **In Reading and Writing:** For example, the teacher might notice a student who claims to be opposed to gun control in an opinion/argument piece, yet the student cites reasons and/or textual evidence indicating he or she is in favor of the issue.
  - **In Mathematics:** The teacher might notice that a group of students can identify fourths when each part of the whole is the same shape and size (e.g., a rectangle partitioned horizontally and vertically into 4 same-sized squares), but cannot identify fourths when this is not true (e.g., a rectangle partitioned into two halves vertically, where one half is partitioned into two same-sized parts vertically and the other half is partitioned into two same-sized parts horizontally).
  - **In Science:** For example, a teacher might notice from student diagrams or explanations that students' models of substances at the particle level do not

include empty space (physical science), that objects sink because they have less mass (physical science), that plants obtain food energy by absorbing from soil through their roots (life science), or that Earth is the center of the solar system (earth and space science).

- **In Social Studies:** For example, a group of young students may think about history through the lens that Christopher Columbus "discovered the New World," when in fact people had been living in North America for thousands of years. Or students may think of American Indians living in undisturbed natural environments when evidence suggests they changed the natural forest composition through land management techniques such as burning.

Evaluating the Quality of Your Evidence

Even when evidence-gathering opportunities are carefully constructed and are aligned to learning goals and success criteria, the evidence elicited can still be clouded by other factors. An important step in making meaning of student evidence is evaluating the quality of the evidence in the context of the learning goals and success criteria. To best evaluate the quality of evidence that has been gathered, teachers should carefully consider their students' prior knowledge, any language or technological barriers that exist, and how questioning can be utilized to propel student thinking and learning forward. This sometimes means filtering extraneous information that doesn't provide insight into students' current learning status relative to the learning goals and success criteria and focusing tightly on the intended learning (WestEd, 2020a).

- **In Reading and Writing:** For example, a teacher may observe students misusing common grammar structures in a partner discussion focused on summarizing the central idea and supporting evidence in an informational text. If the learning goals are focused on comprehending and expressing ideas about informational text, oral language errors can be a distraction from the intended learning of the lesson.
- **In Mathematics:** If a student is asked to work independently on a math problem that requires them to have a working knowledge of the game of golf, the evidence of learning being analyzed may not be representative of that student's math knowledge if the student does not have the appropriate prior knowledge structures to engage with the content of the problem.
- **In Science:** For example, if students are asked to work independently on a physics problem about Newton's laws that requires them to have a working knowledge of a particular sport or the terminology specific to that sport, the evidence of learning may not be representative of the student's science knowledge if the student does not have the appropriate prior knowledge structures to engage in the problem. Complex scientific terminology and idiomatic usage of scientific terms (such as the common usages of

terms like *energy* or *work)* may also be language barriers for students that prevent them from producing evidence that reflects their understanding.

- **In Social Studies:** A teacher may observe students misusing common grammar structures in a partner discussion focused on analyzing a primary source. If the learning goal is focused on using primary sources to identify strategies used by groups facing discrimination, oral language errors are extraneous information.

Evaluating the quality of evidence also can mean considering possible factors that may be limiting your students' capacities to demonstrate what they know and can do relative to the learning goals and success criteria. Some examples of factors that may impact the quality of the evidence of student learning to inform good decisions about student learning include:

- **In Reading and Writing:** If students struggled in a lesson in which they were asked to determine a theme of a text and analyze its development through citing textual evidence, paraphrasing or summarizing , teachers should unpack whether this was because students struggled with the intended learning for the lesson or whether there were other factors at play (i.e., students were unable to read the passage).
- **In Social Studies:** If students struggle to understand the point of view in a primary source, teachers should ask questions to determine whether this is because students are having difficulty with unfamiliar, archaic language or with a lack of historical context.

As teachers work to identify any issues clouding evidence, it's an opportunity to go back and elicit evidence in a different way to ensure that they understand what their students know and can do. The formative assessment process is based on utilizing meaningful evidence of student learning. Teachers must be aware of the other filters that may impact a student's ability to demonstrate their knowledge as it relates to the evidence elicited to demonstrate specific learning goals and success criteria (WestEd, 2020a). Table 4.4 below summarizes evidence quality for the various aspects of feedback (Hattie & Clarke, 2019).

Table 4.4. *Quality of Feedback Evidence*

Aspect	Higher Feedback Evidence	Ineffective Feedback Evidence
Goal Setting	• Higher feedback evidence addresses task goals directly. • A specific and challenging goal is set, often with criteria for a high-quality performance on a task. • The goal is communicated so that students understand it (e.g., co-	• Goals are vague and/or not used. • Students do not understand the learning goals or success criteria.

Aspect	Higher Feedback Evidence	Ineffective Feedback Evidence
	constructed success criteria and excellent examples are modeled and analyzed).	
Kind of Feedback	• Higher feedback evidence draws attention to positive elements of the performance (i.e., the details of correct responses). • Higher feedback evidence can include constructive criticism: advice that encourages the student to improve task performance. • Higher feedback evidence can refer to changes in performance from previous efforts. • Higher feedback evidence can include an element of self-assessment by students (including peer assessment) as part of the process of encouraging student autonomy and responsibility.	• Ineffective feedback evidence is focused solely on incorrect responses. • Ineffective feedback evidence does not provide information or support to improve performance or understanding. • Ineffective feedback evidence has a focus on comparisons to other students or marks and grades. • Ineffective feedback evidence relies on extrinsic rewards (i.e., stars, stickers) and/or includes punishment.
Level of Feedback	• Higher feedback evidence provides information about a task, how well it was performed and how to do it more effectively. • At the process level: How can the student improve the learning processes needed to understand and perform the task? • At the self-regulation level: How can the student do a better job of planning, monitoring/managing their actions and using strategies in approaching the task (described as metacognitive feedback)?	• Non-specific feedback is given, such as praise or criticism for task performance without detail. • At the self-level: Comment on personal student qualities (positive or negative) with little or no information about processes or performance.

*Adapted from *Visible Learning Feedback* (Hattie, et al., 2019).

Anticipating Student Understanding

By anticipating the understanding of knowledge and concepts that students bring when embarking on new learning goals, teachers position themselves to respond with in-process feedback and questioning that can quickly move students in the right direction. Anticipating possible student responses is a set of skills that teachers hone over time as they develop their deep knowledge of the discipline and understanding of how students progress through their disciplinary learning. Teachers also rely on contextual factors including the profile of their individual students as learners and the specific way that learning is structured in the lesson (WestEd, 2020a). Because much of learning today relies on meaning making and conceptual understanding, the assessment practices of recall and memorization from years past are simply not enough (Erkens, et al., 2017).

Teachers prepare for a lesson by reflecting on common preconceptions, misconceptions and challenges or confusions that might arise for the students in their class. By thinking about when they are likely to arise in the lesson, teachers can plan to use strategies that will support students to clarify and advance their learning. Planning to use these strategies allows teachers to be ready to quickly take appropriate pedagogical action for many of their learners. Key to anticipating student responses to interpret in-process evidence is responding to what the student presents in the evidence of their learning, not what they do not do. Interpreting evidence to inform the formative assessment process is about more than just catching what students may not get right but rather where they are in their thinking and why (WestEd, 2020a).

An example of what it could look like to anticipate student understanding when planning a lesson is included in table 4.5 below (WestEd, 2020a):

Table 4.5. *Anticipating Student Responses in Social Studies*

Learning Goal	Success Criteria
Use primary sources to identify and evaluate successful strategies used by groups facing discrimination to expand their rights and liberties.	I can describe the strategies advocated by key Civil Rights leaders to improve equality. I can construct an argument, supported by evidence from multiple sources, about whether specific strategies were successful.

Start of Lesson	Middle of Lesson	End of Lesson
Evidence Gathering Strategy: Questioning	**Evidence Gathering Strategy:** Self and Peer Assessment	**Evidence Gathering Strategy:** Disciplinary Discourse
In small groups, probe student ideas and misconceptions about the topic.	In pairs, students create graphic organizers to organize arguments.	As a class, engage in a discussion anchored in student-found evidence.

Using the social studies learning goal and success criteria in Table 4.5 above as an example, a teacher might anticipate student learning by answering the following questions below. One of many possible responses or teacher considerations are listed in italics beside each question as an example:

1. What are common challenges or misconceptions that might arise in teaching this content? *Students often understand history in overly simplified terms. For example, the Montgomery Bus Boycott was not simply a result of Rosa Parks refusing to give up her seat. Students may believe that all historical sources are equally trustworthy.*
2. How will I support students at these points in the lesson? *Guide students as they evaluate sources to understand the context of historical events and the multiple perspectives of the historical actors. Help students understand how to evaluate sources by asking questions that require them to think critically: Who wrote the document and why? What claims does the author make? What is the author's point of view? Under what circumstances was the document created? Do other documents agree?*

Examples of Evidence-Gathering Strategies Across Disciplines

Start of Lessons

As mentioned previously, evidence-gathering routines are critical to informing students and teachers about next steps in their learning. According to WestEd, teachers can elicit meaningful evidence through **five primary evidence-gathering routines**:

- Activating prior knowledge;
- Academic dialogue;
- Questioning;
- Observation and analysis of student work; and
- Peer and self-assessment (2020b).

All five strategies can be employed at differing stages through a lesson and may be better suited for a specific discipline, depending on the student responses that teachers are anticipating and the intended learning goals. While this is only a sampling and not a comprehensive list, Table 4.6 below provides some example strategies across disciplines and the potential student misconceptions that can arise. Each paragraph explanation that follows coincides with a matching row or strategy within Table 4.6. The following planned evidence gathering strategies, coupled with anticipated student responses in order to facilitate in-process feedback during teaching and learning, are just a few examples that can be used at the beginning of a lesson.

At the start of a reading and writing lesson, students can engage in **disciplinary discourse** in small groups, discussing the type of textual evidence they would be looking for to support a claim. This collaborative discussion can support students to focus their attention as they read a variety of texts to find supporting evidence. Based on knowledge of the discipline and how students progress in their learning, as well as understanding of specific students, the teacher of this lesson may anticipate a few ways in which students may get stuck. The teacher may be looking for students who suggest evidence that does support the claim or who generate ideas about one type of evidence only. Either of these approaches may constrain a student from finding a variety of textual evidence that could support the claim, so timely, in-process feedback could allow the student to shift their thinking and be better positioned to achieve the success criteria (WestEd, 2020a).

Activating prior knowledge at the beginning of a mathematics lesson can help to identify students' conceptual understanding or elicit misconceptions students may have to clarify for teachers as to where to begin the lesson. It also can help students make connections between what they know and what they are learning and engage them in thinking about the learning goal. In science, the teacher may be looking for students who are unable to identify more than one property of the materials presented or who are able to identify only the simplest properties (e.g., color, shape). Either of these may limit a student from making the observations and measurements that could allow them to extend their ability to investigate. Activating prior knowledge helps to make student thinking visible early enough in the lesson so that teachers can clarify misconceptions or add on to current student understanding (Wiliam, 2018).

Eliciting evidence through **questioning** allows the social studies teacher to elicit and explore student thinking. Using the evidence gathering strategy of questioning at the beginning of a lesson may help teachers discover that students have little prior knowledge of the Civil Rights movement itself. Students with some knowledge of the Civil Rights movement might assume that there was a single strategy for improving equality to which all Civil Rights leaders agreed. Teachers could support students at this point in the lesson by guiding them to recognize and consider multiple perspectives. Then, as students examine primary sources throughout the

lesson, continue to ask questions that compel students to analyze how each new perspective reflects the context and priorities of the historical individual (WestEd, 2020a).

Questioning also can reinforce a classroom culture that encourages learning and risk taking and supports students in their learning. In preparation for using this strategy, teachers should plan some of their questions in advance and then be ready to follow up based on student responses, thus encouraging a conversation. Teachers should keep in mind the research on effective questioning, such as wait time, questions that encourage higher level thinking and pre-thinking strategies appropriate for the grade-level (such as pair/share). The beginning of a lesson is also an opportunity to gather and evaluate evidence of students' use of the inquiry process. Using the inquiry process throughout the lesson will guide students to think like a historian so that they make comparisons, apply reasoning, evaluate sources, interpret and synthesize evidence, and craft well-supported arguments (Wiliam, 2018).

Table 4.6. *Example Evidence Gathering Strategies - Start of Lessons*

Discipline/Content	Evidence Gathering Strategy	Potential Issues Impeding Student Understanding
Reading & Writing	**Disciplinary Discourse:** In small groups students discuss what type of textual evidence would be relevant to support the claim.	• Suggesting evidence that is not relevant or does not strongly support the claim. • Thinking narrowly about only one type of evidence.
Mathematics	**Activating Prior Knowledge:** Practice counting skills as a whole class.	• Skipping a number in the counting sequence • Saying the number sequence out of order • Using incorrect words to name numbers
Science	**Activating Prior Knowledge:** In pairs, students make observations of a small set of materials to identify and name their properties.	• Able to identify only one property among multiple possibilities • Struggles to name properties

Discipline/Content	Evidence Gathering Strategy	Potential Issues Impeding Student Understanding
		• Only materials that are rigid are identified as solids
Social Studies	**Questioning:** In small groups, probe student ideas and misconceptions about a topic, including, but not limited to the presence of multiple perspectives.	• Lack of prior knowledge • All Civil Rights leaders agreed

Middle of Lessons

The same five evidence-gathering routines employed at the start of a lesson can be utilized throughout lessons as well to inform students and teachers about next steps in their learning. Teachers need to be mindful of the evidence they are planning to elicit at the beginning, middle and end of a lesson to adjust the strategies and tools they are planning to use throughout. For example, while some lessons may use the evidence-gathering strategy of questioning throughout an entire lesson, other lessons may switch between discourse and activating prior knowledge to ensure that the evidence that is collected is meaningful for students and teachers. Table 4.14 below provides some example strategies across disciplines and the potential student misconceptions that can arise. The following planned evidence-gathering strategies, coupled with anticipated student responses in order to facilitate in-process feedback during teaching and learning, are just a few examples that can be used throughout lessons (WestEd, 2020a).

Throughout a reading and writing lesson, the teacher could circulate around the classroom to review individual student evidence and annotations and to ask probing **questions** to deepen and guide student thinking. Again, teachers can anticipate student responses based on their knowledge of the discipline and how students progress in their learning, as well as their understanding of specific students. Teachers can use that to support immediate feedback to help students move their learning forward toward the learning goals and success criteria.

The teacher may be looking for students identifying textual evidence that doesn't relate well to the claim, overreliance on a single source, misinterpretations of the evidence selected or not explaining how they would use the evidence in an explanatory or argumentative essay. By identifying these possible issues in advance, the teacher may be better equipped to take timely

pedagogical action at this point in the lesson, adjusting and scaffolding the questions asked based on what they see and hear (Erkens, et al., 2017).

An evidence gathering strategy that can be used by the mathematics teacher in the middle of a lesson is **questioning**. Anticipating student responses, lesson planning should consider possible misconceptions or confusions students might have about the content embodied by the learning goals and success criteria that can surface as a result of teacher and peer questioning. Connecting this strategy to the kindergarten learning goal of counting objects put together in different ways, questioning might involve asking students to show various ways to count a set of buttons. This activity engages student understanding about whether the number of buttons changes based on which button the counting sequence starts. For additional supports around mathematical questioning, visit the Grade Level Samples found on the KDE's Professional Learning Modules page for mathematics.

Eliciting evidence through **questioning** in science lessons allows the teacher to collect and explore student thinking. This strategy also can reinforce a classroom culture that encourages learning and risk taking and supports students in their learning. In preparation for using this strategy, teachers should plan some of their questions in advance and then be ready to follow up based on student responses, thus encouraging student discourse. The teacher may be looking for students struggling to describe measurements and observations that they could use to determine properties. Teachers also may notice limitations in discipline-specific vocabulary that keep students from being able to describe patterns, such as flexibility, texture or properties of mass and volume (WestEd, 2020a).

In social studies, as students investigate the disciplinary strand standards, teachers can ask probing questions to determine if their understanding is "emerging, partially formed, fragmentary, or at the point where it can be consolidated" (Heritage, et. al., 2020).

By knowing whether students understand the different perspectives and strategies of the various Civil Rights leaders, for example, they can advance student learning by building on prior knowledge to reach new understandings. Scaffolded **questioning** supports students in reaching an understanding on their own, thus empowering students to become self-regulated learners. The middle of a lesson is an opportunity to evaluate student understanding of disciplinary practices around analyzing historical social studies sources through **self and peer assessment**. Teachers should consider if students can evaluate perspective, credibility, and bias in the sources and think about the questions they can ask and answer about this source to determine its credibility. Using the example strategy below (see Table 4.7) in this way helps students organize their arguments and makes their thinking visible (WestEd, 2020a).

Table 4.7. *Example Evidence Gathering Strategies - Middle of Lessons*

Discipline/Content	Evidence Gathering Strategy	Potential Issues Impeding Student Understanding
Reading & Writing	**Questioning:** Teacher circulates around the classroom reviewing individual student's evidence and annotations and asking questions to deepen and guide student thinking.	• Comprehension challenges • Evidence identified is not relevant to claim • Over reliance on a single text • Misinterpretation of the selected textual evidence • Annotations do not explain how to use evidence in essay
Mathematics	**Questioning:** Ask students to show different ways to count the buttons.	• Thinking that the number of objects is related to the order in which objects are counted • Struggling to keep track of which objects have been counted
Science	**Questioning:** As a class, students brainstorm strategies they could use to find patterns in the properties of materials.	• Confusion about ways of describing the amount of substance • Struggles with strategies involving quantitative measurements (e.g., using a ruler to measure length)
Social Studies	**Peer and Self-Assessment:** In pairs, students create graphic organizers to organize arguments.	• Credibility of primary sources • Perspective in primary sources • Bias in primary sources

End of Lessons

As students approach the end of a reading and writing lesson, students engage in **peer and self-assessment** by asking students to evaluate the quality of their own textual evidence and annotations and assess those of their peers. Teachers can support students to think critically about the textual evidence and annotations they provide so that they can consider and respond to any challenges or misconceptions themselves. In doing so, teachers could help students look

for peers struggling to make a strong connection between the textual evidence and the claim, insufficient evidence to support the claim or not including evidence that can help them address the opposing claim (WestEd, 2020a).

Peer and self-assessment also can be used in mathematics at the end of a lesson. By anticipating student responses, lesson planning should consider possible misconceptions or confusions students might have about the content embodied by the learning goals and success criteria that can be surfaced during group work (Wiliam, 2018). Connecting this strategy to the kindergarten learning goal of counting objects put together in different ways could involve asking students to work together to count a given set of objects or create a set of objects of a given number. Students in each group could count a given set of objects silently, sharing out their counts as they model their counting processes. This allows others to see how a student arrived at the number of objects and to provide additional thinking when necessary. In the same way, each student in a group could make a set of objects given the number of objects and then compare their sets with each other, again modeling the understanding engaged and providing additional thinking when necessary (WestEd, 2020a).

As students approach the end of a science lesson, they can engage in **peer and self-assessment** by explaining the observations and patterns in properties they used to sort their materials with their peers. Students could assess whether their peers' material properties were sorted appropriately. Teachers can support students to think critically about their patterns and to extend their thinking while watching for students struggling to make the measurements and observations that can be used to make comparisons, find patterns in their observations or describe the patterns they used.

Communicating conclusions is the final step in the inquiry process. As students communicate their conclusions at the end of social studies lessons, they may be tempted to frame arguments in absolute terms (e.g., The Civil Rights movement was a failure.). When students think like a historian, they uncover the nuance and complexity of historical events. Probing, discipline-specific questions can help guide students to a more balanced view of historical events and eras (e.g., Was any legislation passed during this era that improved equality? What was the effect of the decision in *Brown v. Board of Education*?). As they engage in a discussion about their evidence, evaluate student **disciplinary discourse** to determine their level of understanding of the topic and their progress toward the success criteria. Students should be guided to consider the conclusions reached by other students. For example, they could be asked, "Can you restate what your classmate has said?", "Do you think the evidence supports that conclusion?" or "Will you explain your reasoning?" Questioning and whole class reflections also can help students evaluate their own evidence-based conclusions in light of others' feedback. Using the example

strategy below (Table 4.8) in this way helps students anchor their discussions in student-found evidence and makes their thinking visible (WestEd, 2020a).

Table 4.8. *Example Evidence Gathering Strategies - End of Lessons*

Discipline	Evidence Gathering Strategy	Potential Issues Impeding Student Understanding
Reading & Writing	**Peer and Self-Assessment:** Partners practice linking annotated evidence to the claim by providing reasoning.	• Issues connecting evidence to claim • Not identifying enough evidence to fully support the claim • Not identifying evidence that can address opposing claims
Mathematics	**Peer and Self-Assessment:** Students work together to count items and make groups as requested.	• Counting an object more than once • Thinking that rearranging the objects might change the number of objects
Science	**Peer and Self-Assessment:** Students sort new materials into groups and explain the patterns in properties they used to a peer group.	• Patterns limited to only easily observable properties rather than including less obvious patterns in properties (e.g., uses of the materials, strength, flexibility, texture) • May leave some materials out of the groups
Social Studies	**Disciplinary Discourse:** As a class, engage in meaningful discussions and democratic discourse that respects diverse opinions.	• There are absolutes in history.

Strategies and Tools for Interpreting Evidence

In addition to anticipating common student responses, teachers can employ a variety of strategies to support them to interpret evidence of student learning in ways that facilitate effective pedagogical responses during the learning. Interpretation strategies should be

anchored and aligned to both the stated learning goals and success criteria, as well as to the type of evidence needed to demonstrate student mastery. Additionally, strategies should reflect how they will be used. Teachers need different tools and strategies to analyze and respond to student learning and students need them to make sense of their own learning and the learning of their peers. While much of this interpretation happens "on the fly," as mentioned previously, educators must anticipate student thinking as part of their planning process. A few questions teachers need to consider include (WestEd, 2020a):

- What questions might unlock student thinking?
- What whole-class discussion might need to happen and with what focus?
- Are examples and artifacts of student work needed?

Teacher-facing strategies and tools can help teachers focus their attention on key learning in a lesson by tracking their observations and marking which success criteria students have met. One strategy that teachers could use to track student progress can be as simple as a checklist (e.g., on a clipboard or electronic tablet), such as the one seen below in Table 4.9. In this reading and writing example, the teacher is circulating among students as they discuss relevant evidence in a passage to support the claim. While overhearing conversations and through direct questioning, the teacher can note students who are able to both identify evidence and then connect that evidence to a claim. They are also then able to keep track of who is getting stuck and establish small groups for those students struggling on specific concepts. Regardless of the discipline, column headers are tied to the success criteria the teacher lays out at the beginning of the lesson, so check marks and notes can show progress toward meeting those criteria (WestEd, 2020a).

Table 4.9. *Example Teacher-Facing Strategy*

Student	Can identify relevant evidence	Connects their evidence to claim	Notes
Juan	✓	✓	Relying on only one source, redirect to another text
Hannah	✓	-	Focusing on topic, not argument
Cinda	✓	✓	Effectively connecting evidence to claim verbally, struggling in writing

Student	Can identify relevant evidence	Connects their evidence to claim	Notes
Min	-	-	Comprehension challenge, provide alternative text sources and individual support
Jackson	✓	✓	Good example of refuting opposing evidence - share with class

Peer-Assessment Strategies

Student-facing strategies are used by students. They provide the language and structure to assist students in making sense of their learning and the learning of their peers. When students are self-assessing, a pre-planned set of questions related to the success criteria help students gauge their *own* understandings. When students are assessing their *peers*, a pre-planned set of questions related to the success criteria help students gauge their *peers'* demonstrated understanding. Teachers should clearly communicate the purpose of the questions and how they connect to the success criteria for the lesson. When teachers can co-construct assessment criteria with students, the relevance of the questions is made clear for students. With young children, this activity can be simplified to drawing a face that communicates how they feel about what they know and can do in relation to the success criteria.

Table 4.10 below is an example of a student-facing tool that could support students to effectively engage in this activity in ways that help them move their learning forward. Each student could work with their peers to answer the questions about their own work. This is an example of a more scaffolded strategy to support students' emerging skills at peer and self-assessment. Here you see that the student demonstrated that they did three criteria well and needed to improve on one. The goal of tools like these is not just to manage the specific activity, but to help students develop skills that will allow them to independently assess and manage their own learning (Erkens, et al., 2017).

Table 4.10. *Example Student-Facing Strategy*

My Evidence	What I did well	What I can improve
My evidence is convincing.	✓	
I can explain how my evidence supports the claim.	✓	

My evidence offers more than one argument to support the claim.	✓	
My evidence responds to the counterargument to the claim.		✓

Self-Assessment Strategy: Prompts

Teachers also can take advantage of strategies which encourage students to self-assess their learning. Teachers and students can use a prompt to co-construct and engage students in thinking about their own learning as they engage in the lesson. Prompts are an example of a less scaffolded strategy to support peer and self-assessment. For example, in reading and writing, teachers could use the prompt, "How do I know that the evidence I have chosen supports the claim?" Students and teachers can work together to develop the specific criteria they will use to evaluate their work (prompt responses). Students and teachers should consider the following questions as they begin to co-construct evaluation criteria (WestEd, 2020a):

- How will students know they are successful?
- Why are they successful?
- What are they getting stuck on or need more practice with?

Prompt responses may be written down for the teacher to collect as evidence or they may be used as paired or group discussions that students engage in with their peers. For more discipline-specific resources on interpretation strategies and prompts, consider reviewing the KDE's Interpreting Evidence Module 5 .

Acting on Evidence of Student Learning

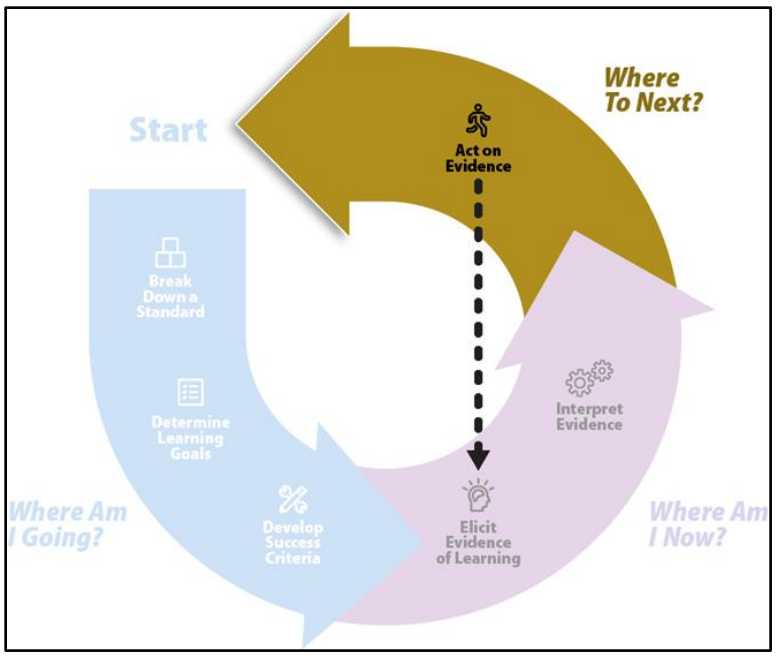
Regardless of the assessment type or purpose, acting on evidence of student learning is probably the most important, and all too frequently overlooked, element of the assessment cycle. Acting on evidence of student learning helps to answer the third question in the assessment cycle of "Where to next?" (See figure 4.18 below) because teachers and students have opportunities to receive feedback. Both students and teachers benefit from continually acting on meaningful evidence of student learning because, without this crucial step in the assessment cycle, students and teachers cannot effectively determine where they are headed. Students need this information to determine if they are successful and adjust their learning tactics, and teachers need to know if the classroom instructional practices they are utilizing have a positive impact on student learning (Popham, 2010).

Assessment Purpose and Grain Size

According to Dylan Wiliam in *Embedded Formative Assessment* (2018), how an assessment is used or functions determines whether the assessment is deemed formative or summative. The action taken by the teacher should be contingent upon the purpose of the assessment tool or strategy and should reflect the student learning goals and progressions. In a **summative** assessment context, where the learning goal includes a culmination of standards and comes at the end of a learning period, the evidence usually informs teacher or leaders' actions related to district policy, programs or practice decisions (e.g., investments in culturally responsive teacher professional learning, design of a support strategy to ensure intervention implementation fidelity or making future adjustments to the curriculum). In **interim** assessment, where the learning expectations include a smaller group of standards, the evidence usually informs actions toward future instruction (i.e., revising upcoming instruction to address gaps or identifying students in need of additional enrichments or interventions). Formative assessment is ultimately about using the evidence elicited to answer the question, "Where to next?" so that students can move toward their learning goals. When we consider the **formative** assessment process where the learning expectations are narrowly focused on a smaller grain size of the standards, evidence should inform action about the day-to-day moves that students and teachers make in the classroom to move students along their learning progression (WestEd, 2020). With formative assessment, these actions should occur more frequently as data is collected by students, peers and teachers more often. By providing students with specific, timely feedback in an ongoing and regular assessment cycle, we give students the tools they need to accelerate towards their learning goals more quickly. When students are making progress towards their learning goals, often the formative data collected supports teachers in determining that the best course of action is staying the course and continuing with the pedagogical strategies they are currently using, while a lack of progress suggests an immediate change in the course of action is needed (Wiliam, 2018).

As illustrated in the assessment cycle in Figure 4.9 below, the dashed line that connects "act on evidence" to "elicit evidence of learning" reflects the repetitive, cyclical nature of the formative assessment process. Using meaningful evidence of student learning aligned to the learning goals and success criteria, informs pedagogical action and empowers students to manage their own learning. After taking pedagogical action, it is important to elicit further evidence to determine if the action chosen successfully moved student learning forward and to inform what comes next in helping students move along their learning progression.

Figure 4.9. *The Assessment Cycle*



Taking Pedagogical Action

In the formative assessment process, students and teachers interpret meaningful evidence of student learning to get a clear picture of the current status of learning in relationship to the learning goals and success criteria. This interpretation is then used to make decisions regarding the pedagogical actions that should be embedded in student learning. Dylan Wiliam (2018) states that one of the most difficult aspects for teachers transitioning to formative assessment is giving up old instructional practices, while replacing them with new ones that will have a greater impact on student learning. In the transition, teachers often add new assessment practices (sometimes with good intentions) without taking away old ones. For instance, they may add a variety of formative checks or self-assessment tasks but continue to give the old unit tests that have been around for years. In this example, the teacher must evaluate both the tests and results from the student formative tasks. Nothing was taken away and removing the tasks that had less impact on student learning would be best here. Being responsive to this evidence by removing what is not working demonstrates that the teacher has a detailed knowledge of students' current level of understanding in relation to their progression of learning (RIDE, 2021). The section that follows will take a closer look at the variety of forms pedagogical action may take.

Pedagogical Action #1: Telling

Telling is a pedagogical strategy teachers can use to supply what students need at the moment (i.e., an unknown word or steps for task completion) to enable them to maintain momentum in the learning process. This instructional strategy requires teachers to make professional

judgments by removing barriers to learning so that students do not become unnecessarily frustrated. Telling should only be used when students are stuck to keep student learning moving forward; it should not eliminate productive struggle or prevent students from increasing the complexity of their thinking. Some discipline-specific examples of telling include:

- **In Reading and Writing:** Telling students an unknown phoneme or sight word when decoding words could be an effective strategy to keep students engaged in learning and moving forward when the told word or sound does not interfere with the overall learning goal(s).
- **In Mathematics:** Selective telling can help to move learning forward by providing useful terminology, ways of representing mathematical ideas or counterexamples to student conjectures to keep students engaged in learning and moving forward toward their learning goals. For example, consider a classroom discussion focused on incorrect mathematical reasoning (e.g., counting the tick marks on a number line instead of the spaces between the tick marks). Inserting statements to challenge the reasoning can help to shift student thinking away from incorrect conceptualizations towards correct conceptual understanding.
- **In Science:** Telling students who are confused, "The rats eat seeds and fruits, but they also eat insects and crawfish."
- **In Social Studies:** Telling can level the playing field, removing temporary obstacles on the way to deeper learning. For example, telling students the meanings of unfamiliar words like "manumission" or "usufruct" in Thomas Jefferson's letters may eliminate some of the frustrations that students can experience with historical texts.

Pedagogical Action #2: Directing

In her book *Literacy Lessons Designed for Individuals* (2016), author and researcher Marie Clay discusses how students often need clear and explicit language (e.g., "Do this. Don't do that.") to know exactly what teachers want and expect from them. This specific verbal instruction is a strategy referred to as directing. When teachers use directing, they are giving a specific instruction to let the learner know what he or she is supposed to do. Some examples might include:

- "Find the sentence or passage in the text that suggests…"
- "Write the letter for the sound…"
- "Turn to your partner and share…"
- "Point to the number…"

Directing can be used across disciplines to increase the level of clarity with students, particularly when providing teacher-to-student and peer feedback. A few examples of content-specific directing include (WestEd, 2020a):

- **In Reading and Writing:** Teachers may use directing as a strategy when facilitating a peer review of student written essays.
- **In Mathematics:** Teachers might use directing as a strategy when students struggle to read provided directions (e.g., a kindergarten activity involving sorting shapes) or to guide specific classroom actions (e.g., solve the problem on your own, then discuss with your neighbor).
- **In Science:** Teachers may use directing as a strategy when all students should follow the same process such as, "Draw and label all parts of your model."
- **In Social Studies:** A teacher may use directing as a strategy when describing steps in an assignment. For example, "Identify two reasons given by Richard Hakluyt for supporting English colonization of the New World."

Pedagogical Action #3: Explaining

Explanations are verbally explicit directions tailored to individual student needs and intended to help students develop their own understandings. While explanations are similar in nature to directing, teachers may use explanations to introduce an unfamiliar concept, clear up misconceptions, explain a process or clarify the steps of a specific learning strategy, such as taking notes. Explaining is focused on helping students develop their own understandings so they can apply them to their learning. Explanations are often paired with pedagogical action #5, modeling, since demonstrating a skill or process often requires teachers to explain steps or think-aloud. Some discipline-specific examples of explaining include (WestEd, 2020a):

- **In Reading and Writing**: The teacher may use a model text to help explain how onomatopoeia or another literary device works.
- **In Mathematics:** For example, not all concepts can be deeply understood through discovery alone. Explanations are often needed for mathematical procedures or to justify the need for differentiating between mathematical representations (Mathematical procedures such as writing ordered pairs as (x, y); determining the value of an expression using order of operations; and formal terminology for mathematical representations).
- **In Science:** For example, a teacher who observes a student struggling to make sense of a phenomenon may need to explain part of a core idea by saying, "Striped fur may be an advantage in an environment with lots of plants, but it might be a disadvantage in another with bare soil. That's one way geographical location can lead to speciation. Can you think of any others?"
- **In Social Studies:** For example, a teacher who encounters confusion about the relationship between political parties in the Civil War era and political parties in the modern era could briefly explain how and why the Democratic and Republican parties changed over time.

Pedagogical Action #4: Prompting

Prompting can help students access and apply prior learning as a bridge to new learning and moves beyond surface level understanding because it often forces students to apply what they have learned previously to a new learning situation (Fisher, et al., 2021). Prompting may take the form of a reminder, a strong hint, a clue or question and should always be followed by adequate wait time. Prompting is most effective when the teacher has a clear picture of where individual students are along a learning progression in order to formulate a prompt that will successfully bridge to new learning (e.g., moving students up to the next stage along their learning progression). Some discipline-specific examples of how teachers might utilize prompting in their classrooms include (WestEd, 2020a):

- **In Reading and Writing**: Prompting could be used when students are working to decode challenging text and the teacher is attempting to get the student to reread the text and monitor for meaning.
- **In Mathematics:** Prompting is an excellent strategy when helping students build connections between new content and previously learned content or for providing differentiation in feedback to students. For example, when solving a multi-digit addition problem, a teacher might ask a student struggling with the computation to solve a problem using numbers with fewer digits and then connect that solution process to the original problem.
- **In Science:** Prompting is an excellent strategy when students are making sense of a phenomenon and need a reminder of previously learned content to make a connection to improve understanding or skills. For example, a teacher may ask a struggling student to explain how energy flows within an ecosystem to think of the way energy flows in a simple food chain (e.g., sun to producer to consumer) and then connect that mental model to the food web of the larger ecosystem.
- **In Social Studies:** Prompting is an excellent strategy when students need a reminder of previously learned content in order to make a connection, to help students get to the next stage of learning with a question or to highlight information so students can synthesize the information to draw a conclusion.

Pedagogical Action #5: Modeling

Modeling is a deliberate and purposeful instructional strategy in which the teacher demonstrates a new concept or approach to learning and students learn by observing. Modeling describes the process whereby students learn or acquire new information, skills or behaviors through observation, rather than through trial-and-error or student practice. Deliberate, purposeful modeling is a powerful instructional strategy, which makes learning visible by verbalizing the teacher's reasoning out loud, explicitly narrating thinking during a

problem-solving process as they demonstrate a specific skill. Many initial metacognitive and self-regulatory skills needed for students to be successful as learners begin at a young age through observation and modeling (Salisu, 2014).

Modeling often involves a gradual transfer of responsibility from teacher to student as students become familiar with the concepts, skills or behaviors being demonstrated. This gradual transfer of responsibility is often referred to as the Gradual Release of Responsibility Model (GRR) and purposefully shifts the cognitive load from the teacher as a model to the joint responsibility of teacher and learner; whereby at the end of the process, students are ultimately able to independently practice and apply what they have learned (Pearson & Gallagher, 1983).

Some examples of modeling used in the classroom across disciplines include (WestEd, 2020a):

- **In Reading and Writing:** Modeling can be used when asking students to incorporate prosody (expression) in their voice as they are reading. Teachers can first model what that sounds like before asking students to practice reading with expression on their own.
- **In Mathematics:** Modeling can be used to demonstrate various strategies for solving a problem to show multiple representations or strategies to solve a problem. This gives the teacher opportunities to facilitate conversations with students to develop an understanding of efficient problem solving and classroom norms related to responding to the thinking of others. (Note: This type of modeling is not referencing the Mathematical Modeling Cycle outlined in the KAS, but is speaking to how teachers might demonstrate an instructional strategy in a deliberate and purposeful way).
- **In Science:** Similar to how the practice of modeling in science can help a person "see" an unseen cause to help explain a phenomenon, the strategy of modeling as a pedagogical action is used to help make scientific and engineering thinking and strategies visible to students. For example, when a student is struggling with how to use evidence to make and support a claim, a teacher could model the thought processes used to reason through or analyze data aloud. The teacher can talk through how different pieces of evidence support or do not support a particular claim and how data can help formulate or revise a claim.
- **In Social Studies:** Modeling is an excellent way to make disciplinary strategies visible. For example, a teacher may ask a struggling student to explain economic interdependence and then connect that definition to understanding why countries depend on each other to produce products.

Pedagogical Action #6: Questioning

Asking questions is an ideal way to develop students' understanding through discussion and exploration. Well-designed questions can allow students to uncover answers for themselves about their own learning and can help scaffold students to deeper understandings. When teachers probe answers with follow-up questions, they can yield information that can support evaluation of current understanding and identification of appropriate next steps.

Based on the level of cognitive demand required to answer them, questions are typically classified by levels. Perhaps the most widely known system for categorizing the cognitive level of questions is Bloom's taxonomy (1956), in which the six levels of cognitive demand move from low to high orders of processes. Lower-order questions ask students to recall and comprehend material that was previously read or taught by the teacher while higher-order questions ask students to apply information previously learned to create or support an answer with logically reasoned evidence. Both higher- and lower-order questions are useful and have their place in the teaching-learning process depending on the purposes they serve (Corley, 2013).

Some examples of questioning used in the classroom across disciplines include:

- **In Reading and Writing:** Questioning is a strategy that supports students in their comprehension and can be used to scaffold students to more complex levels of thinking. Students can self-question as they read to think deeper about the text. Teachers can question students to evaluate if students are making meaning from what they are reading.
- **In Mathematics:** The development of meaningful questions should be part of the planning process as teachers think about the ways in which students are likely to engage with the content and the places where concerted questioning might help guide student learning. Questions should be open-ended, allowing for a range of responses, with the potential to stimulate additional student conversation and collaboration.
- **In Science:** Questioning is a strategy that supports educators in eliciting targeted evidence of student understanding in order to adjust instruction in real time. Meaningful questions should be developed as part of the planning process and be designed to empower students to reflect on their own knowledge, skills and abilities to make sense of the world around them.
- **In Social Studies:** Questioning could be used in social studies to encourage students to view historical texts or documents from varying perspectives they may not otherwise have considered on their own (WestEd, 2020a).

Pedagogical Action #7: Feedback

From John Hattie's research (2012) we see that feedback yields an effect size of 0.70, which is equivalent to almost two years' worth of growth in one year's time; feedback is one of the most impactful pedagogical strategies a teacher can employ in the classroom when done effectively. According to Hattie (2012), feedback's primary purpose is to feed-forward learning by equipping the receiver to act. However, when we unpack the purpose of feedback, we see that feedback requires an action, event or process - a person's performance. In classrooms, teachers must provide students with opportunities to respond for feedback to even be possible.

Because feedback is used as a means for continuous improvement, timely, specific and constructive feedback is needed to enable students to reflect on their use of strategies during learning and determine which strategies were helpful and which hindered their progress. By giving and receiving effective feedback on and for learning collaboratively with the teacher, students are better equipped to answer the three questions for effective feedback: Where am I going?, How am I going (or doing)? and Where to next? Providing feedback that gives hints, cues or suggestions rather than total solutions will assist students to build a repertoire of learning strategies as they become more metacognitive, self-regulated thinkers (Almarode, et al., 2019).

Both teacher-directed and student feedback is a central element of the formative assessment process. Below are some examples of how feedback could be used in content-specific areas:

- **In Reading and Writing:** Students may provide each other with peer feedback on an opinion/argument piece by looking for specific evidence used to support a claim. For example, "I see in your essay that you disagree with offering peanut products in our school cafeteria. You discussed several examples of those peanut-based foods, but I'm not seeing where you gave specific reasons for why serving them in our school is a bad idea."
- **In Mathematics:** Some examples of mathematics teacher-provided feedback are:
    - "I see that you determined the answer to the problem, but the reasoning doesn't help me understand your thinking. Can you tell me about your thinking to help you think about words that might help others understand?"
    - "I see that you wrote an expression that models the situation. Is there a different expression that could also be written? What must be true about a different expression and the expression you wrote for them to model the same situation?"
    - "I see that you and your partner have the same answer, but the way that you found the answer is different. Work with your partner to determine how two different ways might be used to find the answer."
- **In Science:** Teachers should consider wording feedback so that it allows students to reflect on their own skills and knowledge as they reconsider, revise or enhance their

ideas. For example, a student has developed a model of the water cycle using marbles to represent the water molecules. The model was supposed to be used to explain what causes movement of water through the water cycle but falls short. Feedback could be provided in the form of a question, prompting the student to reconsider a part of their model. "I like how you used the marbles to represent water molecules, but could you use this model to explain what causes the water molecules to rise up into the air or why they are pulled back down to the surface?"

- **In Social Studies:** One example of actionable teacher feedback could include comments such as, "This quotation works well because it describes Rosa Park's background in her own words, showing that her involvement in the bus boycott was not a momentary whim."

Reflecting on Pedagogical Action

As in assessment types, pedagogical strategies are not a one-size-fits-all. While the seven actions just discussed can be applied to most all classrooms, regardless of age level or content area, teachers need to be prepared to adjust feedback to meet the needs of specific learners. When considering the different pedagogical strategies discussed above, teachers may want to reflect on the following guiding questions in the context of their own practice (Almarode, et al., 2019; WestEd, 2020a):

- Which strategies do I rely on most?
- Which strategies should I try to engage in more, and why?
- How do I decide which strategy to use in specific instances?
- Which strategies are well-suited to the content and the students I teach?
- What challenges do I find with any of these strategies? How might I overcome those challenges?
- Which learning tasks are well-suited for feedback from the teacher, self or peers?
- Have I modeled the success criteria for students using examples, models or exemplars?
- What structures have I modeled for students to provide one another with feedback?
- Have I provided students with multiple opportunities to practice giving and receiving feedback?
- What opportunities have I provided to gradually release responsibility away from me to my students? How and where might I intentionally embed more?
- How have I engaged in these different pedagogical actions in a remote, hybrid or face-to-face learning setting?
- Which of these pedagogical actions are well-suited for a remote learning context and which are more challenging?

- How might I adapt these actions for use in the remote, hybrid, or face-to-face learning environment?

Taking Action in Professional Learning Communities

As mentioned in the previous section of this framework, in order to make meaningful decisions about their instructional practices, many educators participate in professional learning communities (PLCs). Teachers and school leaders who effectively engage in the PLC process take time to develop common formative assessments, collect student data from those assessments and even collectively work to examine student evidence (Bailey & Jakicic, 2012). However, for many teachers, taking the time to respond and act on the evidence of student learning is often a step that teachers often fail to prioritize amidst all of their other professional responsibilities. Teams need time to respond to the evidence they collect in order to make the responsive changes necessary to improve teaching and learning. This involves intentionally setting time aside for teachers to analyze, plan and prepare. PLCs provide this embedded time and structure within the school week for teachers and leaders to collaboratively identify common learning goals, develop assessments linked to those goals, conduct the assessments across student subgroups and process the results together to determine next steps. By analyzing the evidence collected from multiple common assessments, teachers learn how they can improve their instruction and have a clear picture of which pedagogical actions worked well (and which did not) for individuals or groups of students. This analysis lays the groundwork for teachers to make intentional decisions about the strategies they will employ in future lessons to continuously improve their practice (Chappuis, et al., 2017).

While common formative assessments provide teams with important information to plan for future learning opportunities on a weekly basis, teachers need to gather evidence from a variety of sources to formatively assess where students are for their day-to-day, minute-by-minute decisions in the classroom. As Mattos, et al. (2016) caution, “relying on any one type, method, model, or format of assessment would be a seriously flawed assessment strategy.” Because assessment of a student’s work should provide an array of information on progress and achievement, the challenge becomes how teachers “match appropriate assessment strategies to curricular goals and instructional methodologies'' (p. 104).

One critical element in this planning is integrating strategies to gather evidence of student learning *during* the learning, and then having the essential tools and strategies at your fingertips to interpret and act on that evidence (WestEd, 2020). When teachers begin to see that students are making progress as a result of the pedagogical actions they are taking in their classrooms and the strategic decisions made within PLCs, they are more apt to believe that all students can learn (Bailey & Jakicic, 2012) and begin to see value in the formative assessment process.

Four Characteristics of Effective Feedback

In the formative assessment process, feedback is designed to empower students to make decisions about where to go next in their progress toward their learning goals. This requires thoughtful feedback that:

1. Relates to the student learning goals and success criteria;
2. Is actionable for the student;
3. Is specific to the learner; and
4. Helps students manage their own progress towards learning goals.

Characteristic #1: Related to Learning Goals and Success Criteria

The primary purpose of feedback in the formative assessment process is about communicating to students where they are in their learning relative to where they are going. In order to engage fully in applying feedback to their learning, students must have a clear understanding of their learning goals and success criteria. Effective feedback also requires the teacher to have a strong understanding of the learning pathway that leads students toward the learning goals and success criteria so that they can offer feedback that clarifies next steps in learning for the students. For teachers and students to clearly see progress towards the learning goals and success criteria, every opportunity to respond offered to students should make their thinking visible (Almarode, et al., 2019).

Characteristic #2: Actionable

Feedback is effective if it creates a shift in student thinking that allows students to move their own learning forward. Feedback helps students and teachers take action by helping to answer the question of Where do I go next? Once the learning goals and success criteria have been identified, feedback is like the voice on a GPS (global-positioning system) or mapping program reminding one of when to proceed, turn around, stop or recalculate. When students are making intended or better-than-intended progress in moving towards their learning goals, they need to proceed or continue with the learning tactics they currently have in place. When feedback indicates that students are not making progress, it is often necessary for students to stop, turnaround or recalculate by trying new methodologies and strategies to reach their intended goals. Feedback is actionable when it can clarify for the student where their learning is in relation to the learning goal, help to communicate strengths or next steps and is followed by time for supported reflection (p.141).

Feedback should focus on what students are doing well and how they can improve. It is most actionable when students can apply it not only to their current learning, but also to develop an understanding of how to transfer it to new contexts as well. Providing clear, descriptive language (i.e., through think alouds, directing or explaining) can signal to students where they currently are in their learning and what they can do to make progress toward their learning

goals. Students need time and structures during their learning to process feedback, ask clarifying questions and plan for next steps in their learning. Without structured opportunities to make sense of feedback and translate it to their learning, feedback will not support students in meeting their learning goals (WestEd, 2020a).

Characteristic #3: Specific to the Learner

Much like pedagogical strategies, there is no one-size-fits-all approach when it comes to feedback. Because students are in different places in their learning, they bring various strengths, needs and experiences. All learners bring their own unique learning and communication styles to the classroom. Effective feedback considers each of these needs and what will help students make the most progress along their learning journey (Almarode, et al., 2019). Feedback is more apt to improve students' performance when it is focused on what needs to be done to improve, and specifically when teachers give students details about *how* to improve (Wiliam, 2018). Planning for and providing specific, constructive feedback can only be achieved when teachers know their students well and where they fall along a progression of learning. This highly effective feedback takes into account the learning needs of the individual student and considers (WestEd, 2020a):

- What prior knowledge, personal experience, language and cultural strengths does this student have that can serve as a bridge to my feedback?
- How can I offer feedback in ways that will keep this student motivated?
- What volume of feedback will this student be best able to process and apply?
- What specific feedback do I need to offer this student currently and how does it align with the learning goals and success criteria?
- How will I know if my feedback makes sense to the student?

Characteristic #4: Feedback Should Help Students Manage Their Own Learning

Dylan Wiliam (2018) states that “feedback functions formatively only if the learner uses the information fed back to him or her to improve performance.” Feedback should draw students’ attention to what’s next rather than what was done correctly or incorrectly. Unfortunately, this rarely happens in classrooms, and students view feedback as punishment rather than a valuable tool of formative assessment. Because students often equate more written annotations on learning tasks from teachers as poorer performance, teachers need to be mindful of not only the quality of feedback they give, but the quantity of feedback as well. In general, feedback should be more work for the recipient than the donor (Wiliam, 2018).

Feedback is effective when it helps students build their own capacity as self-directed learners. This involves helping students understand what they did well so they can apply those understandings to new contexts in a way that does not do the work for students, but rather helps them clarify where they are in their own learning and develop an individual course of

action for moving forward. When students share evidence of their learning that shows they are on track, they still need descriptive information to understand what they are doing well so that they can build on that success. Telling students things like, “good job” or “I love this paragraph” does not position them to understand what they did well and apply feedback to new contexts in the future (WestEd, 2020a).

Students' voices should be used to evaluate the effectiveness of and make improvements to feedback. Teachers need feedback from students as do students from their teachers. Questions like, “Are you clear on what you need to do next?” or “Can you tell me what you are going to do next?” can help teachers determine if the feedback given was effective, and if not, make adjustments to their feedback practices. This recurring structure, often referred to as a feedback loop, can inform the teacher’s overall practice, helping develop a sense of the kind of feedback that is most effective for specific students and the class as a whole (p. 141).

Applying Feedback Through Student Goal Setting

Regarding student goal setting, Hattie and Donoghue (2016) note that “progress breeds progress,” and “success breeds a desire for more success.” When students are engaged in regular self-reflective conversations around the progress they are making toward accomplishing success criteria, they are more apt to develop self-efficacy as learners and be motivated to continue learning. Teachers should be mindful to intentionally embed structures within their classroom schedules for students to self-reflect, conference with peers and conference with the teacher. As teachers model and students practice using the success criteria to provide effective feedback, students learn how to initiate setting goals for themselves with greater independence. In turn, this creates an upward spiral for learners that is crucial for continuous improvement and success (Almarode, et al., 2019).

While feedback can be applied in several ways throughout the formative assessment process, when students understand the success criteria they have successfully met and which ones they need to address next, they are better able to prioritize and set personal learning goals for themselves. As learning deepens, students and teachers can revise the success criteria and goals over time (through co-construction), and students begin to feel empowered with the knowledge of what success looks like. Once this self-regulation unfolds, students are better equipped to manage and self-assess their own progress moving forward (p. 82).

Though not a frequently used term in education, ipsative assessments are assessments used to compare a student’s present level of performance to their past performance. Teachers often use ipsative assessments to analyze initial and final assessment data to determine instructional impact. Other educators may use ipsative assessments to measure student growth over time. For students, ipsative assessments provide opportunities to gain insight into individual progress

and challenges, helpful information for students to reflect upon for setting goals and acting for themselves. One example of an ipsative assessment is a goal-setting conference (Fisher, et al., 2021).

Goal-setting conferences provide structured opportunities for students to reflect on their intended goals, the tactical learning strategies employed throughout a lesson or group of lessons, the effort students put forth and the outcomes they receive from those decisions (Wiliam, 2018; Fisher, et al., 2021). Goal-setting conferences typically occur between a student and their teacher although students may participate in conferences with their peers as they become more empowered to give and receive effective feedback. Because clear goal intentions have the potential to accelerate student learning (as they have an effect size of 0.51), students need to have ownership over their own goals so that the goals motivate them to improve (Fisher, et al., 2021; Hattie, 2009). For the goals to motivate students, they should (Nordengren, 2019):

- Build competence;
- Provide students with choice and autonomy;
- Align with students' interests; and
- Change how students perceive themselves.

Teachers should steer students away from goals that are performance-based (i.e., "I want to get all 4s on my opinion writing rubric.") and toward more mastery-driven goals (i.e., "I want my introductory paragraph to be clear to the reader and entice them to read more."). When developing goals collaboratively, teachers should direct students to create goals that are measurable and attainable. These goals should focus on what students will do as a result of the feedback received and should be attainable enough for students to experience success more regularly since "success breeds (more) success." Through ongoing goal-setting conferences teachers can scaffold students to design short-term goals, which accumulate to help students master their long-term goals (Fisher, et al., 2021). As students meet their goals and move toward mastery of the standards, they should be positioned to navigate and see the full learning pathway before them. Students should be able to reflect on their accomplishments, and teachers should use goal-setting conferences as a platform to celebrate student success in learning because, when they do, teachers draw attention to what is valuable and set benchmarks for other students to replicate (Erkens, et al., 2017).

Evidenced-Based Instructional Practices

General Introduction

Providing equitable learning environments to all students starts with a locally developed guaranteed, viable curriculum that is aligned to the *Kentucky Academic Standards* (KAS). Teachers then work collaboratively through the Professional Learning Communities (PLCs) process as they break down the standards and use their local curriculum to ensure all students are taught the same content, concepts and/or skills regardless of the teacher they are assigned. Collaborative teams create common assessments aligned to each unit's intended learning outcomes, so all students are held to the same grade level expectations. Each teacher then implements the standards-aligned curriculum as they design and deliver classroom instruction to help students reach the learning expectations.

The actual classroom instruction students receive is the critical point in which "the rubber meets the road." All of the work to create a written guaranteed and viable curriculum, to break down the standards and create aligned assessments is necessary, but the quality of the day-to-day classroom instruction students receive has a significant impact on their overall achievement. Research consistently indicates the importance of students having access to quality, standards-aligned, grade-level instruction (TNTP, 2018; Hattie, et al., 2021; Marzano, 2003). As teachers implement the curriculum, it is important that they strategically and intentionally utilize evidence-based instructional practices that support students in reaching the intended learning outcomes.

In their book, *Visible Learning for Literacy*, the authors state that "every student deserves a great teacher, not by chance, but by design" (Fisher, Frey & Hattie, 2016). This requires developing an understanding of the impact that instructional practices have on student learning. Teachers need to understand which practices, strategies and instructional routines work best in different teaching situations for students to reach those expectations. So, how do teachers know which instructional practices have the most potential to improve student learning? How can research on evidence-based practices support teachers in making these decisions?

This introduction takes a closer look at what is meant by evidence-based instructional practices, as well as the importance of effective implementation, intentional planning and gathering evidence to determine the impact on student learning. Following the introduction, this series will examine six evidence-based instructional practices teachers can use to support learners in reaching the expectations within the *Kentucky Academic Standards* and the local curriculum.

What are Evidence-Based Instructional Practices?

In December 2015, the United States Congress reauthorized the Elementary and Secondary Education Act through a law known as the Every Student Succeeds Act (ESSA). One requirement under ESSA is that school improvement efforts be rooted in "evidence-based activities, strategies, or interventions." While the term evidence-based has been in other areas of the law for many years, ESSA is the first federal law to define and identify levels of evidence for educational purposes. It defines evidence-based interventions as practices or programs that have evidence, usually through formal studies and research, to show they are effective at producing results and improving student outcomes when implemented.

For a number of years, the field of education has been making great efforts to implement evidence-based practices to improve the quality of instruction students receive and the outcomes they achieve. When teachers effectively implement evidence-based practices into classroom instruction, it can result in the following benefits for teachers and students (IRIS Center, 2014):

- An increased likelihood of positive student outcomes;
- Increased accountability because there are data to support the selection of a practice, which in turn facilitates support from administrators, parents and others;
- Less wasted time and fewer wasted resources because educators start off with an effective practice;
- An increased likelihood of being responsive to learners' needs; and
- A greater likelihood of convincing students to engage and try it because there is evidence that it works.

Educational research has provided considerable insight into what works when it comes to teaching and learning. According to Gazith (2021), the field of education is living though somewhat of a renaissance. "The work of researchers such as Robert Marzano, John Hattie, and David Sousa, has brought educational research to the educator in a form that is clear and implementable" (p. 4). Additionally, research from the field of neuroscience provides substantial knowledge about the brain and how students learn. Teachers can apply this research as practical strategies within their classrooms to create the environment necessary for learning to occur.

However, a gap exists between the research around evidence-based practices and the instructional practices teachers choose to use. Often, educators use practices and strategies they have seen others use, including their own teachers, without questioning whether those practices are supported by research. In fact, research has indicated that some of those practices are ineffective or have no data to support their use (IRIS Center, 2014).

So, how do educators sort through the evidence to make informed decisions that truly impact student learning? According to Hattie (2012), instead of asking “What works?” educators need to focus on the more important question of “What works best?” When analyzing the research, which practices, when effectively implemented, can result in more than one year’s growth in one year’s time to accelerate student learning?

One idea that is clear from the research is that educators, first and foremost, must begin with the belief that all students can succeed. Gazith (2021) cautions that “if the adult in the students’ life, the person who is supposed to be the expert scaffolder doesn't believe, neither will they. Students need their educators to believe, often despite all odds and at all costs, that they will exceed the expectations that everyone holds of them” (p. 4). In essence, teachers get out of the students what they expect, and the teachers’ expectations of their students become the reality for those students. Teachers should have expectations that appropriately stretch students but are still within reach for the students (Fisher, et al., 2016).

According to Hattie (2012), the differences between high-effect and low-effect teachers are related to their attitudes and expectations as they make key decisions regarding what to teach and at what level of difficulty, as well as their understanding of learning progressions and the impact of their teaching. “It is some teachers doing some things with a certain attitude or belief system that truly makes the difference” (p. 26). Fisher, et al. (2016), states that at a minimum, quality Tier 1 instruction should include (p. 147):

- Teacher clarity on, and communication about, the learning intentions and success criteria;
- Student ownership of the expectations for learning;
- Positive, humane, growth-producing teacher-student relationships;
- Modeling and direct instruction of content;
- Collaborative learning opportunities on a daily basis;
- Small group learning based on instructional needs rather than perceived ability; and
- Spaced (rather than mass) independent practice and application of content.

Moving from Research to Classroom Implementation

It is important to note that no single instructional practice or strategy can guarantee that all students will learn for several reasons, including (Marzano, 2017; p. 1):

- Many factors other than the use of instructional practices affect student learning;
- Instructional practices work in concert or sets and should not be thought of as independent interventions; and
- Educators have to use the practices in specific ways to produce positive results.

This is why teaching is both an art and a science. As teachers gain more skill with evidence-based instructional practices, the better the teacher will be able to design and implement lessons that improve student learning (Marzano, 2017). However, even when educators identify evidence-based practices, there is a lot of variation in the effectiveness of these practices. In the book, *Great Teaching by Design* (2021), the authors argue that this variation reflects the different interpretations teachers make when implementing the practices at the classroom level. While choosing an evidence-based practice is the first step, the quality of implementation is critically important.

Simply having knowledge about best practices in teaching and learning does not always mean that people are able to use that knowledge to generate ideas and then transfer those ideas into classroom instruction. Each day, teachers make decisions that have the potential to positively impact student learning. That potential needs to be consistently and reliably transformed into effective implementation. Hattie, et al. (2021), recommends expanding the question of "What works best" to "How do we implement what works best?" They argue that to truly improve student learning outcomes, educators must use their knowledge about what works best in teaching, ensure effective implementation and then monitor the impact of the instruction. Goodman, et al. (2020), found that when teachers and entire school teams became increasingly intentional with evidence-based teaching practices, thinking about why they were using them and how to consistently implement the practices, student engagement and learning increased significantly.

To ensure that learning occurs, it is important that educators implement practices at the right time, with the right content, in the right way. Activating prior knowledge, classroom discourse, higher-order questioning and effective feedback all have the potential to impact student learning above and beyond one year's growth in one year's time. However, successful implementation of these strategies determines whether or not that potential is realized through the impact on student learning (Hattie, et al., 2021).

When it comes to utilizing evidence-based practices, it is imperative that educators work to close the gap between potential, intention and implementation. As stated by Hattie, et al. (2021), "Great teaching can be designed, and when it's designed well, students learn more" (p. 9). They suggest when making decisions about teaching and learning, consideration should be given to the following four critical components of evaluative thinking (p. 8):

- Discovering where learners are in their learning journey and where they need to go next in that journey. Where students are in their learning journey represents their learning potential and our teaching potential.
- Planning, designing and implementing learning experiences based on the specific context of the teacher's classroom and learners. This planning must focus on the

intentional selection of strategies, approaches and interventions to teaching and learning.

- Using evidence-based approaches to teaching and learning that support learners as they move forward in their learning journey. Not only do educators need to identify these evidence-based approaches, but also they must implement them into their teaching.
- Evaluating the impact of these learning experiences and making decisions based on that impact.

Importance of Intentional Planning

An important step in closing the gap between research and effective classroom implementation is intentional planning on the part of the teacher. In order for educators to gain maximum benefit from evidence-based practices, they must be mindful of and purposeful in their planning every time they enter the classroom. According to Gazith (2021), teachers should consistently ask themselves questions, such as (p. 6):

- How is the student's behavior a sign of unmet need(s)? How can I respond to students' needs so that they don't misbehave to have their needs met?
- What is my goal for my students in today's lesson? What do I want my students to be able to do by the end of the lesson?
- What is the most effective way to teach them so that they learn?
- What is the purpose of this information? How do I share this purpose with my students so that learning is meaningful for them?
- How do I leave my voice behind for my students so that they can use that voice to guide them so that they will eventually become successful, independent learners?

Intentional planning begins with having the end in mind. Teachers should know from the outset of the unit or lesson what they expect students to learn and how they will assess or measure that learning (Fisher & Frey, 2015; McTighe & Wilis, 2019). This provides a blueprint that guides teachers' construction of the curriculum, the aligned assessments and the necessary learning experiences for students to reach the final destination. Backward design encourages teachers to think like an evaluator before planning the learning experiences to strengthen alignment between assessment and classroom instruction (McTighe & Willis, 2019).

It is important to remember that learning is a process, not an event. There are three stages in the learning process that moves students from a novice new to the learning goals to an expert who can apply the goals in multiple, authentic contexts. The stages include (1) **surface learning,** (2) **deep learning** and (3) **transfer**. All three stages are important components and necessary for teaching and learning to be effective. Table 5.1 provides a description of each stage in the

learning process and examples of possible evidence-based practices that can support learners in each phase (Hattie, et al., 2017; Fisher, et al., 2016).

Table 5.1. *Stages of Learning*

Stage of Learning	Description	Possible practices to support learners
Surface Learning	• Occurs when students are exposed to new concepts, skills and strategies • Does not mean superficial learning • Provides a foundation on which to build as students are asked to think more deeply	• Activating and leveraging prior knowledge • Explicit instruction • Note-taking • Summarizing • Mnemonics
Deep Learning	• Occurs when students consolidate their understanding as they apply and extend some surface learning knowledge to support deeper conceptual understanding • Will often take up more instructional time and can only be accomplished when students have the requisite knowledge to go deeper • Must be supplemented by scaffolding to ensure the different needs of students are being met	• Concept-mapping • Classroom discussion • Questioning • Collaborative learning • Metacognitive strategies • Receiving effective feedback
Transfer	• Occurs when students take their consolidated knowledge and skills and apply them to new scenarios and different contexts • Also a time when students are able to think metacognitively, reflecting on their own learning and understanding	• Collaborative learning • Questioning • Extended writing • Discerning similarities and differences

When planning a lesson, series of lessons or a unit, the practices teachers use and when they use them are equally important when it comes to instruction having an impact on learning. It is not a matter of all surface or all deep; it is a matter of being clear when surface and when deep is truly required as students progress toward the intended learning outcomes (Fisher, et al., 2016). Practices that facilitate students' surface-level learning do not necessarily work equally well for deep learning, and vice versa. Matching the right approach with the appropriate phase of learning is critical to support students' understanding of the content (Hattie, et al., 2017).

The gradual release of responsibility (GRR) framework can support students as they progress through the three phases of learning. This framework purposefully shifts the cognitive load from teacher-as-model to joint responsibility of teacher and learner, to independent practice and application by the learner. The four main components of gradual release, as shown in Figure 5.1, include (1) **focused instruction**, (2) **guided instruction**, (3) **collaborative learning** and (4) **independent learning**. Table 5.2 provides an overview of the major characteristics of each component (Fisher & Frey, 2014).

Figure 5.1. *Gradual Release of Responsibility Framework*

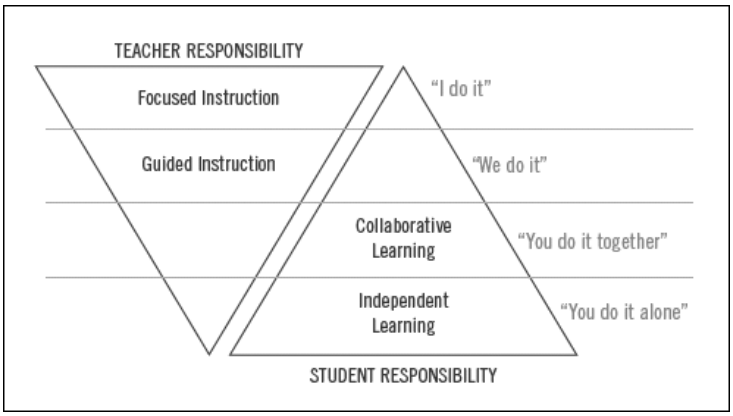


Table 5.2. *Components of Gradual Release of Responsibility (GRR) Framework*

GRR Component	Characteristics
Focused Instruction	• Teacher establishes the purpose based on the standards and communicates the purpose to students through learning goals and success criteria. • Teacher models thinking, demonstrates skills and notices student thinking in relation to the intended learning outcomes. • This is also a time for direct or explicit instruction.
Guided Instruction	• Point where the cognitive load begins to shift to the students. • Teacher focuses on scaffolding students' developing skill or knowledge through questioning, prompting and cueing. • Most effective with small groups that are formed based on instructional needs, and groupings change frequently due to ongoing formative assessment. • Ideal time to differentiate.

Collaborative Learning	• Students work together and use academic language to consolidate and apply their understanding of the content. • Students are primarily responsible for their learning while teacher observes and provides support when needed. • Tasks should ensure both individual and group accountability. • Teacher observes, confers with students, gathers formative data to inform instruction and provides students with feedback on their learning.
Independent Learning	• Students are engaged in tasks that require them to apply what they have learned on their own. • Students use feedback from teachers, peers and themselves to make decisions regarding time and resource allocation and to help resolve problems when they are stuck. • Focuses on building students' metacognitive and self-regulation skills. • Teacher notices ongoing performance and provides feedback that helps students identify the gap between their current state and the intended learning outcomes.

According to Fisher and Frey (2014), all four components of the gradual release model are important and necessary for deep learning to occur, for students to think critically and creatively and be able to transfer their learning to new situations. The GRR Framework is recursive and not meant to be linear. Teachers "must plan to intentionally vary the instructional arrangements to promote interaction with the teacher, with the content, and of students with one another" (Fisher & Frey, 2015; p. 6). Based on the learning outcomes of a lesson or series of lessons, teachers may choose to begin with any component of the framework. Students move back and forth between each of the components as they progress toward the learning expectations.

Determining Impact

Teachers need to use evidence-based practices to ensure that students learn, but Frey, et al. (2018), argue that too much of the conversation is focused on what teachers are doing rather than on the learning of the student. Teaching must always be considered in terms of its impact on student learning. Teachers need to view student learning as feedback about the effectiveness of their instruction, and they should never hold an instructional practice in higher esteem than their students' learning. After teachers implement *what works best*, they must

gather evidence to know with confidence that their *implementation of what works best* resulted in student learning (Fisher, et al., 2021).

The only way to determine if students have learned what has been taught and to determine the effectiveness of the instructional practices is through assessment. Assessments can be formal or informal and summative or formative. Assessing learning requires collecting evidence of student learning throughout each lesson and then acting on that evidence. Teachers need to know which instructional practices are working or not working, and they need to be prepared to adapt their instruction to each student's situation, context and prior learning (Hattie, 2012). Fisher and Frey (2015) state that "acting on the data they collect is a sign of strength, not weakness, in teaching. High-performance learning environments are data driven and student centered" (p. 11).

As a part of the formative assessment process, individual teachers gather evidence minute-by-minute and day-by-day to determine what is working and to adjust instruction based on student needs. In addition, teachers need to meet to discuss and evaluate their teaching in light of the evidence gathered through the use of common formative assessments making the effect of their teaching visible to themselves and to their colleagues (Hattie, 2012). These types of conversations are part of the ongoing work of a professional learning community (PLC) and help to develop both the individual and collective capacity of its members. Through these collaborative conversations, the team focuses on addressing questions such as:

- What instructional practices worked well?
- How were the practices implemented in each classroom? What changes need to be made to improve the implementation of these practices?
- What instructional strategy or practice failed to produce results for the whole group as well the subgroups? What might be possible reasons for these results?
- Based on the evidence, what are some areas of professional learning that could support the team in effectively identifying and implementing instructional practices to improve student learning?

According to Fisher, et al. (2021) to create truly equitable learning environments, every teacher must maximize his or her impact on every student in the school, and educators must focus on making a difference together. "The greatest impact on student learning comes from leveraging individual efficacy, or expectations of success, into a collective whole" (p. 28). This requires that educators across a school or district have a shared language of teaching and learning that includes understanding of instructional practices that have the greatest potential to impact student outcomes and the decision-making process of when to use those strategies. Then, educators need to channel that knowledge into a shared language for effective implementation.

Evidenced-Based Practice # 1: Establishing the Learning Environment

Introduction

While having access to a guaranteed and viable curriculum supported by evidenced-based instructional practices and high-quality instructional resources is a critical part of providing equitable learning environments for all students, educators also must create a classroom culture that supports students in meeting the intended learning outcomes. According to Ritchhart (2015), the classroom culture is foundational to student success and determines how the curriculum comes to life. Maintaining a classroom culture conducive to learning is key to a teacher's instructional efforts and to the ultimate success of the students. Even if a teacher uses evidence-based practices with instruction and assessment but does not attend to the classroom culture, the teacher and students will likely fail despite those practices. Conversely, a teacher who works to create a safe and supportive culture and intentionally aligns instructional efforts to those shared beliefs is more likely to experience significant changes in student outcomes (Erkens, Schimmer & Vagle, 2018).

Culture is a collection of a group's commonly shared attitudes, beliefs, values, goals, behaviors, rituals and social norms. Teachers are the primary drivers of classroom culture. The way in which teachers design and deliver instruction and how they respond during instruction conveys what they most value. "*Who* teachers are teaching matters more than *what* they are teaching, since teachers can't authentically get to the *what* until they attend to the *who"* (Erkens, et al., 2018; p. 13).

Students want their teachers to care, to be treated fairly and to know what to expect each day they arrive in the classroom. Fisher and Frey (2015) state, "The qualities of interactions between students, as well as the students and their teachers, can mark the difference between learners who feel valued and involved and those who are marginalized and therefore find ways to distance themselves from the environment" (p. 131). Teachers need to focus on purposefully creating a classroom culture where learners see each other as resources, rather than competitors. The classroom should be a place where learners are provided the opportunity to achieve more as part of the collective whole than they could individually. It should become a place where students want to linger and be (Hoffer, 2020). When students are a part of a safe and supportive environment, they are more likely to (Grit & Major, 2018; Hoffer, 2020; McTighe & Willis, 2019):

- Be self-confident;
- Be themselves;
- Be willing and able to exchange ideas;
- Participate even when mistakes are possible;

- Collaborate successfully with peers;
- Ask questions of the teacher and other students;
- Contribute to discussions without fear of ridicule or personal judgement;
- Receive feedback that supports the growth of the work or learning;
- Provide feedback to others to support the growth of the work or learning;
- Reflect and assess their own work as well as contribute to the assessment of others' work;
- Persist in work that is appropriately challenging; and
- Set personal goals in relation to the work.

Why is it so important to create safe and supportive classroom cultures? What insights can educators gain from the fields of neuroscience and psychology regarding the brain and the type of environments that are conducive to learning? How do teachers apply that understanding to create these types of spaces for all students? This section will focus on (1) **current brain research and the role of emotions in learning,** (2) **the importance of fostering strong teacher-student relationships**, (3) **creating the physical and social environment to support learning** and (4) **improving student motivation.**

Brain Research and the Role of Emotions in Learning

Research from the field of neuroscience has shown that cognition and emotions do not operate independently but are intricately linked. For learning to occur, educators must not only focus on students' academic learning, but also on the social and emotional factors that affect student learning (McTighe & Willis, 2019). Research also shows that all children have the ability to learn, but how they do so is highly individualistic and influenced by their immediate experiences, relationships and environment. Learning environments matter for all students, but especially for those students from poverty and those who face other challenges outside the classroom (Rimm-Kaufman & Jodl, 2020). In the book, *Culturally Responsive Teaching and the Brain*, Hammond (2015) states:

> "The brain's two primary directives are to stay safe and happy. The brain takes its social needs very seriously and is fierce in protecting an individual's sense of well-being, self-determination and self-worth, along with its connection to community. We cannot downplay students' need to feel safe and valued in the classroom. The brain will not seek to connect with others if it perceives them to be threatening to its social or psychological well-being based on what they say and do" (p. 46).

So, how do teachers create an environment that allows the brain to feel safe and happy? To answer that question, it is critical to understand the role of certain structures in the brain and how those structures can hinder or support learning. The brain's sensory register constantly

pays attention to external stimuli from the environment but also internal stimuli already present in one's emotions, experiences and stream of consciousness. In order for learning to occur, "new learning must first cut through the clutter of students' sensory registers and the constant churn of internal emotions, ideas, and thoughts they bring to the classroom" (Goodwin, Gibson, and Rouleau, 2020; p. 20).

Ultimately, to acquire new learning, to consolidate that learning and make connections to existing knowledge, the information must make its way to the prefrontal cortex, which is the site of executive function and is the main command center of the brain. The prefrontal cortex oversees thinking, manages working memory and is responsible for planning, abstract thinking, organization, and self-regulation, as well as housing imagination. This part of the brain has almost an endless capacity to learn and rewire itself and is the area where students have the chance to build their brain power. However, in order for that to occur, stimuli must make it past the lower brain's primary gatekeepers, one of which is the amygdala (Hammond, 2015).

Located in the temporal lobe, the amygdala is the brain's emotional filter. According to Hardiman (2012), the amygdala "is engaged in both implicit emotional reaction, such as an unexpected fearful event, and in explicit emotional learning, such as learning about a danger and remembering the information" (p. 35) It also engages another structure called the hippocampus, which plays a key role in memory. The connection between these two structures explains why someone can more easily remember emotionally-charged events better than mundane daily occurrences.

The amygdala is designed to act in less than a second in response to any hint of a social or physical threat and can override the prefrontal cortex. When this occurs, it triggers the release of cortisol, the body's main stress hormone. This is known as an "amygdala hijack," and once cortisol is released, it inhibits all other cognitive functions, such as learning, problem-solving and creative thinking (Hammond, 2015). ***When someone is in a state of stress, whether actual or perceived, new information will not move through the amygdala's filter and into the prefrontal cortex***. Instead, the input goes to the lower, reactive brain, which has a limited set of behavioral responses that include "fight, flight or freeze" and is focused purely on survival. When learners are anxious, sad, frustrated, bored, hurt or angry, these survival behaviors can take over and undermine the most carefully designed lessons (McTighe & Willis, 2019).

Sadly, many students come to school already in a heightened emotional state. McConchie and Jenson (2020) report that healthy emotions appear to be less and less common in schools today. Many students are suffering from chronic stress whether from social media, fewer intact families, immigration-status questions, discrimination or other factors. In the school setting, this stress may be due to a lack of peer acceptance, bullying or repeated failures with a task or

subject. In addition, students often lack the self-regulation skills to help them process and manage emotions caused by these stressors.

Chronic stress results in increased levels of cortisol and leaves a person in a constant state of high alert. It can affect both short- and long-term memory. Someone who is stressed is not able to generalize or adapt old pieces of information to new scenarios as well as non-stressed individuals. It impacts an individual's ability to concentrate, to recall declarative information and hinders executive function (Medina, 2014).

A key action educators must take to improve student outcomes is to ***create a safe and supportive environment that helps calm the amygdala and opens the neural pathways to the hippocampus and the prefrontal cortex***. Teachers need to create a classroom environment that seeks to neutralize negative emotions and elicits positive emotions that enhance memory, cognition and creativity. Rimm-Kaufman & Jodl (2020) state that "when educators construct learning environments with the understanding that childrens' cognitive, emotional, and social domains are integrated and mutually reinforcing, children are better equipped to learn and make greater academic progress" (p.32).

Classrooms that are emotionally safe, prioritize relationships, and are cognitively stimulating contribute to brain development and help offset stress and trauma. ***Even in the presence of negative stressors outside the classroom, neuroscience points to the brain's malleability and the potential for growth, change, and resilience if children experience enriched environments where they are exposed to rich language and learning materials, feel safe, have a sense of belonging, and experience healthy relationships with their teacher and their peers*** (Rimm-Kaufman & Jodl, 2020).

Fostering Teacher-Student Relationships

A critical component of creating safe and supportive learning environments is for teachers to develop meaningful relationships with their students. The brain is wired to scan continuously for social and physical threats, except when in positive relationships. When people experience positive relationships, it triggers the release of chemicals in the brain that help to keep the amygdala calm so the prefrontal cortex can focus on cognition and learning. Hammond (2015) argues that "too often we ignore the quality of our interactions with students and instead focus primarily on the curriculum. In culturally responsive teaching, relationships are as important as the curriculum. It is the key ingredient in helping culturally and linguistically diverse students authentically engage" (p. 72).

Trust is at the core of positive relationships and showing genuine care for students helps to generate that trust. This involves not only caring for them in a general sense, but also in a social and emotional sense. Students need to know that teachers authentically care about who they

are, what they have to say and how they feel. According to Marzano (2011), “positive relationships between teachers and students are among the most commonly cited variables associated with effective instruction. If the relationship is strong, instructional strategies seem to be more effective” (p. 82).

All students feel a fundamental need to belong, feel competent and to feel in control. Some students are dealing with difficult situations in their own lives that have wired their brains for stress and often do not have any positive relationships to help offset it. Sprenger (2020) reminds educators that these students “are not there to *give us* a hard time; rather, *they are having* a hard time” (p. 37). When educators take time to build relationships that support students in meeting these needs, it complements the overarching goal of education: to engage students and support their learning and achievement (Hattie & Anderman, 2020).

Teachers should not confuse positive teacher-student relationships with friendships. While it is important that students also experience positive peer relationships, educators are not their peers. Teachers should be viewed by their students as a “warm demander.” A “warm demander” communicates personal warmth and positive regard toward students while at the same time demands they work toward high standards. These teachers provide concrete guidance and support for meeting the learning expectations, specific corrective feedback, and opportunities for processing information and culturally relevant meaning making (Hammond, 2015). The following list provides six actions teachers can utilize to foster positive teacher-student relationships in their classrooms (Fisher, Frey & Smith, 2020; Sprenger, 2020).

- **Know students' names and how to pronounce them.** Students often report that their teachers do not know their names. For a teacher to know their students, it is important to know how to say their names. Pronouncing students’ names correctly conveys important messages to the students, including that the teacher cares about each student, accepts each student and that each student is important.
- **Say hello and good-bye to every student every day.** Looking at each student and greeting him or her conveys that the student is valuable and worth the teacher’s time. A study conducted by Cook, Fiat and Larson (2018) showed that greeting and welcoming students each morning increased achievement by 20 percent and lowered disruptive behavior by 9 percent. Through the ritual of greeting, adults model caring and demonstrate the importance of this social-emotional learning skill (SEL) to students. Students also can exercise the SEL skills of using words to identify their feelings as teachers greet them and give students a chance to ask for support. For example, teachers might say, “Let me know if there is something you need for today’s project” or “You look upset. Are you OK?” In doing so, the teacher is helping to prime the students for academic focus through eliciting positive emotions before the class even begins (Benson, 2021).

- **Know their interests and attend extracurricular activities:** Part of creating a positive classroom environment that propels learning is getting to know students' interests and demonstrating care and support by attending extracurricular activities. Teachers also should plan instruction with students' interests in mind. Psychology and neuroscience both indicate that linking learning with students' interest is not a luxury, but a necessity. In addition, teachers need to help students make interest-based connections with the big ideas and key concepts they are learning (Tomlinson & Sousa, 2020).
- **Speak with respect:** Words are powerful, and harsh or sarcastic words from a teacher can damage relationships and prevent students from trusting the adult who is there to teach them.
- **Monitor nonverbal communication**: More than half of all communication is nonverbal and students pay attention to the adult's body language. Eye rolls, crossed arms and defensive stances send powerful negative messages to students about the approachability of the teacher and whether this teacher is trustworthy.
- **Share your world**: Students want to know more about their teachers, and teachers should share aspects of their life that are appropriate for school. In doing so, students are provided insights into a teacher's humanity, and it helps them form stronger connections to the teacher.

Teacher-student relationships require effective communication and the time to address issues that strain the relationship. Teachers need to be consistent and fair and repair relationships that are damaged when problematic behavior occurs (Tomlinson & Sousa, 2020). Using restorative practices, the teacher provides students the opportunity to take responsibility for their behavior and to make amends. This can take the form of a simple impromptu conference, a class meeting or circle, or a more formal victim-offender dialogue. The point is to ensure that students understand that their actions caused harm and that they can repair that harm (Fisher, Frey & Hattie, 2016).

Establishing the Physical and Social Environment

In addition to prioritizing relationships, psychological safety in the classroom includes the extent to which students feel a sense of order and routine. When the expectations for acceptable behavior are unclear, classroom routines are lacking, resources are unorganized, or rules are inconsistently applied, students can become confused, distracted and unruly. Part of being an effective teacher is to be an effective classroom manager and establish clear expectations, procedures and routines at the beginning of the school year (Marzano, 2017; McTighe & Willis, 2019).

According to Hattie and Anderman (2020), classroom management acts as the gatekeeper of learning and includes the social, cultural, instructional and organizational contexts. It provides

the teacher and students with a positive framework for both interpersonal and academic interactions. Research shows that effective classroom management significantly increases student academic achievement and decreases problem behaviors.

As part of creating a safe and orderly environment, teachers need to consider how they will involve the students in the creation of the classroom rules and procedures. Doing so helps move students away from merely compliance and maximizes their sense of ownership. Teachers also need to consider how they will help students understand the rules and procedures, why they are important and how they support a safe and orderly learning environment. Fisher, Frey and Hattie (2021) recommend using the term agreements instead of rules because agreements represent the social contract of the classroom community, rather than a narrower set of behavioral guidelines that have been written solely by the teacher. Based on a review of the research, teachers should consider the following characteristics of effective class agreements (adapted from Alter & Haydon, 2017; Fisher, Frey & Hattie, 2021):

- **Number of agreements**: A fewer number, rather than more, works better. The recommendation is about 3-5.
- **Created Collaboratively with Students:** Research recommends soliciting and integrating student input when creating classroom agreements. Students are more likely to follow rules or agreements that they help create.
- **Stated Positively**: Use wording that describes the desired behavior rather than the undesired behavior. Avoid a list of agreements that begin with the word “No” or “Don’t” because these do not tell students what they should do, only what they should not.
- **Specific in nature**: The agreements should state explicitly what the expected behavior should be, which is key to increasing students’ ability to self-regulate.
- **Publicly posted**: Once completed, the agreements should be posted in a way that serves as a visual prompt for teaching and promoting prosocial behavior. Consider using pictures to represent words for younger students.
- **Taught to Students**: The agreements should be taught each day for the first week of school and then revisited as needed throughout the year, especially after long breaks. One possible approach for teaching the agreements is to state each agreement, give a rationale, provide examples and non-examples and allow the students opportunity to practice.

The agreements should convey high expectations, mutual respect and an acknowledgement of the learning community’s needs. They should emphasize a collaborative spirit, signal students that learning is social and done in the company of others. Additionally, the agreements should communicate to the students that the role of the teacher is to foster learning, not to merely control the students (Fisher, et al., 2021).

The physical layout and appearance of the classroom also can enhance or hinder students' perceptions of order. The learning environment should be free from clutter and visually pleasing. The classroom walls should display deliberate pieces of student work that reflect the learning outcomes of the current unit of instruction. This might include anchor charts co-created with the students, work that meets the success criteria within the unit, or models and/or exemplars of student work. Teachers should also consider making regular changes to the learning environment as an effective way to capture student attention and provide visual stimulation. Possible ideas include changing the seating arrangement, rotating visual displays, and using objects that connect to the current content they are learning (Hardiman, 2012).

When determining the physical arrangement of the furniture, teachers should do so in a way that allows for easy movement of students around the room. Research shows that exercise and movement positively impact cognition and learning. In order to properly function, the brain requires high levels of oxygen and glucose supplied by the blood. When the brain is well-nourished, it is better able to attend to, process, retain and recall new learning (Kagan, 2016). One way to meet this need is to provide students opportunities for movement within the classroom and during content instruction. Possible ideas include the use of rotating workstations, special nooks and alcoves for reading, and using instructional strategies that involve movement that allow students to work with classmates as they process and respond to content questions/tasks. In addition, teachers also can utilize energizers and brain breaks to help increase blood flow and nourishment to the brain and help foster a joyful, positive environment.

Improving Student Motivation

Student motivation plays a crucial role in improving student outcomes and academic achievement. Students need to believe that they can be successful with the tasks they are assigned, feel they have some autonomy and self-direction in their activities and believe their abilities can grow and improve over time. According to Hattie and Alderman (2020), "Of all motivation-related conditions that have been studied, those related to students' perceptions of their competence, expectancies for success, and sense of efficacy have proven to be particularly robust predictors of achievement" (p. 166).

Students' level of motivation initiates and directs their behavior. It explains their willingness and promptness in starting academic tasks, as well as the amount of effort they give. Motivation impacts their persistence, or lack thereof, with academic work when facing challenges and distractions (Hattie & Anderman, 2020). Two key areas that impact student motivation is their sense of self-efficacy and their mindset.

Student Self-Efficacy

Efficacy is defined as an individuals' judgements of their own skills for performing specific actions, solving particular types of problems or achieving a desired outcome (Hattie & Anderman, 2020). Self-efficacy affects the choices individuals make, the effort they put forth, their perseverance when facing obstacles and how quickly they recover after experiencing a failure or setback (Silver & Stafford, 2017). Table 5.3 compares the characteristics of students with high self-efficacy to those with low self-efficacy (Fisher, et al., 2016; Hattie, 2012; Silver & Stafford, 2017).

Table 5.3. *Characteristics of High Self-Efficacy vs Low Self-Efficacy*

Students with High Self-Efficacy	Students with Low Self-Efficacy
• Take on and persist with challenging tasks • Expend more effort • Demonstrate greater academic performance • View hard tasks as challenges rather than try to avoid them • View failures as an opportunity to learn and to make a greater effort or to look for new information next time • Are more motivated to use specific learning strategies and to engage in self-directed learning	• Are more resistant to engaging in learning • Shy away from difficult tasks they view as personal threats • Show little to no commitment to goals • When faced with challenging tasks, dwell on their personal deficiencies and obstacles they will encounter • Give up quickly when facing challenges • Are slow to recover their sense of confidence following failure or setbacks • Tend to point to external factors as the cause of their success or failure

A critical first step teachers can take is to build a student's sense of confidence that they can attain the learning goal and success criteria within each lesson. When students lack confidence, they often will not focus on what is being taught (Fisher, Frey, & Hattie, 2016). When students know and understand the expected outcomes of a lesson, it provides them with a sense of control in the learning process and guides where they need to focus their time, attention and effort. The following list provides suggestions for increasing students' self-efficacy (Fisher, et al., 2016; Mathisen & Bronnick, 2009; Silver & Stafford, 2017).

- Share learning goals and success criteria with students.
- Develop learning progressions—a roadmap towards the mastery of a skill or task—that clearly represents expectations at different stages of achievement. This can help students track their progress towards the mastery of a skill or content-area.
- Provide direct instruction with modeled examples.

- Provide guided use of techniques on well-defined problems and supervised use of techniques on self-generated problems.
- Use peer models for learners to observe others who are working through or have mastered a similar challenge and are modeling an effective strategy.
- Concentrate on improvement rather than a finite goal. Provide specific feedback on attempts made by learners that help them determine next steps for improvement.
- Demonstrate teacher credibility by being fair to all.
- Create high levels of trust between the teacher and the student and between students.
- Welcome errors as opportunities for learning.
- Help students learn the difference between hard work and strategic effort.
- Treat students' successes as though they are normal, not an isolated example or fluke.

Student Mindset

Not only does self-efficacy play a key role in students' motivation to learn, but it also impacts their mindset - the way in which they view intelligence and their ability to learn. Mindsets are defined as the set of assumptions and beliefs individuals have about their ability to learn and grow and is the driver of student motivation (Conyers & Wilson, 2020; Hattie & Anderman, 2020). Individuals with a growth mindset believe that intelligence is malleable and that they can grow and develop their intelligence and skills over time. Those with a fixed mindset believe that their intelligence, talents and skills are fixed and cannot change. The characteristics of individuals with a growth mindset versus a fixed mindset are summarized in table 5.4 (Dweck, 2016).

Table 5.4. *Growth vs. Fixed Mindset*

Context	Growth Mindset	Fixed Mindset
Challenges	Embraces challenges	Avoids challenges
Obstacles	Keeps going when the going gets tough	Gives up easily and becomes defensive
Effort	Views effort as essential for achieving mastery	Views effort as pointless
Criticism	Actively learns from negative but useful feedback	Ignores negative but useful feedback
Success of Others	Learns from and is inspired by the success of others	Feels threatened by the success of others

Fostering a growth mindset begins with developing students' understanding that the brain is malleable and can grow significantly in capacity over time. When learners understand and act on the belief that they can "build" brain capacity, they are more likely to persist in learning and less likely to be negatively impacted by setbacks along the way. (Tomlinson & Sousa, 2020). Research shows that if students are explicitly taught about brain plasticity (the ability of the brain to grow and change over time), their motivation to learn increases. Additionally, if teachers provide students with specific instruction on how to use effective learning strategies, research shows there is tremendous potential for students to make steady academic gains. As students begin to experience success and make gains, it helps them sustain their growth mindset over time (Conyers & Wilson, 2020).

Not only is it important for students to understand that the brain has the capacity to change during learning, but it is also important for educators as well. Learning never stops, and while explicitly teaching students about brain plasticity is a powerful first step for the development of a growth mindset, it is not enough on its own. Educators need to also teach students how to be metacognitive, set their own learning goals, monitor their progress, and use effective strategies to support their learning. Teachers need to routinely use the formative assessment process to ensure students are tackling challenging content at an appropriate level and provide specific feedback to learners as they progress towards their goals. Teachers should praise students for their hard work and their effective use of strategies rather than for "being smart" (Conyers & Wilson, 2020). To promote a growth mindset in students (Tomlinson & Sousa, 2020):

- Explain, teach and reflect often with students on key aspects and benefits of growth mindsets.
- Teach students the skills, attitudes and habits of mind that help someone develop a growth mindset.
- Establish a classroom culture of achievement and quality work. When students are part of a group in which peers pull together for mutual growth and success, it's far more likely that individuals will believe in their ability to succeed and will work toward such success.
- Teachers need to understand their own mindsets. They need to observe themselves in action and reflect on which students they easily respond to with interactions that foster confidence and an expectation of improvement, and which students they find it more challenging to believe in. Then teachers should use that information to grow, just as they hope students will grow.
- Know that teaching with a growth mindset also involves belief, hard work and smart work. Wanting to believe in the capacity of each student is a great start. Enacting those beliefs is tougher; it involves ensuring that, every day, each student moves one step beyond where they began the day or class period. Students must consistently observe

themselves progressing, which will fuel their motivation and effort. Such progress can only happen when teachers begin where a student is currently functioning along their trajectory of learning. The challenge is in learning to help each student move ahead starting from that learner's point of entry into the lesson.

Self-efficacy and mindset work together in determining a student's motivation and willingness to engage in the learning process. Students who have high self-efficacy along with a growth mindset are more likely to successfully navigate setbacks when they occur. Even when they experience failure, noticing a gradual improvement in skills over time gives them the confidence they need to ultimately achieve the goal (self-efficacy) by increasing effort and abilities (growth mindset).

Evidence-Based Instructional Practice # 2: Clarifying and Sharing Clear Learning Goals

Introduction

Critical to providing equitable learning environments is ensuring that teachers and students have access to a local standards-aligned curriculum supported by evidenced-based instructional practices and high-quality instructional resources. Educators also must create a classroom culture in which students feel safe and supported in meeting the intended learning outcomes. A first step when implementing the local curriculum at the classroom level is to ensure that both the teacher and the students have clarity of the intended learning outcomes for each unit of instruction and what they must do to reach those outcomes.

In defining teacher clarity, Fendick (1990) states that it is a combination of clarity in regards to (1) organization, (2) explanation, (3) examples and guided practice, and (4) assessment of student learning that are all aligned to clear learning expectations. Teacher clarity requires that teachers have a deep understanding of what students must know and be able to do to reach the grade-level expectations outlined in the *Kentucky Academic Standards* (KAS) and then use that clarity to plan meaningful lessons designed to help students reach those expectations.

However, in order to improve student outcomes, the teacher needs to ensure that students also have clarity in what they are learning. Research shows that when teachers help students understand what they are learning, why they are learning it and how they will know if they have learned, student achievement increases (Fisher, Frey, Amador, & Assof, 2019). Teachers help students gain this clarity by consistently clarifying and sharing the learning goals, relevance and success criteria as a part of ongoing instruction each day.

- **Learning goals** clearly describes what students need to know, understand and be able to do by the end of the lesson or a series of lessons.
- **Relevance** helps the students understand the purpose or the "why" behind the learning.
- **Success criteria** describe the evidence students must produce to show they have achieved the learning goals.

Why are clear learning goals critical to student success? How do teachers gain clarity and then share that clarity with their students? This section will focus on (1) **current brain research and the need for clear learning goals** (2) **starting with teacher clarity**, (3) **establishing student clarity,** (4) **developing student understanding of the learning goal and success criteria** and (5) **co-constructing success criteria**.

Brain Research and the Need for Clear Learning Goals

In order for the brain to learn, it must first commit to learning. All learning requires what Kahneman (2011) describes as “effortful thinking.” Essentially, the human brain has two operating systems: a fast-thinking brain and a slow-thinking brain. The fast-thinking brain works quickly with little effort because it utilizes prior knowledge that has become automated. The slow-thinking brain, which is generally in charge, requires a greater level of attention and effort and can become easily distracted. It also is reluctant to invest more energy and effort than is strictly necessary. However, in order to acquire new learning, the brain must maintain focused attention, process information, and reflect on the learning, all of which require intense focus, effort and energy. (Goodwin, 2020).

The first step in the learning process is to actually get students to commit to the learning. When students commit to learning, it signals the brain to pay attention to the information in the sensory register so it can enter the brain's immediate memory and keep the student focused long enough for the information to move into working memory (Goodwin, 2020). How do teachers help students commit to learning and engage their brains in effortful thinking?

In order for students to commit to learning, research shows they must first understand what they are supposed to learn and why they are being asked to learn it. Then, once students see the value in the learning, they must believe they can actually learn it and know what it looks like when they get there. Ultimately, to commit to learning, students need to tell themselves two things: (1) *This is interesting and important*, and (2) *I believe I can learn/master it* (Goodwin, 2020). At the classroom level this can be achieved when teachers share and clarify the **learning goals**, **relevance** and the **success criteria** of the learning with the students and then use those to drive instruction and assessment.

When students know what they are learning, why they are learning it and believe they can meet the expectations, it promotes student ownership in the learning process. Students not only have an understanding of the purpose of the learning, but also how they will be held accountable for making their thinking visible in terms of what they need to say, do, make or write to demonstrate their understanding of the intended learning outcomes (Goodwin, 2020; McTighe & Willis, 2019). This helps students know where to focus their time and energy and where their brain needs to sustain “effortful thinking.” According to Gazith (2021), when students have a clear sense of purpose and direction, it helps them “understand what they’re preparing to learn and how it will be assessed. This facilitates their ability to grasp the material and identify desired outcomes, and also encourages them to effectively develop autonomy” (p. 27).

Additionally, when students can clearly see the path to reaching the intended learning outcomes, it can increase their motivation to engage in the learning because they can see

themselves making progress. When students experience a series of small wins as they move along the pathway to mastery, they are more apt to stay committed to the learning. It also provides students with an internal sense of control and helps promote a growth mind-set as they tackle more challenging content (Goodwin, 2020). According to neuroscience, when students have clarity of the learning goal, relevance and the criteria for success, it positively impacts student motivation and their ability to organize and focus their efforts, which leads to increased academic performance. "Conversely, when the goal is unclear or irrelevant to students, it is unlikely that they will maintain attention, try their best, or persist when learning becomes challenging" (McTighe & Willis, 2019; p. 55).

Research shows that clarity in learning also increases student' sense of self-efficacy. When students believe they can be successful at a particular task or assignment, they are more likely to persist in their work, especially in the face of challenge. It also can help decrease student anxiety and help them better connect new learning to prior knowledge (Alamrode & Vandas, 2018). "When students feel that they understand the criteria by which their work will be judged, they also have some sense of control over their work and are poised to be strategic, self-regulators. It takes both an understanding of the learning goal and an understanding of the success criteria to foster self-efficacy and self-regulation" (Moss & Brookhart, 2009; p. 28-29). Table 5.5 below highlights some of the major differences in the classroom culture when clear learning goals are present or missing as an on-going part of classroom instruction (Grift & Major, 2018; p. 89-90).

Table 5.5. *Classrooms Where Learning Goals are Evident vs Missing*

When Clear Learning Goals are Evident	When Clear Learning Goals are Missing
• Higher levels of student achievement linked to the opportunity for focused attention on the elements that are most critical to the learning experience • Deeper and richer dialogue in the classroom that centers on the key concepts, knowledge, skills and dispositions being taught • Higher levels of accountability for learning at a variety of levels, including student-to-student, student-to-teacher and teacher-to-student	• A lack of understanding of why the learning is taking place and the relationship it has to both prior knowledge and expected knowledge acquisition • Higher levels of disengagement in learning processes and tasks, both inside and outside of class • Greater incidents of behaviors that disrupt the learning of self and others • More time spent teaching aspects of the content that should need less time, and

• Fewer justifications for lack of learning success by both the teacher and the learner • More explicit language used by the teacher and the learner in classroom conversations • A greater understanding of what is needed to be successful as a learner • Fewer assumptions by teachers of students' progress and more success in providing strategies to support them in their individual learning needs • Clear alignment of tasks, activities and assessments that support the learning of the expected outcomes	less time spent teaching aspects of the content that need more time • Teacher dialogue that centers more on tasks rather than on the key learning that is being explored • Tasks, activities and assessments that are not aligned to the knowledge, skills and dispositions being taught • Students who express doubt about the competence and quality of the teacher and teachers who express doubts in the competence and quality of the learner due to lessened expectations

Starting with Teacher Clarity

In order for teachers to support students in understanding the purpose of the learning and what success looks like, teachers must have clarity around what the standards are asking students to know and be able to do. However, often when teachers are asked about their learning goals for a lesson, they respond with, "I'm going to have the students do…" In this case, the teachers are focused on the activities that students will do rather than on the learning that should result from students engaging with those activities. When teachers focus on the activities students will do without a clear understanding of the intended learning, it is unlikely students will learn what they need to learn (Wiliam & Leahy, 2015).

According to Gazith (2021), even if teachers have a sense of the learning goal, "without a clear articulation of what success looks like, it is very challenging, if at all possible, to create effective lessons that teach students these tacit goals" (p. 27). When teachers can clearly articulate what students need to know and be able to do, why they need to learn it and how they will know they have learned it, they can then use that clarity to plan effective lessons that focus on helping students reach those expectations. Teachers need to shift their thinking from what they will teach to a focus on what students will learn and then plan effective lessons that help students reach those goals (Gazith, 2021).

The first step in teachers gaining this level of clarity is to analyze the *KAS* to identify what students must know and be able to do within each unit of instruction to meet the grade-level expectations. This analysis helps teachers determine the content, concepts and/or skills students must master on their way to meeting the full depth of a standard or group of standards. This process is best achieved when teachers work collaboratively in Professional Learning Communities (PLCs) to address two critical questions: (1) What do students need to know and be able to do? and (2) How will we know they have learned it? When teachers work together to answer these questions, it helps to promote equitable learning environments in which all students are held to the same grade-level expectations, as well as access to grade-level learning experiences and tasks aligned to helping students reach the full depth of the standards.

As teachers analyze the KAS for the grade-level standards in each unit of instruction, they need to focus in on the critical components within each document. The purpose of the critical components is to provide greater clarity in what the standards are specifically asking students to know and be able to do to meet the expectations of the standards. Examples of the components include multidimensionality, clarifications and progressions. For example, within the *KAS for Reading and Writing*, the multidimensionality component highlights the three dimensions built within each standard: Content, comprehension and analysis. By specifying the three dimensions separately, the standards document better communicates the intent of each standard so that local instruction and assessment will align to the intended depth.

The PLC should focus on examining each component and the connections between the components and the standards, as well as how those components can support teachers in designing standards-aligned instruction, grade-level assignments and classroom assessments. The Breaking Down a Standard Resources are available from the Kentucky Department of Education (KDE) to assist teachers in analyzing content area standards.

Once teachers have an understanding of the standards, they should then organize those standards into around big ideas and/or questions to help deepen student understanding and engagement with the content in a more meaningful, relevant way. This helps to avoid students seeing the content as a set of isolated information, skills or processes. When students are tasked with answering big, significant questions, it taps into their curiosity and increases their motivation to engage in the learning. According to Goodwin (2020), the key is to develop open-ended questions that are challenging and provoke deep thought, or even debate, among the students. Whether the questions are provided by the teacher or developed in collaboration with the students, they should require students to learn and analyze new information, evaluate pros and cons, or make a personal decision grounded in the evidence.

Based on the analysis of the standards and the big ideas or questions that will drive the unit, teachers then derive the learning goals and success criteria that guide teachers as they design questions, tasks and activities aligned to the intended learning outcomes. In order for teachers to develop a deep understanding of the learning goals and the success criteria in a way that impacts student learning, they need to be able to answer questions such as (Ruiz-Primo & Brookhart, 2018; p. 36-37):

- What is to be learned?
- Why am I teaching this content?
- Why is this learning important for my students in the context of the unit/module/topic?
- How are these learning goals to be achieved? What instructional activities and tasks will help my students make progress in their learning?
- Why are the activities in this unit sequenced the way that they are?
- How does each activity contribute to the achievement of the overall learning goals?
- What specific evidence will show that those foundational elements have been built? How will I know that students have learned what I intend? What evidence do I need to demonstrate that the learning goals have been met?

Establishing Student Clarity

Once teachers have gained clarity on what students need to know and be able to do to meet the standards' expectations, they must help students develop that same level of understanding. This starts with teachers sharing the learning goals, relevance and success criteria with the students. Often times teachers themselves may be clear on the learning goals when planning lessons, but when learners remain unaware of them, it can negatively impact student outcomes (Fisher, Frey & Hattie, 2016). To help students gain the clarity needed to engage in the learning process, research recommends three questions students should be able to answer in regards to their learning each day (Fisher, Frey, & Hattie, 2021):

- What am I learning?
- Why am I learning it?
- How will I know I have learned it?

Fisher, et al. (2021), argues that students should be able to articulate the answers to these questions regardless of where they might be in the learning process. When teachers and student use these questions to guide classroom practice and assessments, students will have a better understanding of the learning expectations and what is required for success. Each question focuses on a specific component of student clarity needed for the brain to commit to learning. When students have a clear vision of the end point, when they are required to do something to learn, and have specific criteria to use to monitor and adjust along the way, it

makes the journey to the intended learning outcome possible and increases the likelihood of success in reaching the goal. Students have a greater sense of what they can and should do to make their work measure up to the criteria and the goal. “Students can meet goals only if they are actually working toward them, and they can’t work toward them until they understand what they are” (Moss & Brookhart, 2009; p. 28). Table 5.6 summarizes the three clarity components and their characteristics that empower students to answer the three clarity questions.

Table 5.6. *Components of Student Clarity and Their Characteristics*

Three Clarity Questions	Clarity Component	Characteristics
What am I learning?	Learning Goals	• Also referred to as learning intentions, targets, objectives or purpose • Brief statement that describes clearly what students need to know, understand and be able to do by the end of the lesson or a series of lessons • Represent the “destination” of where students are going • Can focus on knowledge, skills and/or concepts and should be aligned to the grade-level standards • Focus on the intended learning, not a list of activities that students will do
Why am I learning it?	Relevance	• Addresses the “why” behind the learning • Can link to learning outside the classroom, learning about yourself as a learner, and/or needed for future learning
How will I know I have learned it?	Success Criteria	• Statements that describe the evidence students must produce to show they have achieved the learning goals • Provide a “map” to the learning destination • Act as major checkpoints along the way for teacher and students to know how they are progressing

		• Specific, concrete and measurable and become the foundation for classroom assessment • Used as the basis for teacher feedback, peer feedback and student self-assessment • Are supported, when necessary, through questioning, modeling, and analysis of student work examples

The Role of Learning Goals – What am I learning?

As learners move throughout the day, the brain is constantly predicting and evaluating each situation based on previous experiences and the current context. This allows the brain to budget the body's energy resources accordingly and to prepare for action. When students know the goal of the learning and are able to zero in on that goal, the brain knows where to focus and how to direct the body's resources needed for attention, planning and action (Posey, 2019). Understanding the learning goals prevents students from falling back to the lowest rung on the ladder - compliance. Learning goals allow students to see the relationship between the tasks they are completing and the purpose for the learning (Frey, Hattie, & Fisher, 2018).

Teachers need to establish the learning goal with students for each lesson or series of lessons, revisit the goal throughout the lesson and use it to formatively assess where students are to determine next steps in instruction. **Learning goals don't have to be used exclusively at the outset of the lesson and may be withheld until after a period of exploration or discovery has occurred** (Fisher, et al., 2019). Yet, truly establishing the learning goal requires ongoing investment to ensure students understand what they are learning and what they will be asked to do with that knowledge. It is the ongoing act of making the learning meaningful and relevant to the student. Effective teachers reestablish the learning goal multiple times during a given lesson, particularly during transitions and when students need redirection back to the purpose of the learning (Fisher, et al., 2016).

Learning goals should clearly convey what students will be learning and should be used to drive classroom instruction and assessment for both the teacher and the students. There are a variety of ways to write learning goals including using sentence stems such as, "I am learning…" or "We are learning…" Whichever style a teacher chooses should remain consistent to provide structure for the students. (Fisher, et al., 2021).

The Role of Relevance - Why am I Learning It?

Once students understand the learning goal, it is important to help them see the relevance of the learning. Emotion is at the core of the brain's decision to engage in "effortful thinking."

When teachers connect the learning goals to authentic and relevant experiences, it can spark curiosity in a student, which causes the brain to take notice and want to explore the topic more (Posey, 2019).“When we instruct students to learn facts, details, and procedures, but don’t explain why this knowledge is essential, why they need to learn it, and who uses this knowledge in real life, the learning has limited value for the students” (Gazith, 2021; p. 31)

When teachers take the time to address the relevancy of the learning, it not only fosters student motivation, it also helps to deepen student learning as they make connections between the learning goals and the larger concepts within the discipline. Below is a list of three approaches teachers might use to make learning relevant for students (Fisher, Frey, & Quaglia, 2018):

- **Application Outside the Classroom Walls**: This is when students see that the content, concepts and/or skills can be used outside the walls of the classroom. This might include ways in which it is used in other disciplines or by other people in different aspects of life. It can’t be too far in the distance but understanding that learning has utility beyond the confines of the four walls of a classroom can guide students’ attention.
- **Learning About Yourself:** This involves students learning more about themselves as learners and making personal connections between the learning and their own identity. Due to students' own unique background and experiences, what may be relevant to one person may not be relevant to another. Allowing students opportunities to make those personal connections to the content helps increase their motivation to engage in the learning.
- **Needed for Future Learning:** This is when the teacher helps students to see that the current learning will be used to help prepare them for upcoming content either within that specific course or in a future course.

A possible strategy for addressing relevancy in a lesson is adding a sentence frame such as, “this will help me to…”, when presenting the learning goal and success criteria. The teacher can then open up a dialogue with students in order to co-construct relevancy. To help students connect back to the relevancy at the end of a lesson, teachers can ask students questions, such as, “Based on today’s learning, what are you curious about? Has this content raised any questions for you?” (Fisher, et al., 2019).

The Role of Success Criteria – How Will I Know I Have Learned It?

Once students understand what they are learning and why it is important, they also must know what success will look like when they achieve the goal. While the learning goal provides the destination, success criteria provide a map for how to reach the destination with clear checkpoints along the way. Fisher, et al. (2018), argues that too often what success looks like is kept a secret from students, which can cause anxiety as they struggle to understand what the

teacher expects. However, when students have a clear understanding of the success criteria, it empowers them to monitor their own progress and not to be overly dependent on the teacher to tell them when they have reached the goal. They are able to use the criteria to set their own goals, which helps to increase student motivation and investment in the learning process.

According to Fisher, et al. (2019), success criteria work because they tap into some of the basic principles of human motivation. People tend to compare their current performance or ability to a clear goal and when there is a gap between where they are and where they want to be, it creates cognitive dissonance. The brain is then motivated to close the gap and get rid of the dissonance by working to assimilate or accommodate information and ideas needed to reach the goal. "Ultimately, when students use success criteria to set and achieve their own goals for learning, the real magic happens in the classroom. When we achieve goals we've set for ourselves, our brains fill with the chemical dopamine. In short, achieving goals feels good and forms a positive addiction" (Goodwin, 2020; p. 42).

Success criteria are typically framed from students' perspectives and can be written as "I can" statements that help students understand and visualize what mastery will look like and feel like. Goodwin (2020) offers the following sentence starters that can help teachers draft their success criteria and invite students to engage in deep learning:

- I can explain…
- I understand and can discuss…
- I can teach…
- I can defend…
- I can test and prove…
- I understand and can show…
- I can restate…
- I can use...to…
- I can discuss and explain how…
- I can model how to…
- I can demonstrate how to…
- I can draw a diagram that…
- I can choose…
- I can illustrate and explain

Examples of Learning Goals and Success Criteria

The learning goals and success criteria provided in Table 5.7 are meant to help teachers better understand the difference between the two components and how they work together to support student learning. Please note that these are possible suggestions. They are not the only pathways and are not comprehensive to obtain mastery of the standards.

Table 5.7. *Examples of Learning Goals and Success Criteria*

Learning Goal	Success Criteria
We are learning to use patterns from our observations to place	• I can explain how I will find patterns in different materials.

different materials into groups based on ways they are the same and different	• I can name the patterns I see in different materials. • I can sort different materials into categories based on the patterns I see.
We are learning to identify the central idea of a text.	• I can define central idea. • I can list key details of a text. • I can analyze key details to determine the central idea of a text. • I can analyze how the central idea is reflected in a text and cite relevant evidence to support thinking around the central idea.
We are learning to compare fractions.	• I can draw models to make fraction comparisons. • I can use the symbols >, < and = when making fraction comparisons. • I can explain how the size of equal parts can be used to compare fractions. • I can construct a viable argument and/or critique the reasoning of others to prove whether a fraction comparison is correct or incorrect.
We are analyzing the structure of the U.S. government, including separation of power and its system of checks and balances, through inquiry practices.	• I can ask compelling and discipline-specific supporting questions about the structure of the U.S. government. • I can identify the three branches of government and describe the function and roles of each branch. • I can describe the limitations of each branch established by separation of powers. • I can analyze how the system of checks and balances creates a balance of power among the branches of government.

	• I can use and integrate information from primary and secondary sources to develop claims that answer compelling and supporting questions, while noting key similarities and differences in the perspective the sources represent. • I can construct explanatory products to convey the diverse perspectives that impacted the founding of the United States. • I can explain different approaches people can take to address local, regional and global problems, using examples from U.S. history.

Developing Student Understanding of the Learning Goals and Success Criteria

In harnessing the power of learning goals, relevance and success criteria, teachers must ensure that students have a deep understanding of each. Simply telling students the learning goal and posting a list of success criteria on the board does not equate to effectively developing student understanding of each component. Effective teachers use multiple modes to share the learning goals and success criteria with students (Ruiz-Primo & Brookhart, 2018).

Moss & Brookhart (2009) state that "the single most important method for routinely sharing the purpose is using assignments that match - really match - the learning goals. It is in the assignment that the teacher translates the learning goal into action for the student. The student will strive to do the assignment, not the abstract goal. When we say the assignment or activity must "embody" the learning goal, we mean that the assignment and the activity is such a close match with the goal that the student would be able to think, "If I can do [this assignment], then I can do [the learning objective]" (p. 25). Other possible strategies for developing student understanding of the learning goals and success criteria include questioning and using examples of student work.

Questioning

One strategy for helping students to gain clarity in their learning is to ask students questions related to the learning goal or success criteria or asking them to explain each in their own words. The teacher also can ask students to share their own attitudes, experiences and prior knowledge that come to mind in relation to the topic of the learning. Teachers can then use students' responses to help students connect to the relevance and to inform and adjust instruction as needed (Moss & Brookhart, 2009).

McTighe and Willis (2019) suggest that at the beginning of a unit, the teacher might invite students to pose questions about the topic of the unit and have them explore those ideas. One way to do this is to have students create a KWL chart in which they:

- Activate their prior knowledge by asking them what they already **K**now about the topic;
- Pose questions and identify those aspects of the topic about which they are curious and **W**ant to learn; and
- Reflect on and record what they have **L**earned as they move throughout the unit.

Goodwin (2020) offers the following questions teachers can pose to students to help them see the relevance in their learning (p.37-38):

- How can I apply this knowledge or skill in my own life?
- What might I gain personally from mastering this learning?
- How might I use this new learning to help others?
- How do adults use this knowledge or skill in the real world?
- How is this knowledge or skill an important building block for my later learning?

Examples of Student Work

When teachers provide students with examples and have students assess and describe them in terms of the success criteria, students develop a deeper understanding of the learning goal and criteria for success (Moss & Brookhart, 2019). Wiliam & Leahy (2015) point out two immediate benefits of getting students to look at examples of student work. “First, students are better at spotting mistakes in the work of others than they are at their own work. Assessing one’s own work, as well as assessing the work of one’s peers in the classroom, is emotionally charged, and the emotional resonances can often interfere with engaging in the demands of the task.

However, assessing the work of anonymous others is emotionally neutral, so students are able to focus more effectively on the task. Second, when students notice mistakes in the work of others, they are less likely to make the same mistakes in their own work” (p. 42). The list below provides possible ideas for using examples of student work:

- Provide students with top quality examples that meet all the success criteria and have students brainstorm a list of what makes them quality examples (Moss & Brookhart, 2009).
- When using top quality examples, use more than one example to show different styles or ways of meeting the success criteria to inspire student creativity (Almarode & Vandas, 2018).
- Have students analyze a range of examples, sort them into quality levels, discuss the qualities and develop a description of what quality looks like aligned to the success

criteria. When using a range of examples, Moss and Brookhart (2019) recommend using examples from anonymous sources or teacher-created examples.

- Show multiple versions of a student's work that has progressed over time until the student's work met the success criteria. Ask students to notice how the student improved over time, highlighting the success criteria that the student achieved in each piece of work (Almarode & Vandas, 2018)

Co-Constructing Success Criteria

As teachers move through each unit of instruction, there are different times in which teachers will develop and share the learning goals and success criteria with students. As mentioned earlier, learning goals and success criteria don't have to be used exclusively at the outset of the lesson and may be withheld until after a period of exploration or discovery has occurred.

Yet, based on the learning goals, there also are times when teachers may want to co-create success criteria with students. **When students are involved in co-constructing the success criteria, it deepens their understanding of what quality looks like, increases student ownership in the learning process and promotes self-regulation** (Clarke, 2021).

When determining whether or not to co-construct success criteria with students, Almarode and Vandas (2018) suggest to **first consider the complexity of the goal**. The amount of time a teacher spends clarifying quality and expectations increases with the complexity of the goal and the time spent in class working toward that goal. If the teacher plans to spend a few weeks on a topic, it would be beneficial to spend significant time co-constructing success criteria with students. In addition, investing time on the front end co-constructing an understanding of the success criteria often saves significant time on the backend because students start with a deep understanding of what success looks like. It also is important to note that co-constructing success criteria does not have to be accomplished in a single lesson. Often, co-construction continues throughout a series of lessons or unit, as teachers provide mini-lessons, modeling and additional examples to further clarify the expectations as students' learning deepens.

Below is a list of steps to consider when constructing success criteria with students (adapted from Almarode and Vandas, 2018; p. 81-82):

1. Determine **when** to co-construct success criteria with students.
2. Gather the tools students will use: Worked examples, exemplars and/or models.
    a. Examples of attainment of the learning goal(s)
    b. Non-examples or works in progress in relation to the learning goal(s)
    c. Process, steps or multiple approaches to attain the learning goal(s)
3. Determine the method that will be used to share the tools with students.

    a. Studying and differentiating among the examples of student work in small groups to generate success criteria
    b. Modeling by teacher or students – demonstration with a think-aloud about the thinking process they are using to make decisions about quality
    c. Worked examples (step-by-step demonstration of how to perform a task or how to solve a problem) modeled and then posted for reference
    d. Compare success criteria exemplars to other examples that do not fully meet the learning goal or nonexamples to determine which is better and why
4. Generate initial success criteria with students.
    a. Allow students to share criteria after modeling, examples and exemplars have been shared.
    b. Add any missing success criteria (i.e., teacher noticing if anything is missing and needs to be added, based on the standards and expectations).
5. Categorize and organize agreed upon success criteria using tools. This might include:
    a. A t-chart
    b. A checklist
    c. An anchor chart
    d. Other ways of representing the success criteria
6. Have students model/practice using the success criteria to provide feedback and set personal goals as to which criteria to work toward next.
7. Revisit and revise success criteria and goals over time as student learning deepens.

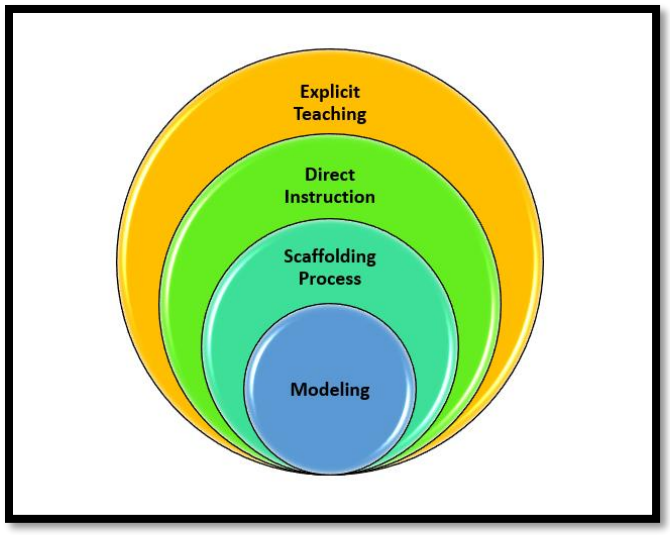
Almarode and Vandas (2018) recommend that the co-constructed success criteria are agreed upon by the class and written in student-friendly language. They should always be paired with examples of student work, exemplars and models of success for student reference. In addition, they need to be organized in a way that is easy for students to monitor their own progress and determine their next steps in reaching the intended learning goal.

Evidence-Based Instructional Practice # 3: Explicit Teaching and Modeling

Introduction

Consistent research in the field upholds that the quality of day-to-day classroom instruction students receive has a significant impact on their overall achievement. It is imperative that all students have access to high quality, standards-aligned, grade-level instruction. Therefore, as teachers implement the curriculum, they should strategically and intentionally utilize evidence-based instructional practices that support students in reaching the intended learning outcomes. Two interrelated evidence-based instructional practices discussed in this section include explicit teaching and modeling (TNTP, 2018; Hattie, et al., 2021). **Explicit teaching** is a system of step-by-step instructional approaches in which teachers examine the individual elements they are planning to teach and continually check for student understanding. Two essential instructional approaches within the explicit teaching system are direct instruction and modeling (Ashman, 2021). See Figure 5.2 below.

Figure 5.2. *Explicit Teaching and Modeling*



The Role Direct Instruction Plays in Explicit Teaching

Educators often unintentionally use the terms *explicit instruction* and *direct instruction* interchangeably; however, while related, they are not the same. Explicit teaching refers to a whole system, not just an episode within a lesson; whereas direct instruction is one kind of explicit teaching - a pedagogical approach within that system (Ashman, 2021). Research studies support teaching learning strategies explicitly as a student-centered approach. One such study

by the National Literacy Panel (2006) found that interactive approaches to student learning are more effective when combined with direct approaches which provide explicit and direct teaching of specific skills or knowledge (August & Shanahan, 2006; Moore, 2010). While the need for explicit teaching is strongly grounded in research, it is sometimes unpopular in education as it is viewed as conflicting with more popular education theories including inquiry and project-based learning (Ashman, 2021).

Some educators view explicit teaching as commanding and rigid, upholding that students should come to know information on their own through exploration and discovery rather than through explicit instruction. However, author and researcher Greg Ashman (2021) argues that discovery and explicit learning can co-exist; both have a purpose and place in today's classrooms. Because a large majority of what is often observed in secondary explicit teaching is "suboptimal" (i.e., standing at the front of the classroom lecturing), leaders do not get an accurate sense of what explicit instruction truly is because they do not get enough opportunities to observe it in action.

Explicit Instruction and Teacher Effectiveness

Explicit instruction's true effectiveness comes from its ability to encourage teachers to examine the individual elements they are planning to teach and continually check for student understanding. This key element of explicit instruction forces teachers to think through the step-by-step processes that students must follow to reveal when students do not understand or have misconceptions. Regardless of their educational philosophies, many educational experts have consistently observed the following teacher behaviors during effective explicit instruction. Teachers of explicit instruction consistently (Ashman, 2021):

- Optimize instructional time;
- Use active teaching by presenting concepts to students with a balance of conceptual and procedural knowledge through supervision, encouragement and the building on of initial presentations;
- Are proactive in classroom management practices;
- Demonstrate clarity in communicating learning goals, success criteria and delivery of content;
- Are enthusiastic and warm toward students;
- Provide well-paced "Goldilocks" lessons (not too fast and not too slow);
- Teach to mastery by providing adequate review and feedback; and
- Possess adequate subject matter knowledge where the teacher is viewed as a full director of the learning, not a facilitator or guide (Ashman, 2021).

While explicit teaching is a system of instructional approaches, direct instruction is a critical approach type within that system. For some educators, direct instruction conjures up negative connotations as a scripted, inflexible instructional approach that devalues teacher autonomy. While it is a commonly misunderstood instructional design strategy in the field, many educators are quick to discount its effectiveness because they do not understand the full scope of benefits direct instruction can provide students when learning new content. **Direct instruction "offers a pedagogical pathway that provides students with modeling, scaffolding and practice they require when learning new skills and concepts" and according to continued research, it remains one of the most effective means of teaching complex content (Ashman, 2021).** In fact, according to John Hattie's meta-analyses research, direct instruction has an effect size of 0.59 - more than one year's growth in one year's worth of time. Therefore, we are likely to see student gains when direct instruction is implemented as intended (Fisher, et al., 2020).

Developed by Siegfried Engelmann and Wesley Becker, direct instruction originally included scripted and carefully sequenced lessons, but have more recently moved into teacher-directed, highly structured lessons based on explanation, demonstration and practice. These more current models of direct instruction focus on student engagement, small group instruction and specific, immediate feedback. One of the primary benefits of direct instruction is that it follows a set methodology, which often uses non-examples to avoid student misconceptions from arising in the first place. Teacher misconception exists that direct instruction is only beneficial in developing basic skills. However, compared to control groups in basic skills, direct instruction groups produced larger gains in student problem solving and self-esteem. In addition, students receiving direct instruction had higher graduation rates than students who did not receive direct instruction following studies many years later (Ashman, 2021).

Lesson Sequences for Direct Instruction

Models of direct instruction are highly controlled to include a sequencing of concepts, and, unlike traditional instructional models and programs, the planning and delivery of direct instruction are seen as separate tasks. Educators plan the responses they desire from students and reinforce those with praise (Ashman, 2021). **Current models of direct instruction lessons suggest the following general pattern or sequence:**

1. Review of previous learning briefly at the beginning of the lesson going from known to new information.
2. State goals at the beginning of the lesson.
3. Present new material in small steps with practice for students after each step.
4. Provide clear, detailed instructions and explanations.
5. Include a high level of active practice for all students.
6. Check for student understanding, ask many questions, and collect responses from all students.

7. Guide students during initial practice.
8. Use explicit instruction and practice for seatwork tasks, monitoring students as they work (Fisher, et al., 2020).

Acquiring New Information and the Role of the Teacher

So how do we ensure that all students are given the same opportunities to learn the content using the best approach possible? Is direct instruction the best approach for all learners? We know that *giving* students information is not enough; they must come to *understand* the content they are learning. According to researchers Grant Wiggins and Jay McTighe, learning for understanding "requires that curriculum and instruction address three different but interrelated academic goals: 1) helping students **acquire** important information and skills, 2) **make meaning** of that content, and (3) effectively **transfer** their learning to new situations both within school and beyond it." Teachers can take on varying roles in the classroom as they attempt to support students in achieving these three academic goals. By incorporating various instructional approaches, the classroom teacher can assume the role of direct instructor, coach or facilitator.

While all three roles are needed and serve different purposes in the classroom, **explicit teaching and modeling occurs when the teacher is activating the role of direct instructor and the primary goal is to help learners acquire basic information and skills, particularly information that is new or complex in nature**. Examples of direct instructional methodologies can include lectures, multimedia presentations, convergent questioning, demonstrations, modeling, guided practice and feedback (Wiggins & McTighe, 2008; Ashman, 2021).

When too much information is presented to students at once, it becomes increasingly more likely that student misconceptions will develop. By teaching small increments of material, providing time for guided practice and then checking for student understanding, teachers are able to limit the number of misconceptions that students develop (Rosenshine, 2012). While **direct instruction is not necessary for all instructional lessons**, author Greg Ashman suggests there is no other instructional approach in the field that has been found to better help students acquire new or complex content information and skills (Ashman, 2021).

So, what does direct instruction look like in today's classrooms? Some educators tend to visualize direct instruction as lecture-oriented, teacher-centered presentations; however, this image is antiquated and far from accurate. Direct instruction allows teachers to flexibly accommodate the needs of lower and higher performing students by providing teachers autonomy to choose feedback through wording and examples that best match students' responses. The focus of direct instruction lessons is not on *how* to present skills and concepts to students, but rather on what students know, don't know and where they need additional

support. In most cases, direct instruction is presented to students in small, homogenous flexible groups where instruction is individualized and adjustments within and between groups are made weekly based on analysis of ongoing student formative assessment evidence (Stockard, et al., 2018).

According to Robert Marzano (2017), direct instruction is most effective when it contains the following elements:

Element #1: Chunking Content - New information is best presented in small, incremental and digestible amounts called chunks (Marzano, 2017). **Chunking helps to move information from long-term memory into our working memory so we can manipulate it (Ashman, 2021).** Moving content information by chunks helps in making more efficient use of short-term memory and helps to avoid information overload (Gazith, 2021). When teachers chunk content, they present information and stop at natural breaks for students to process and reflect. When presenting new, declarative knowledge, the chunks are made up of details that logically go together. Steps in a process are chunked together when presenting new procedural knowledge. Pre-assessment data is crucial here because when students demonstrate that they already know about specific content, the chunks presented to them can be larger; the less they know about content the smaller the chunks should be (Marzano, 2017).

Element #2: Processing Content - When learning is paused for the processing of new information to occur, students need to be engaged in strategies that help to facilitate deeper understanding of that content in intentionally planned and structured ways. Doing so ensures that students are engaging with the content at the depth and rigor intended within the *Kentucky Academic Standards (KAS)* and in a way that augments individual students' thinking. Table 5.8 below provides a few example strategies teachers could use to facilitate processing content with students. Regardless of which strategy is selected, it is important that teachers consider selecting a strategy which allows learners to *actively* engage in the content and clearly articulate the learning goals and success criteria (Marzano, 2017).

Table 5.8. *Example Processing Content Strategies*

Strategy	Description
Thinking Hats	The teacher asks students to process new information by imagining themselves wearing any one of six different-colored thinking hats. Each hat represents a different perspective: white hat (neutral/objective perspective), yellow (optimistic), red (emotional), black (careful/cautious), green (creative) and blue (organizational perspectives).

Strategy	Description
Collaborative Processing	Students are asked to meet in small groups to summarize the information he/she just presented, ask clarifying questions and make predictions about upcoming information.
Jigsaw Cooperative Learning	The teacher organizes students in teams of equal size based on the number of categories there are in the content (four categories = four team members). Each team member is assigned a content category piece to become an "expert" on and present that content information to the remaining members of the group.
Concept Attainment	Students are asked to identify, compare and contrast examples and nonexamples of a concept.
Think-Pair-Share	Students are asked to think critically about a question, pair up with a classmate to come to a consensus on their answer to that question, and then share their response with other groups or the class as a whole.
Scripted Cooperative Dyads	When presented new content students take notes about the main idea and key details. Students are broken into groups of two and students are assigned the role of "recaller" or "listener." The "recaller" summarizes content without looking at his or her notes, while the "listener" adds missing information and corrects any errors in the "recaller's" summary. Students switch roles during the next chunk.

* Adapted from content in *The New Art and Science of Teaching* (Marzano, 2017).

Element #3: Recording and Representing Content - This element of direct instruction allows students to record and present the content from what was learned in the lesson. This element allows students **choice** in demonstrating their understanding of new content in **personally meaningful** ways. Students may choose to demonstrate the content using spoken language, written form or a combination of both. Linguistic representations involve the use of language (i.e., written summaries or word webs), whereas nonlinguistic representations depict content in a nonlinguistic form (i.e., dramatic enactments or pictorial models) (Marzano, 2017).

Element #4: Planning - Direct instruction is effective when teachers address the following considerations throughout their planning process (Marzano, 2017):

- Is the content of my lesson important enough to warrant the time involved in a direct instruction lesson?
- How can I intentionally design and deliver direct instruction lessons that help students understand which parts are important? How do those parts fit together?
- How can I chunk the new content into smaller, more manageable bites of information?
- How can I help students process individual chunks and the content as a whole?

- How can I strategically select strategies to help students record and represent their knowledge?

Scaffolding

The concept of **scaffolding** was first introduced in 1976 by Jerome Bruner as "a process that helps a learner to solve a task or achieve a goal that would be beyond his unassisted efforts" (Wood, et. al., 1976). Scaffolds are a temporary support and form of guided practice used to assist a learner when faced with difficult problems, concepts or tasks. As students become more independent, scaffolds are often withdrawn to prevent the learner from becoming overly reliant on them. Examples of scaffolding tools may include cue cards, checklists or completed task models (Rosenshine, 2012).

One essential form of scaffolding is prompting. **Prompting** can help students access and apply prior learning as a bridge to new learning and moves beyond surface level understanding because it often forces students to apply what they have learned previously to a new learning situation. Prompting may take the form of a reminder, a strong hint, a clue or question and should always be followed by adequate wait time. Prompting is most effective when the teacher has a clear picture of where individual students are along a learning progression in order to formulate a prompt that will successfully bridge to new learning (e.g., moving students up to the next stage along their learning progression) (Fisher, et al., 2021).

Thinking aloud is another form of scaffolding that teachers may use as an instructional model of support for students. Thinking aloud is a way for teachers or learners to verbalize thought processes out loud and provide novice learners with an expert model by allowing thinking to be made visible. By verbalizing learners' thought processes out loud, teachers are able to model thinking that would otherwise be hidden. Asking students to think aloud while solving a problem can help teachers to quickly identify and address student misconceptions by making continual adjustments in their instructional practices (Rosenshine, 2012).

Phases of Teacher Scaffolding

According to Barak Rosenshine's research (2012), to assist students in efficiently learning challenging problems, content or tasks, there needs to be a series of phases that students move throughout when scaffolded by their teacher. These phases of teacher scaffolding along with their descriptions are listed in Table 5.9 below. Each phase incorporates the scaffolding forms of prompting and thinking aloud mentioned previously by utilizing a gradual release of responsibility model whereby the ultimate goal is to achieve student independence as learners. **Throughout these phases, the level of teacher support in scaffolding is decreased as the cognitive load on students increases.** Because complex content requires a greater amount of cognitive load for students to process, teachers must start with explicit instruction where teacher supports are greater and student responsibility is low. As students demonstrate

increased understanding of the intended learning outcomes, teachers are able to adjust their instructional supports by decreasing the amount of scaffolding they provide to students. While there is flexibility in the order in which teachers may enter into or move throughout the phases (such as beginning with a "you do it together" approach to promote inquiry and problem solving), teachers should intentionally plan for each phase of scaffolding until students reach the final phase, independent practice, and can demonstrate understanding in new learning situations and contexts (transfer) (Rosenshine, 2012; Pearson & Gallagher, 1983; Fisher & Frey, 2008).

Table 5.9. *Phases of Teacher Scaffolding*

Amount of Student Cognitive Load	Phase of Scaffolding	Student or Teacher Grouping	Description & Examples
Low Cognitive Load	**Explicit Instruction** "I Do It"	Teacher + Student(s)	Teachers do (or demonstrate) as students observe. Teachers present content using direct instruction with worked samples, worked examples or think-alouds. In this phase, teacher responsibility is highest.
Mid-Low Cognitive Load	**Guided Instruction** "We Do It"	Small Group of Students	Students and teachers do it together; Shared reading, writing and thinking; Think-alongs/alouds can be utilized by students and/or the teacher.
Mid-High Cognitive Load	**Guided Practice** "You Do It Together"	Student Triads or Pairs	Student pairs or triads do it together as the teacher supports; Paired reading, writing and thinking; Think-alouds/think-alongs can be utilized by the students. Provides learners with the review and elaboration needed to become fluent and involves the same content material used in Guided Instruction.
High Cognitive Load	**Independent Practice** "You Do It Alone"	Individual Student	Students do as the teacher watches. Students are close to mastering the content on their own without scaffolded assistance from the teacher. In this phase, teacher responsibility is lowest.

*Created from research by Rosenshine, 2012; Almasi, 2012; Pearson & Gallagher, 1983; Fisher & Frey, 2008.

Modeling

As mentioned earlier, modeling* is a deliberate and purposeful instructional strategy in which the teacher demonstrates a new concept or approach to learning and students learn by observing. **Modeling describes the scaffolding process whereby students learn or acquire new information, skills or behaviors through observation, rather than through trial-and-error or**

student practice. Deliberate, purposeful modeling is a powerful instructional strategy which makes learning visible by verbalizing the teacher's reasoning out loud, explicitly narrating thinking during a problem-solving process as they demonstrate a specific skill. Many initial metacognitive and self-regulatory skills needed for students to be successful as learners begin at a young age through observation and modeling (Salisu, 2014).

Modeling often involves a gradual transfer of responsibility from teacher to student as students

become familiar with the concepts, skills or behaviors being demonstrated. Effective teachers of explicit instruction revisit previous learning, present new material in short steps with lots of practice, continually check for understanding, guide students through shared practice and move students into a period of independent practice (Ashman, 2021). This gradual transfer of responsibility is often referred to as the **Gradual Release of Responsibility Model (GRR)** and purposefully shifts the cognitive load from the teacher as a model to the joint responsibility of teacher and learner; whereby at the end of the process, students are ultimately able to independently practice and apply what they have learned (Pearson & Gallagher, 1983). In fact, explicit teaching is defined by researcher Barak Rosenshine as a "whole system of gradual transfer from teacher to student" (Sherrington, 2019).

*Note: The Modeling Cycle in the *Kentucky Academic Standards for Mathematics* is essential in providing opportunities for students to reason and problem solve. In the course of a student's mathematics education, the word "model" is used in a variety of ways. Several of these, such as manipulatives, demonstration, role modeling and conceptual models of mathematics are valuable tools for teaching and learning; however, these examples are different from the practice of mathematical modeling.

Cognitive Load and Working Memory: Why is Modeling Needed?

When adults join a gym, having a coach there to teach them how to use the equipment, demonstrating how to conduct various exercises and offering feedback along the way is one of the most efficient ways to learn. When an expert is unavailable to coach, humans often resort to trial and error (discovery learning) or imitation through watching or listening to others. People imitate by repeating another person's words or copying experts' actions. Teaching others through demonstration and imitation has most likely been common practice since the evolution of humankind.

Imitation works well for simple tasks but is less effective for complex ones. For example, in trying to learn how to play the piano, imitating a concert pianist would not be an effective or efficient means. Instead, explicit instruction in scales and musical notation through a gradual increase in the complexity of the pieces being learned (easy to hard) would prove more effective. This strategy is referred to as a **bottom-up approach** to learning.

A bottom-up approach "involves breaking expert performance down into small components and teaching these first before reintegrating them." In a school setting, students are in essence asked to imitate scientists (including political scientists, economists, geographers and historians), mathematicians or writers. Educators "constantly reinvent the idea of learning a complex task by imitating the performance of experts" because teachers often consider it to be more authentic. Complex academic learning is best taught through a bottom-up approach. Teachers start with a product in mind because they want to see the learning as purposeful rather than inauthentic skills taught in isolation (Ashman, 2021).

On the contrary, a **top-down approach** seeks to emulate the behaviors of experts in hopes of becoming more expert yourself. Top-down approaches exist because some teachers operate on the premise that authentic, real-world projects will motivate students to want to learn (i.e., designing a website). While project-based learning experiences have proven to be motivating for some students, **teachers often underestimate all of the steps needed to complete a complex task because they fail to think through where students are in their learning journey and the steps students need to understand to get there.** What if the computer science student cannot use a desktop computer? If not, then a bottom-up approach would need to be implemented to explicitly teach the student in smaller, more immediate objectives (i.e., how to use a mouse, power and log on to the computer, access the internet, or locate information via a browser). While website design contains skills that are observable (i.e., inserting hyperlinks) many of the skills associated with expert performance in academic subjects are latent, cognitive skills that cannot be observed. These skills are often neglected because they involve thinking that is not visible; it occurs within students' minds (Ashman, 2021).

Cognitive load refers to the number of items to be processed in working memory (Ashman, 2021). Learning cognitively demanding knowledge and skills by mimicking the behavior of experts (as in a top-down approach) is fundamentally flawed because experts learn more from solving problems; they already have mental maps of solution methods in their working memory (Sweller & Sweller, 2006). Working memory where information is processed can only handle a few bits of new information at once. Too much new information swamps working memory and may be confusing to students because their working memory may not be able to process the additional information. This is why a bottom-up approach to learning is most effective when presenting students with new or complex content since the material is often easier to "digest" when chunked into smaller, more manageable pieces (Rosenshine, 2012; Marzano, 2017).

Effective teachers present material in small amounts and support students as they practice by dividing information into small steps with modeling/practice at each step. Students need cognitive support to learn and solve new problems. **Modeling and thinking aloud while demonstrating how to solve a problem are examples of effective cognitive support.** For new information to be added to working memory, sufficient rehearsal needs to occur during guided

practice. Teachers help to facilitate the rehearsal process when they ask students questions. Questioning requires students to process and rehearse new material. In order for this rehearsal to be effective, students need feedback to process new material and ensure they do not store misconceptions or partial information in working memory. Teaching small amounts of material followed by guided practice and checking for student understanding (formative assessment) can help to minimize misconceptions (Rosenshine, 2012).

Forms of Modeling

Four primary forms of modeling include worked examples, work samples, think-alouds and think-alongs. **Worked examples** are "a step-by-step demonstration of how to perform a task or how to solve a problem," which may be used in any content area, but are most commonly applied in mathematics, science or writing where numerical or written problem solving are frequently found (Fisher, et al., 2020; Rosenshine, 2012). Worked examples have an effect size of 0.37 (Hattie, 2012) and can ignite student thinking as they try to determine why the teacher or person solving the problem made the step-by-step decisions along the way. Teachers may decide to provide students with incorrect worked examples to see if students can find the step or steps that contain errors. By sharing their thinking aloud while problem solving, students are able to use and incorporate those mental models into their own practices (Ashman, 2021; Fisher, et al., 2020).

Research by John Sweller (2019) indicates that students who were given worked examples to study following explicit instruction in how to solve a problem, outperformed students who were merely given the problem to solve. Using worked examples helps to reduce students' cognitive load as students are able to focus their attention on the most important lesson components. This can create a "expertise reversal effect" as students start listening to explicit instruction and dialogue from the teacher and internalize and convert that same language into their longer-term memory. Hearing the problem solving of the teacher and reducing redundant parts, gets at the heart of the gradual release of responsibility from the teacher (Fisher, et al., 2020).

Work samples are artifacts which help students to arrive at shared descriptors of quality and to allow them to see how the work could look. These artifacts offer a standard for all other work to be measured against. They differ from worked examples in that work examples are more about the process and thinking involved than the completed product. Work samples provide students with a benchmark for their end product and can be students' own work, peers' work or students' work from other classes (Hoffer, 2020).

Think-Alouds vs. Think-Alongs

Think-alouds share the inner workings of teachers' brains as they process information aloud, making their invisible thinking visible. Think-alongs ensure that students are at the center of this engagement process by following an intentionally planned sequence of steps using "I" statements to increase clarity for students and ignite empathetic listening. In essence, think-alongs invite students along in the thinking process. By using "I" statements, students are invited into the thinking process in ways that second-person directives do not. Table 5.10 below provides a planning structure for think-alongs as well as some practical "I" statement language examples for each (Fisher, et al., 2020):

Table 5.10. *Think-Along Planning Tool with Examples*

Component	"I" Statement Language Examples or Places in the Text
Name the strategy, skill or task.	"I am going to think out loud about how I noticed metaphors being used in this passage."
State the purpose of the strategy, skill or task.	"I know that good writers will often include metaphors as a literary device in their writing to emphasize a theme or symbolic message or to help make their writing more interesting to the reader."
Explain when the strategy or skill is used.	"The first thing that got me noticing that there were going to be metaphors coming was in the second line of the first paragraph when the author states, "Lisa's suggestion was just a Band-Aid for the problem.""
Use analogies to link prior knowledge to new learning.	"It's like when I heard someone say their brother's room is a pigsty. His brother's room is not really a pigsty; that person was trying to communicate the message that his room was extremely messy."
Demonstrate how the skill, strategy or task is completed.	"I'm going to show you the metaphors I saw in the first paragraph. First he says, 'Lisa's suggestion was just a Band-Aid for the problem…' Then he says, 'Her voice was like thunder.' At the end of the paragraph he says, 'Her message was as clear as mud. Three times in that paragraph the author is using metaphors to describe how Lisa is communicating to them in a loud, yet unclear way."
Alert learners of errors to avoid.	"As a writer I can use metaphors to compare two unlike things effectively in my writing and really grab the reader's attention, but I have to be careful that I am choosing metaphors that match the message I am trying to send."
Assess use of the skill.	"I'm going to make a note in the margin where I noticed metaphors and jot down what message I think the author is trying to send here. I want to be able to look back and see if this message continues throughout the text or if it changes."

*Created based on content in *The Distance Learning Playbook, Grades K-12* (Fisher, et. al., 2020).

By providing prompts, modeling use of those prompts and guiding students as they develop independence, teachers are able to convey many of the skills taught in classrooms (Rosenshine,

2012). Teachers and learners may choose to incorporate the following modeling moves to deepen student understanding:

- Demonstrating processes integral to learners' independence;
- Modeling precise academic language to help facilitate learners' discourse; or
- Thinking aloud, modeling or demonstrating one or more specific strategies to support metacognition (Hoffer, 2020).

Within the structure of a workshop, modeling and/or thinking aloud to better prepare students for their work in guided/independent practice often occurs within the mini lesson (also known as the crafting portion of the lesson). Reflection or share time allows the teacher to model reflecting on use of the strategies within the lesson through think-alouds (Hoffer, 2020).

General Resources to Support Implementation of Evidence-Based Instructional Practice #3: Explicit Teaching and Modeling:

- Model Curriculum Framework
    - **Balanced Assessment Section:** This section of the *Model Curriculum Framework* is designed to provide guidance on how teachers and leaders can implement a comprehensive, balanced system of assessments to ensure equitable, high-quality and reliable assessment practices**.** It focuses on developing an understanding of the formative assessment process and how strategies such as explicit teaching and modeling are used to drive the process as teachers interpret and act on evidence of student learning.
- Evidence-Based Instructional Practices (EBIPs): This six-part professional learning series takes a closer look at what is meant by evidence-based instructional practices, as well as the importance of effective implementation, intentional planning and gathering evidence to determine the impact on student learning. This series will examine six evidence-based instructional practices teachers can use to support learners in reaching expectations within the *Kentucky Academic Standards* and the local curriculum through explicit teaching and modeling across disciplines.

Evidence-Based Instructional Practice # 4: Discussion

Introduction

While creating a classroom culture that supports students in meeting the intended learning outcomes is critical to establishing equitable learning environments, how teachers and students operate within that environment acts as a powerful means to improve instruction as well. According to Zaretta Hammond and John Hattie, conversations are one of the most powerful practices teachers can use in classrooms to promote higher achievement (Hammond, 2020; Hattie, 2012). The New Oxford American Dictionary defines **discussion** as "the action or process of talking about something in order to reach a decision or to exchange ideas." Also known as discourse, dialogue, talk or conversation, discussion is a pedagogy that empowers and transforms learners, making student learning visible and creating a heightened sense of classroom community (Ostroff, 2020).

Students are more apt to be able to solve their own problems and generate their own questions when first given opportunities to talk and collaborate (Cifone, 2013). Therefore, in meta-analyses conducted by John Hattie, dialogues between and among peers are a powerful way to improve instruction with an effect size of 0.82 - over two years' worth of growth in one year's time (Fisher, Frey & Hattie, 2016). Once students have acquired enough knowledge to begin grappling with relationships between ideas, they reach an ideal place for discussion with peers as they begin to think aloud, listen to others, question, justify and explore (Fisher, et al., 2020).

Discussions can be oral or written, structured or informal, and can be used to address any discipline, text or topic between students and their teachers or peers. When planning instruction, teachers should be mindful of the following:

- Appropriate student group size for the content of the discussion and complexity of the concepts, questions or texts discussed;
- Timing provided to ensure all students have equitable opportunities to share their thinking; and
- Content used within their classroom discussion routines and protocols.

Although many discussion groupings exist in the field today, author and researcher Wendy Ostroff (2020) argues that one of the best classroom arrangements to get students acclimated to discussion structures for the first time, is sitting in a circle so students can maintain eye contact. As teachers initially place members in a group, a go-around strategy to have each person weigh in on their thinking to a specific quote or question helps to practice equal participation and get members accustomed to sharing aloud (Ostroff, 2020). In addition to

quotes or questions, some teachers may choose a thinking prompt to provoke deeper thinking and spark dialogue through video clips, articles, cartoons, photographs, problems, artifacts, music or works of art. Thinking prompts engage students, help them make connections and provide background knowledge to deepen thinking (Knight, 2013). Because older students are typically able to attend to tasks for longer periods of time than younger students, no more than 30-40 minutes is recommended for students ages 9 or younger to engage in discussion with one hour being the maximum amount of time suggested for students over age 10. To better prepare students for engaging in discussion, Ostroff encourages teachers to break younger students into pairs and older students into small groups of 3-4 to prime them for larger, whole group discussions in the future (Ostroff, 2020).

Discussion is most effective when each person in the group has a designated job, and much like the conditions for effective learning environments, feels safe and empowered to contribute meaningful ideas. The discussion leader or facilitator is one role students may assume in discussion circles. Within such circles, the discussion leader rarely offers their interpretation of the text, problem, compelling, question, controversial issue, situation or phenomena, but rather the student summarizes others' ideas and brings the insights back to the discussion purpose, question or textual evidence. Ostroff offers this poignant analogy of building a snowman to demonstrate to students why jobs for all discussion participants are needed and valuable (p.18):

> "First someone puts out a tightly packed snowball (question or idea about the text or problem). As a group, we roll it around a bit and let it gather more snow. If we roll it too much in one direction, it's going to become like a flat wheel. We need to stop now and then, smooth it out, then roll it in another direction for a while (go against the grain of our own thinking). When it feels big enough, we leave the first snowball for the base and start another one for the middle. Likewise, we don't need everyone to put out original ideas. Some members are going to be in charge of rolling or smoothing; some heavy lifters will pick up the middle snowball and connect it to the base-and so on." (Ostroff, 2020).

Brain Research and the Need for Discussion

Traditional school formats for discussion have long been teacher-led where the amount of student talk time is dictated by the instructor and how much they mediate the conversation in allowing students to respond. However, this initiate-response-evaluation (IRE) format does little to promote effective discourse because students are not given opportunities to create their own understandings, and in turn, develop higher-level thinking skills. Unfortunately, this call and response approach makes up a large majority of today's classrooms as some educators are too heavily focused on checking for understanding rather than creating the conditions

necessary for deep meaningful discussions. On the other hand, academic conversation, where academic vocabulary specific to an academic discipline is often incorporated, allows for engaged discourse where teaching, modeling and practice of essential speaking and listening skills are taught across the content areas (Hoffer, 2020). One example of this can be found in the Interdisciplinary Literacy Practices within *The Kentucky Academic Standards for Reading and Writing,* where learners are expected to:

- View literacy experiences as transactional, interdisciplinary and transformational (ILP #3);
- Utilize receptive and expressive language arts to better understand self, others and the world (ILP #4);
- Collaborate with others to create new meaning (ILP #6); and
- Apply high level cognitive processes to think deeply and critically about text (ILP #9).

These speaking and listening skills are an integral part of learning at every grade level and content area in supporting students as lifelong learners.

Discussion Purposes

To better understand why discussion is needed in classrooms, it is important to explore the many purposes that discussion can serve. Classroom discussions may be used to (Frazin & Wischow, 2020; Cunningham, 2020; Hoffer, 2020; Herman & Nilson, 2018):

- Analyze or argue;
- Build relationships;
- Encourage active listening;
- Motivate preparation or increase participation;
- Uncover our own bias, values or moral stance;
- Clarify, confirm, clear up or probe;
- Build oral language fluency or academic vocabulary;
- Explore ideas and deepen thinking;
- Prove or debunk a statement or position;
- Transfer knowledge to new contexts;
- Report on completed work or share results of student work;
- Formatively assess participation or where students are along a learning progression;
- Understand another person's perspective by shifting roles or mindsets; or
- Contemplate and weigh evidence.

Social-Emotional Benefits of Discussion

While all of the purposes for discussion listed above are important to developing a safe and collaborative classroom environment, discussion can address students' social-emotional needs as well by building healthy relationships among teachers, students and peers. As students develop relationships and begin to establish friendships, the brain produces serotonin, a hormone that stabilizes mood and brings about feelings of happiness and well-being. By introducing emotions into the learning process, neurotransmitters emerge and increase the likelihood that cognitive material will be easily stored and retrieved (Herman, et al., 2018).

The neurotransmitter dopamine is released in the brain when learning is fun, exciting and enjoyable. This "feel-good" chemical acts as an auto-save feature to make it easier for students to remember information. In addition, as students spend more time talking, they get to know each other better and build a stronger classroom community. This increased knowledge of their peers leads to feelings of empathy, which can positively shift how students interact and think within their classroom environment. Allowing students a small portion of time devoted to self-selected topics that matter most to them (even non-academic "small talk"), gives students a sense that their lives, interests and identities are being honored (Frazin & Wischow, 2020).

Small Talk, Big Impact

Educational research has provided considerable insight into what works when it comes to classroom discourse. When teachers effectively implement talk in classrooms, "small talk" is not time wasted. Given a small amount of time to talk about topics unrelated to the task at hand, research studies by Ariga and Lleras (2011) published in *Cognition* found that productivity increased. Even testing people's ability to stay on task within a 50-minute block of time proved to be more productive with a short break of talking as different stimuli can lead to maintained focus and persistence (Frazin & Wischow, 2020; McTighe & Willis, 2019).

Brain research also is clear on the value of peer discussions (i.e., a brief turn and talk) in avoiding fight-flight-freeze mode where students are anxious and uncertain about what to do and deep learning is impeded. To leverage the chemicals in our brain which maximize memory and focus, teachers set students up for success by allowing them to answer three primary questions during brief turn-and-talks: (1) What am I going to be learning? (2) What strategies will help me learn and (3) How will I be asked to show my learning? Allowing students a few minutes to answer these three questions can help to maximize focus and memory by providing students with a calm anticipation that ultimately saves time in checking in with struggling students who may be unsure of what to do (Benson, 2021).

Collaborative Classroom Conversations

Providing students with opportunities to engage in collaborative conversations is useful for oral language, social, academic and emotional development. English learners are able to engage in

conversations which intentionally encourage the ongoing use of academic vocabulary as they talk with classmates. These conversations are crucial in helping all students deepen and clarify their understanding of complex concepts and texts (Frey et al., 2013), and as learners have increased opportunities to discuss what they read, the higher their test scores and overall academic achievement (Hoffer, 2020; US DOE, 2013).

So how do educators begin to effectively establish discussion partnerships in their classrooms? Frazin & Wischow (2020) suggest five strategies to build help build positive classroom relationships through talk:

1. Honor the talk that already occurs daily.
2. Acknowledge that "small talk" is huge in maintaining focus and establishing empathetic listening skills.
3. Build strong student partnerships by planning for and explicitly teaching in-depth discussion skills.
4. Help students get to know each other as learners and as people.
5. Use discussion to fuel your teaching. Knowing students' interests, strengths and needs goes a long way in finding ways to motivate individual students (p. 31-43).

By modeling the behaviors and strategies listed above, teachers build positive classroom relationships through talk that lay the foundation for explicit teaching of in-depth discussion skills later.

Explicit Teaching of In-Depth Discussion Skills

In a growing world where students continually hear quick media sound bites and capture their thinking in quick texts or "tweets," fewer discussions are devoted to listening to complex issues and asking probing questions. Schools and districts are faced with an ethical obligation to prepare students for discussions in a civil society rich in diverse experiences, perspectives and needs. However, for students to be motivated to engage in meaty discussions, they must see the content of those discussions as relevant and worthy of their time. Discussions that focus on the "what" in the curriculum are often seen by students as less relevant, do not successfully help students understand the content and result in low student engagement. While some "what" questions are needed to lay a foundation for the context in discussions, the most impactful discussions center around the "why" or "how" (i.e., why a scientific principle is significant in our lives, how our emotions are strongly affected by music or why certain historical events happened as they did) (Tomlinson, 2020). Author Carol Ann Tomlinson (2020) outlines eight steps that educators can take to help students connect to the content and foster relevant, in-depth discussions:

- **Model empathy, respect, appreciation of diversity and an unfailing belief in all students.** This establishes a caring, affirming, secure classroom environment where high expectations are present. Talking together teaches students diversity, how to treat others with kindness and how to listen and encourage one another (Knight, 2013).
- **Create a climate of mutual respect among all students by developing respectful relationships between the teacher and students.** Talking with and understanding the strengths and needs of individual students regularly and systematically sends the message, "We are stronger and better when we hear and draw on the talents, experiences and ideas each one of us brings to the classroom."
- **Understand the key concepts, principles, ideas and essential questions around which each discipline is organized.** This helps teachers to link students' experiences and interests to their growing knowledge of the discipline, so content feels relevant and meaningful to them.
- **Plan questions that will spark discussion and encourage students to contribute questions.** Intentionally planning for and building in questions throughout the instructional cycle sets the tone from the outset of a study. It also encourages the perspectives of students as they discuss issues worthy of consideration.
- **Model the attitudes and skills that contribute to rich discussions.** The teacher listens intently, uses wait time, looks for meaning in what students say, summarizes and builds new questions from previous responses/questions. This shows students they are valued, respected and the teacher believes in them and the contributions they bring to the learning process.
- **Prepare students for meaningful discussions systematically.** This includes:
    - Establishing norms for respectful conversations and group discussions;
    - Teaching and modeling how to support students' ideas as they speak;
    - Providing dialogue opportunities in various groupings (pairs, small group, and whole class) before expecting students to lead whole group discussions;
    - Demonstrating how to challenge the ideas of others in a respectful way; and
    - Providing feedback to support students' discussion skill development and steps for improvement.
- **Reflect on the quality and effectiveness of the discussions with students.** Students can assess how well they contributed to the discussion, offer feedback on the quality of the discussion and engage in giving feedback to others when appropriate.
- **Search out ways for students to be "drivers" of their own learning.** The end goal is for students to participate in group discussions without the teacher facilitating. Even more ideal is when students can successfully lead the discussion themselves as the teacher observes quietly (Tomlinson, 2020).

As teachers prepare students for meaningful discussions by explicitly teaching and modeling how to support students as they speak, Table 5.11 provides some suggested sentence stems educators can use in classrooms based on their intended purpose. These stems are general in nature and can be adapted for use in any discipline.

Table 5.11. ***Sentence Stems for Discourse in Any Discipline***

Purpose	Suggested Discourse Stems
What to say when we **disagree**...	• "That is a valid point, but I think…" • "I see things differently based on…" • "Then again, we shouldn't forget…" • "I understand what you're saying. Have you thought about…?"
What to say when we want to **affirm** others' ideas...	• "My idea is related to _____'s idea…" • "I really liked _____'s idea about…" • What _____said really resonates with me…" • "You made a great point about…" • "I hadn't thought about that…" • "My idea builds on _____'s idea…" • "I'd like to piggyback off that idea…"
What to say when we express **cause and effect**...	• "The main cause was probably...because…" • "I think...led to...which led to…" • "I think...was caused by...because…" • "The effects of...were...which is evidenced by…"
What to say when we want **clarification**...	• "Can you elaborate on that?" • "In other words, are you saying…?" • "I have a question about…" • "I'm not quite clear about…" • "Can you explain…?" • "Do you mean that…?" • "Can you clarify _____ for me?"
What to say when we **connect** learning to other content areas...	• "This reminds me of (subject) when we were…" • "We also learned about...in (subject). Remember when we…" • "There was a strategy we used in (subject) when we were...That might help us think about…" • "This strategy works for both (subject) and (subject) because…" • "This is similar to what we do in (subject) when we...because…"

*Adapted from content in *Phenomenal Teaching* (Hoffer, 2020).

Engaging All Students in Discussion

Student-driven discussions often start with an essential question students are motivated to answer (i.e., How can we take action on teen vaping that makes a difference?) and use protocols that allow all students to engage in meaningful conversation and ownership. To foster student responsibility, increase individual student accountability and increase the quality of the

discussions students engage in intellectually, researcher Diane Cunningham (2020) suggests educators consider three moves to help elevate student discussions:

Move #1: Teach students how to generate questions and respond. Students are able to effectively generate questions for discussion when they are 1) taught how divergent and convergent (thick and thin) questions are different, 2) provided teacher modeling and examples and 3) given ample time to practice generating questions with others. The divergent thinking that stems from asking divergent questions helps to promote student dialogue and increases creative problem solving (Otroff, 2020).

Table 5.12. *Divergent and Convergent Questions with Examples*

Divergent Questions	Convergent Questions
Allow for multiple correct or alternate responses	Call for a single correct response
Ask for opinions or conjectures with rationale	Are factual in nature and can be simple or complex
Can require evaluation, analysis and application	Involve remembering, explanations or comparing and contrasting
Divergent Examples	**Convergent Examples**
• What factors are most important to consider when purchasing a new home? • What is the best way to represent this algebraic equation? • What is the best approach to solving the problem of water pollution?	• What is a decimal? • What are protons? • What support does the author provide for the claim she makes in the introductory paragraph? • What type of community do you live in?

Move #2: Have students describe what they would expect to see and hear in high-quality discussions. Simply asking students what they would expect to see in effective discussions does not get at the heart of discourse that includes deep thinking. In order to encourage high-quality discussions from students, they need to see and hear strong models in action. Sharing video clips of high-quality discussions helps students to observe others effectively (Cunningham, 2020):

- Making connections;
- Analyzing;
- Asking probing questions;
- Clarifying;
- Uncovering student assumptions;
- Identifying bias;
- Weighing evidence to draw conclusions; or
- Considering other alternatives or the perspectives of others (Cunningham, 2020).

Move #3: Encourage students to reflect, self-monitor and set goals. After students can identify the criteria for high-quality discussions, they need opportunities to practice and self-monitor the quality of their own discussions. The teacher may provide students with specific criteria to work on, or students may provide feedback to one another in pairs or small groups. Coupling effective discussion criteria with reflection prompts helps students begin to think metacognitively and progress towards high-quality discussions. These reflection prompts can also be used as a lesson/unit wrap-up or formative assessment. Some discussion-focused reflection questions could include (Cunningham, 2020):

- What did your group do well today?
- What thinking skills challenged your group? Why do you think so?
- What part of the discussion process was difficult for you? Easy?
- What goal might your group set for your next discussion?
- What aspect of group discussions are most challenging for you? Why?
- How does sharing the thinking of others out loud help you to understand?
- What new questions did your group raise today?
- What might your group have done differently to improve today's discussion? Why do you think so?

Together, these three moves increase student engagement and ownership, build student efficacy and lead to lifelong thinking skills for all students (Cunningham, 2020).

Importance of Intentional Planning

As mentioned previously, an important step in closing the gap between research and effective classroom implementation is intentional planning on the part of the teacher. In order for educators to gain maximum benefit from evidence-based practices, they must be mindful of and purposeful in their planning. When explicitly teaching in-depth discussion skills, educators need to first think through and intentionally plan for those classroom interactions. As a starting point, teachers will want to plan lessons in terms of time and content around an important text theme, problem, compelling question, controversial issue, situation or phenomenon. For example, elementary teachers may decide to read a text aloud to younger students or review the key ideas before beginning discussions. Older students may need a discussion notebook or question journal to take notes on ideas that emerge as they are listening to others, while younger learners can do the same by drawing pictures of what they think about the text (Ostroff, 2020).

Considerations for Distance and Blended Learning Settings

In distance or blended learning settings, planning and communication are requisites when including discussion in synchronous sessions with students. A question of the day can be used

for shared discussion and writing where parents lead the discussion, write what is dictated by their child and send a photo of the writing to the teacher. Teachers then check what has been shared with them to follow up with questions in online chats and begin brainstorming future discussion topics. Synchronous sessions (also known as live or concurrent sessions) with students should **prioritize** the time for discussion, connection and interaction. As teachers plan lessons, they should be thinking about the learning experiences students need that will best prepare them for interactive, virtual discussions (i.e. equitable discussion protocols, written tasks, brief videos, or readings) (Fisher et al., 2020; Hammond, 2020).

Structures and Routines for Promoting Equitable Conversations

There is an old adage in education, "Whoever is doing the talking is doing the learning." While research from the *U.S. Department of Education* (2013) indicates students with higher achievement scores have engaged in meaningful discourse more often, historically marginalized students (e.g., introverted students, students with disabilities, English learners and students of color) are not typically leveraged in classroom discussions and need talk structures to confidently share and have their voices heard. Discussion strategies such as *turn-and-talks* or *think-pair-shares*, while useful, do not always help facilitate deep thinking or what some experts in the field refer to as "cognitive chewing." These protocols offer a structure or process, so all participants take turns discussing, speaking and listening.

While the overly structured nature of protocols may seem stifling to free-flowing discussion, the opposite is in fact true. Because most protocols are timed, all students, including those students typically left out of conversations, are given opportunities to contribute. English-speaking, extroverted students with mainstream background knowledge are no longer able to dominate classroom discussions where discourse protocols are the norm (Hammond, 2020).

Structured protocols can promote equitable participation, increase individual student accountability and help create more culturally responsive discussions (Hammond, 2020), but learning how to spark rich student conversations can sometimes be a difficult art for educators (Hoffer, 2020**). While some students are naturally lovers of talk, most students benefit from structures and protocols to help ideas surface and to promote fertile thinking.** When selecting a protocol, Hoffer (2020) suggests three crucial factors for consideration: (1) **Groupings** - What size grouping will be best based on my purpose? (pairs, triads, whole class, etc.) Paired discussion groupings can help raise the level of individual student accountability and engagement rate in the classroom as a whole since all students are participating at once; however, teachers will need to decide which grouping best matches their purpose and learning outcome for a given lesson. (2) **Timing** - How long will discussions last? (one lesson, several days of lessons, etc.) Meatier discussions on complex or controversial topics may need to carry over into multiple lessons for students to inquire and fully express their thinking. (3) **Content** -

What structures will be most successful to support students as they grapple with understanding? (Hoffer, 2020).

While there are many discussion protocols commonly used across the field of education, not all protocols provide the structures for equal participation or for all students to share their thinking with cultural responsiveness in mind. Teachers should consider selecting talk structures and tools that: (1) honor the ethnic, racial, and linguistic background knowledge individual students bring to the discussion; (2) provide marginalized students with increased access to discussion flow; (3) allow students agency in leading the conversation; and 4) leverage everyday communication modes to give students a strong cognitive workout. Careful selection of structures with these criteria in mind will ensure that:

- Students feel socially and emotionally safe to share in classroom conversations in the future;
- Teachers are responsive to students' interests and knowledge base; and
- Students feel empowered and equipped to be facilitators of their own learning conversations.

When choosing a discussion protocol for classroom instruction, teachers should first consider the intended purpose. Various discussion formats have a place in classrooms at differing times and some formats work better than others depending on the intended learning goal or purpose (Novak & Slattery, 2017). Table 5.13 below provides a few examples of protocols teachers could incorporate in their classrooms to increase accessibility and engagement for all students:

Table 5.13. *Equitable Protocols for Use in Any Discipline*

Discussion Protocol	Purpose	Description
Dyads	Provides a social emotional grounding to the beginning of the day or class period	Dyads are a listening and talking exchange structure in which each speaker is listened to for a designated amount of time without interruption.
Tea Party	Used with quotes and images that help students curate information	Tea Party is a movement structure in which participants select a quote or image and share how it connects to their work or a specific text by mingling with pairs or triads around the room.
Tuning Protocol	Helps students revise and improve work in preparation for whole or larger group discussions	Tuning Protocols are a collaborative reflection structure where student work is shared and examined; collecting feedback to improve student outcomes in the classroom.
Text Rendering Strategy	Allows students to activate background knowledge, explore new ideas and make	The text rendering strategy is an information processing strategy where participants respond to a text using a predetermined set of symbols established by the facilitator.

	connections using grade level texts	
Kiva	Helps teachers to formatively assess which students can make text-based connections, take the conversation deeper or identify real-life connections to academic concepts	In Kiva, four students are seated in a center square with four additional students seated behind them (representing the spokes of a wheel). The four students in the center square begin the discussion topic/questions. After a period of time, the teacher cues students from behind to move into the square and take the discussion deeper, building on what has been said. New students move into the "wheel spoke" seats and the cycle repeats.
Graffiti Tag Billboard	Stimulates thinking before or after a conversation by leveraging students' preference towards multimodal expression	Students use doodles, collage, written words, sketch noting or other visual forms of expression to "tag" the "billboard" much like a Chalk Talk where students circulate the room adding on to the thinking or ideas of others already posted. Where Chalk Talks are traditionally in written narrative form, Graffiti Tag Billboards allow for visual or tactile representations.
Talking Chips	Used to promote equal participation within a group or avoid one student from dominating the conversation	Each student is given an equal quantity of chips. When a student wishes to speak they place a chip on the table. No one is allowed to speak unless their chip is on the table. Once a student uses all of his or her chips to speak, their only option is to be a listener in the group (Novak & Slattery, 2017; Hoffer, 2020; Hammond, 2020).

Discussion Strategies to Support Formative Assessment

Evidence of student learning is a key component of the formative assessment process because it informs student and teacher decisions about next steps to move students toward their learning goals. This starts with eliciting meaningful evidence that can be used to interpret student learning and inform next steps. Because meaningful evidence is elicited primarily through formative assessment, educators must be deliberate in selecting an assessment type that matches their intended grain size and purpose. Within the context of classroom discussion, both performance and ipsative assessments are often used to measure student participation, engagement, communication skills and understanding of the content being discussed.

Performance Assessment

Not all assessments require the traditional pencil and paper tests many educators grew up with in their own schools. Many of the discussion strategies found in today's classrooms allow students to apply more interdisciplinary concepts and skills through performance assessments. Performance assessments require students to pull from content, skills and concepts that are difficult to replicate through paper-pencil assessments. When teachers embed discussion as a

means to assess student understanding in their classrooms, students are more likely to see that what they are learning is relevant, demonstrate transfer of their learning to new tasks and be more motivated to continue learning at deeper levels. While there are many performance assessment strategies available for teachers to choose from, debates and Socratic seminars are two strategies that feature discussion and can be utilized in face-to-face, remote and hybrid learning environments (Fisher, Frey, Bustamante, & Hattie, 2021).

Debates

According to Hattie's research, formal discussions, such as debates and Socratic seminars, have an effect size of 0.82 and have a strong potential for accelerating student learning. Intentionally planned out debates challenge students to consider controversial topic nuances, use formal reasoning and formulate arguments. Debate strategies can stimulate student interest and intrigue using friendly controversy (Marzano, 2017). While debates in the distance learning classroom can be synchronous or asynchronous, it is important for teachers to ensure protocols and procedures in the synchronous or face-to-face setting are explicitly modeled, practiced and understood by all learners. Debate performance should be based on success criteria and can be co-constructed with students. Giving students time to craft arguments for both sides of the debate helps to increase student engagement and responsibility while ensuring students effectively generate evidence of learning (Fisher et al., 2021).

Socratic Seminar

Another formal discussion strategy is the Socratic seminar. A Socratic seminar is a fishbowl structure in which a small group of students discuss a predetermined topic while the remaining students observe and take notes. The inner circle of students discusses the topic (the fishbowl) and asks/answers questions while students in the outer circle are listeners. Within the seminar, the facilitator asks open-ended questions based on a text or problem while students listen closely to the participants' conversations to think critically for themselves and synthesize their own understandings. After a round of discussion, students in the outer circle trade places and roles with students in the inner circle as the discussion continues. Through this structured discussion, students learn to pose questions and civilly add on to the thinking of others. Teachers may find it helpful to use a reflection or single-point rubric based on co-constructed success criteria to assess student learning. If teachers choose to engage students in a reflective assessment of the seminar, the assessment should be based on pre-established learning goals and success criteria and consider the following questions:

- To what degree did the text or problem dominate the discussion?
- Which students individually participated in the conversation? Which students did not?
- To what extent did students grow in their understanding of the topic? (Fisher et al., 2021).

Ipsative Assessment

No matter the type of assessment, observable evidence of what students know and can do in relation to the learning expectations are the basis for high quality assessment practices. While not a widespread term used in today's classrooms, ***ipsative assessments*** compare students' present performance to past performance. Often this is measured in pre- and post-assessment data; however, when considering discussion assessment strategies, goal-setting conferences and video diaries often emerge as they easily measure change over time. While formative assessment practices encourage teachers to make adjustments in their classroom instructional practices through ongoing checks for student understanding, students are able to use the data collected from ipsative assessments to inform their learning practices as well. When teachers intentionally build in time for individual student reflection and feedback, ipsative assessments help students to:

- set goals for themselves;
- make adjustments to the strategies they employ or questions they ask in the classroom; and
- gain deeper insight into their personal progress and areas of needed growth (Fisher et al., 2021).

Goal-Setting Conferences

Following a period of remote and hybrid learning where potential student learning loss may exist, there is often a need for acceleration techniques to bridge student learning gaps. Learning goals alone aren't enough; there needs to be intentional planning and structured time to go with them. With an effect size of 0.51, clear goal intentions have the potential to accelerate student learning when student motivation and ownership are key considerations. Because clear learning goals are a critical component of effective student-teacher goal setting, conferences can be a beneficial ipsative assessment strategy as teachers and students record the progress being made towards reaching those goals at regular intervals using tools such as tables, graphs and anecdotal notes. When teachers provide clear and specific feedback to students linked to their personal learning goals, students accelerate more quickly toward reaching the intended learning outcomes. Goal-setting conferences are powerful in motivating students to move closer to the intended learning outcomes when the embedded goals:

- Build competence;
- Provide choice and autonomy;
- Align with students' interests; and
- Change the perception of themselves.

Teachers should steer students away from performance goals such as, "*I want to get all 4s on my lab assignments*." and encourage students to establish goals connected to mastery of

personal learning goals such as, *"I want to promote deeper thinking with the types of questions I ask my classmates during discussions."* Both content and personal learning goals can be discussed together during goal-setting conferences. Goal-setting conferences provide time for emotional check-ins, build teacher-student relationships and help students set short- and long-term goals to visualize where they are along a learning progression (Fisher et al., 2021 p. 86).

Video Diaries

Student and teacher capacity for using digital platforms has grown as distance and blended learning platforms have become commonplace in Kentucky schools. Video diaries are one such digital platform students (and teachers) can use to create and revisit throughout the school year. Students are able to watch previous video entries and reflect on changes they see in themselves while noting concepts that remained the same. Teachers are able to use video diaries to capture and observe cognitive growth in student understanding over time. Video diaries help teachers learn about their students as individuals while documenting the misconceptions, progress and understandings of their students. These visual records are invaluable evidence to share at parent-teacher conferences or to celebrate student growth (Fisher et al., 2021). For additional guidance on the formative assessment process in supporting classroom discussion visit the Eliciting Evidence of Student Learning section of the Model Curriculum Framework.

Sources for Discussion Protocols

Below is a list of possible discussion protocol resources educators may use to help students process their learning and begin to think deeply about content. These protocols may be used to elicit discussion before, during or after instruction. Teachers do not have to use all of the discussion protocols listed below but should choose those that best meet the needs of their students.

- EL Education Classroom Protocols: https://curriculum.eleducation.org/sites/default/files/curriculumtools_classroomprotocols_053017.pdf
- National School Reform Faculty: https://nsrfharmony.org/protocols/
- School Reform Initiative: https://www.schoolreforminitiative.org
- Teaching and Learning Lab at Harvard Graduate School of Education: https://www.gse.harvard.edu/sites/default/files/Protocols_Handout.pdf
- Visible Thinking Routines: http://www.visiblethinkingpz.org/VisibleThinking_html_files/03_ThinkingRoutines/03c_CoreRoutines.html

Evidence-Based Instructional Practice # 5: Questioning

Introduction

Creating a culture that supports students in meeting intended learning outcomes within the *Kentucky Academic Standards (KAS)* is critical to establishing equitable learning environments for all students and is often reflected in the approach teachers and students use. Questions serve as a barometer for the level of thinking occurring within the learning community of a classroom. Visible Learning's *Meta^X Influence Glossary* (Corwin) defines questioning as a "practice by which an instructor or textbook writer poses factual or conceptual questions to students," noting it, "dates to Greek antiquity, if not earlier." Part of questioning's power as an educational practice is its flexibility. Questions can be taken up in written text, through research or discussion, and one question may generate others as students question texts, peers or solutions (Hoffer, 2020).

According to John Hattie's research (2015), questioning has an effect size of 0.48 and has the potential, being above the hinge point of .40, to increase student achievement by over one year's growth in one year's time (Hattie, 2015; Fisher, et al., 2016). Questioning also informs other high-effect strategies such as inquiry-based teaching (.40), inductive teaching (.44) and classroom discussion (.82), as well as being an essential element of critical thinking more generally. To establish critical thinking practices in classrooms, author Rebecca Stobaugh suggests teachers pose open-ended (divergent) questions that challenge students to think creatively and provide opportunities to practice asking, discussing and responding to those questions (Stobaugh, 2019).

Purposes of Questioning

Questions can provide new realizations by unlocking the unknown. Effective teachers are able to ignite curiosity and excitement through the thoughtful way in which they pose questions (Marshall, 2019). The questions teachers ask students, however, are more important than the answers they seek because rigorous and thoughtfully planned questions engage students, help them demonstrate depth of thinking, challenge their claims, assist them in drawing conclusions and assess students' current or prior knowledge. In addition to the benefits mentioned above, student generated questions can be used for the purposes of:

- Reviewing content;
- Fostering divergent and innovative thinking;
- Elaborating on information;
- Setting the purpose for listening or viewing content;
- Showing gaps in student comprehension;

- Making predictions;
- Challenging or wondering about the choices others make;
- Generating thinking before, during or after reading;
- Prompting thinking about a text's content, structure or language;
- Providing an area of focus for planning, instruction or research;
- Clarifying information that may be misunderstood or missing;
- Assisting teachers in guiding classroom discussion and close reading analysis; and
- Demonstrating that all students' ideas are valued and supported (Marzano, 2017; Miller, 2020; Fisher, et al., 2016; Frazin & Wischow, 2020; Hoffer, 2020).

Author Martin Renton argues teachers clearly knowing the purpose behind questions they pose to students is the single most important factor in improving their classroom questioning practices (Renton, 2020). Checking for student understanding, while important, should not become the sole intent for asking questions of students. By knowing the purpose of their questioning, teachers identify the level of thinking they want their students to engage in and can plan for that same level of thinking. As teachers consider the questioning sequences they plan to use in their classrooms, Renton identifies five frames that act as guidance in planning questioning that moves students closer towards their intended learning goals:

1. **Knowledge** - A form of closed questioning used to gauge a student's ability to remember basic facts or information and scaffold new, more complex learning;
2. **Understanding** - A form of conceptual questioning where students can demonstrate how separate facts are connected;
3. **Skills** - Focuses on what students will be able to do and how they will be working; it is about learning "how" rather than learning "what" (research skills, for example);
4. **Attitudes** - Focuses on helping students to be open-minded (through open-ended questions) and develop positive speaking, thinking and listening behaviors;
5. **High Expectations** - The questioning language, structures and protocols used in a classroom sets a culture of expectation. Teachers who use higher level questioning will produce students who engage in higher order questioning; they come to predict and internalize the language they hear every day (Renton, 2020).

Consumers and Producers of Questions

Questioning accounts for over 60 percent of a teacher's classroom talk and less than 1 percent of talk for students (Walsh, 2021). Traditionally, many schools have taught students to be *consumers* of questions rather than *producers* of them because much of students' schooling has been about answering questions posed by teachers: multiple-choice questions, short-answer questions, essays and oral questions before, during and after instruction (Nobis, Schulze, & Miller, 2019).

While questioning does much to check for student understanding, *asking* questions of students is not enough. Educators should explicitly teach students how to generate questions for themselves, in accordance with the KAS and so they are also better equipped to be critical consumers of information who can support claims using credible evidence, a real-world skill needed in our democratic society (Miller, 2020).

Research Supports the Need for Questioning

Research suggests preschoolers ask around 100 questions per day. By fifth grade, students average 0-2 questions per day (Engel, 2011; Stobaugh, 2017). That rate drops dramatically by the time students reach middle school, perhaps because students grow more self-conscious about speaking out or being perceived as wrong in front of their peers as they get older. However, questioning helps to get students talking to explore, play and indulge their curiosities (Frazin & Wischow, 2020).

When learners are challenged, most readers will ask questions to attempt to make meaning from difficult texts, problems or phenomena (Hoffer, 2020). Classroom discussions provide the structured time for students to feel safe and affirmed in posing those questions (For the research basis behind classroom discussion see the section in Evidence-Based Instructional Practice #4 titled “Brain Research and the Need for Discussion). While discussion is crucial to comprehension and critical thinking, observations in secondary English classes found that the average length of whole class discussions were between 14 and 52 seconds per class period - not enough time to really deepen student knowledge. Because effective teacher and student questioning fosters quality classroom talk, it is imperative that teachers use questioning to frame whole and small class discussions and deepen student understanding (Fisher, et al., 2016).

Since students’ questioning skills develop as they read and engage in classroom discussions, teachers should consider generating questions during tasks rather than waiting until after they have read text or finished discussion. Questions generated during these instructional tasks help students to clarify a speaker’s points, affirm their initial thinking, remember what was read or discussed, deepen their understanding of key concepts and better see others’ perspectives (Novak & Slattery, 2017).

Importance of Intentional Planning

According to research by Novak & Slattery (2017) Teacher preparation of questions ahead of time often leads to more rigorous questions than those generated “on-the-fly.” Therefore, when planning day-to-day learning experiences, classroom discussions or assessments, it is important for teachers to reflect on the following questions:

- What is the intended purpose of this lesson/unit, assessment or discussion? Which question type or sequence is best suited to align to this purpose?
- Where might I intentionally embed opportunities to engage all learners in these questions? Have I given consideration for reluctant learners or historically marginalized students (students of color, English Language Learners, low-income students, introverts, etc.) to participate?
- Do the questions I have planned match the intended depth and rigor within the *KAS*?
- Where might I "raise the rigor" of my questions to challenge students to think more deeply using higher-order questioning?
- Have I provided opportunities to model questioning for students through think-alouds or think-alongs? Where might I incorporate modeling of metacognitive or self-questions to empower my students as questioners?

Questioning for Surface, Deep and Transfer Learning

All question types have a necessary role in the classroom and may be used at various times and in various sequences to optimize student understanding (See table 6.1). By understanding the intended purpose of *why* they are asking questions, and the depth of thinking needed at various points *within* their lessons, teachers are better equipped to move student thinking from surface to deeper levels. Moving thinking to deeper levels increases the likelihood that students will retain information and knowledge will be transferred to future learning contexts (Stanley, 2020).

Surface Level Questions

Convergent (or closed questions as they are sometimes referred) are often used when one clear, logical answer is required. These types of questions are more surface level in nature and often require a yes or no response. **Text-dependent questions also may be surface level when the information is explicitly stated in the text because they can be answered from textual facts, evidence or recall (often called "right there" questions)**. Surface level questions may emerge as students process and reflect metacognitively by using learning goals and success criteria to self-assess what they still "need to know" to move towards their learning outcomes (Walsh, 2021).

Moving to Deeper Learning

Students begin to move from **surface to deeper** learning as they ask questions to understand causal relationships (how one person or event may have caused another) or as they evaluate a person, event or thing's importance (i.e., *How will understanding ____ help me?* or *How might I evaluate ____?*) **Text-dependent questions systematically help to deepen students' textual understanding and enrich classroom discussion when used in conjunction with close reading.** Close readings using text-dependent questions should be conducted in any class where

complex texts are used, not just in reading and English/language arts classes. Teachers can intentionally plan dependent questions that focus (an inferential sequence used during discussion to foster deep learning) or funnel (sequencing strategy used during surface learning periods to intentionally send students down a cognitive path) depending on the intended lesson purpose. These four phases of text-dependent questions include:

1. **Literal** - What the text says; can be answered using recall or facts;
2. **Structural** - How the text works;
3. **Inferential** - What the text means; not explicitly stated and typically open-ended; and
4. **Interpretive** - What the text inspires one to do or think (Fisher, et al., 2016; Stanley, 2020).

Text-dependent questions require students to rely on evidence from the text rather than just their own personal experiences and can relate to (1) general understandings, (2) key details, (3) vocabulary and text structure, (4) the author's purpose, inferences, or intertextual connections, or (5) opinions and arguments. Some sample text dependent questions include:

- Why would the author select this title for the chapter? (general understandings)
- What two events in this text led to the individuals seeking a solution to their problem? (key details)
- Why do you think the character/individual chose to...? (inferences)
- How does the chronological order of events help the reader to better understand the overall purpose of the text? (vocabulary and text structure)
- Compare text to text. What are the similarities and differences? How do the similarities and differences impact meaning within each text? (intertextual connections)
- How effective are the author's claims in the text? Is the evidence relevant and sufficient to support the overall argument? (argument)
- How does the author's perspective in telling his/her story influence how we perceive the characters? (author's purpose) (Frey & Fisher, 2013)

Transfer Questions

Transfer questions ignite exploration and inquiry and are often used when students wonder how something may be applied to a real-world problem or to consider what might happen if one variable of a rule, principle or concept were changed (e.g., *Could we use this for ____?* or *What if we changed ____ to ____? Would we be able to ____?*). These questions are more often open-ended or divergent in nature as students are asked to use their creativity and critical thinking to create, justify, defend, judge, predict, imagine, hypothesize or evaluate. Transfer questions move students into higher-order thinking and motivate them to self-question in new and unique learning situations (Walsh, 2021). For a more in-depth description of self-questions, see the section below on Metacognition and Self-Questioning.

Table 5.14. *Types of Questions and Questioning Sequences Teachers Would Ask*

Question Type	Purpose	Examples
Convergent (Closed)	Typically **surface** learning where one clear, logical answer is required; Students may be asked to name, define, identify or respond with "yes" or "no" answers.	• What is the capital of Kentucky? • Who is the author of that book?
Divergent (Open or open-ended)	Typically used for **deeper** learning where multiple answers are possible or students are encouraged to use their imagination and/or creativity; Students may be asked to create, justify, defend, judge, predict, imagine, hypothesize or evaluate.	• How might this (insert chapter/event/experiment/problem) have been different if _____ had happened? • What was the most important invention of the 20th century? Why?
Text Dependent	Can be used for **surface or deeper** learning during close reading and/or classroom discussion. Text-dependent questions encourage students to utilize textual evidence and can be convergent or divergent.	• What words and phrases does the author repeat, and how does it impact the tone of the text? • What can you infer about _____, and what is your evidence?
Self-Questions	Can be cognitive (meaning making) or metacognitive (used to self-monitor) and usually broken down into three categories: academic, dialogic, and exploratory depending on the purpose for asking (to understand, to see another viewpoint, or to explore).	• Can you tell me more about ____? (academic) • How might we think about ____ in another way? (dialogic) • What might be an alternative to ____? (exploratory)
Question Sequence Type	**Purpose**	**Examples**
Focusing	A sequencing strategy used during discussion to foster **deeper** learning; Helps students understand inferential and structural elements of their reading in any discipline.	• How did the setting influence the story? • Why do you believe the author chose the word/phrase _____ in this passage?

Funneling	A sequencing strategy used during **surface** learning periods to intentionally send students down a cognitive path with an end in mind; Frequently used by teachers with new or complex content or information when students are initially grappling with understanding.	• What is *(mathematical equation)*? How did you solve it? Could you have solved it another way? • What were the major events of the American Revolution? How did these events impact diverse groups?

*Adapted from content in *Visible Learning for Literacy: Implementing the Practices That Work Best to Accelerate Student Learning* and *Challenging Learning Through Questioning* (Fisher, et al., 2016; Renton, 2020)

Foundational Question Starters

Being able to categorize questions by type and level helps teachers have a better awareness of the cognitive rigor taking place in their classrooms. By identifying the types of questions, they are asking in their classrooms, teachers are better equipped to reflect upon and improve their questioning practices. One fundamental way to raise the level of questioning is by using what Stanley refers to as the "Five Ws (and one H)" - Who? What? When? Where? Why? and How? These six form the basis for most questions asked of students and can typically be divided into lower and higher levels. Why and how questions take students beyond the literal questions found "right there" in the text to more inferential questions where students are asked to judge, evaluate, or interpret evidence. See Table 5.15 below (Stanley, 2020).

Table 5.15. *Six Foundational Question Starters*

Typical Level of Questioning	Question Stem Starters
Lower Level	• Who? • What? • When? • Where?
Higher Level	• Why? • How?

*Adapted from content in *Promoting Rigor Through Higher Level Questioning* (Stanley, 2020).

Aligning Questions to the Intended Depth and Rigor of the Standards

Teachers often rely on questioning to ensure students have mastered standards, whether it is through questions asked aloud, assessment questions, in conjunction with performance tasks or during classroom discourse. Asking questions to address content within the standards is important but asking questions at the depth and rigor intended by the standards writers is equally important to assure equitable learning for all Kentucky students. Further, *KAS*

documents require teachers and students engage with learning experiences designed around asking questions, and students' skill in formulating disciplinary questions is a component of those experiences.

Identifying the intended depth and rigor of standards and the potential place of questioning within them, therefore, should be the starting point to developing effective questions. In order to support educators, the KDE has developed the Breaking Down a Standard resources. The purpose of the protocol is to guide teachers through a process for utilizing the components within the *KAS* documents to gain greater clarity in what the standards require students to know and be able to do in order to meet grade-level expectations. Breaking Down a Standard resources are available for reading and writing, mathematics, science and social studies.

Once educators have identified the appropriate depth and rigor of a standard, resources can aid in crafting questions which effectively assess student mastery. The verbs of Bloom's Taxonomy could be one such resource, and the levels of cognition they indicate can help direct questions to the levels of thinking present in a standard. Table 5.16 below contains examples of cognitive verbs associated with each of Bloom's levels.

Table 5.16. *Action Verbs Associated with Bloom's Taxonomy*

Bloom's Taxonomy Cognitive Level (Lowest to highest)	**Sample Verbs Associated with This Level***
Remember	Identify, recall, describe, name, select, list, define, tell, reproduce, locate
Understand	Infer, compare, explain, interpret, classify, exemplify, summarize, illustrate, give examples of outline
Apply	Apply, model, solve, examine, produce, modify, predict, complete, illustrate, translate
Analyze	Relate, assume, correlate, prioritize, explore, relate, differentiate, conclude, simplify, compare and contrast, transform
Evaluate	Choose, argue, debate, critique, evaluate, prove, support, rate, assess, recommend
Create	Write, revise, design, invent, produce, build, improve, plan, substitute

*Note: Not a comprehensive list

Teachers should match the intended depth and rigor of the standards in designing questions for their students as outlined above so students are meeting grade-level expectations. Just because

a standard is written at a specific cognitive level, however, does not mean teachers should always stop at that level in designing questions. In order to provide rigorous opportunities for students to construct understanding, teachers can challenge students beyond minimum expectations by taking a more surface-level standard, one that may occur earlier in a learning progression, and deepen thinking and the learning students are able to demonstrate with a higher-level question. Rather than only asking students to *know* and to *understand*, proceeding to shift them into *evaluating* or *creating* raises the level of rigor as they become able then to transfer and to apply what they have learned (Stanley, 2020).

Engaging All Students in Deeper Thinking Through Questioning

Questioning demonstrates students have an intrinsic motivation to learn more and to understand (Stobaugh, 2017). When students ask questions in the classroom, they are engaging in higher-level thinking; however, only 58% of students say they feel comfortable asking questions in their classrooms (Fisher, et al., 2018). The questions asked in classrooms reflect the thinking and learning that is occurring, but *who* is most frequently being asked questions in classrooms is also indicative of which students are doing the deeper learning (Ritchhart & Church, 2020). Asking multiple types of questions helps to engage more students in whole class discussions, deepens students learning and makes learning visible; it is imperative, therefore, teachers ask questions that will engage ***all*** students represented in their classrooms, including students who have been historically marginalized (Stobaugh, 2017; Marzano, 2017).

Asking Questions of Reluctant Learners

Teachers will sometimes avoid asking in-depth or complex questions of learners who struggle most because they want to avoid embarrassing them if they answer incorrectly or don't know what to say. However, this behavior sends an implicit message to students that they are not expected to do well. Robert Marzano suggests the following **considerations when asking in-depth questions of reluctant learners**:

- Provide equitable opportunities for all students to respond to questions.
- When students struggle to answer questions, teachers can restate the question, allow students to collaborate or "phone a friend", or provide hints and clues.
- Thank all students who provide a question or response even if it is incorrect. This validates the thinking of all students and encourages future participation.
- Allow students to "opt-out" of answering until they have had more thinking time to process.
- Pause and provide adequate wait (think) time after asking questions so students have time to process information and formulate their response.

- Avoid calling only on students with their hands raised. Using a class roster to check off students or a jar of popsicle sticks labeled with each student's name will help to ensure all students have equal opportunities to respond.
- Encourage and model responding to incorrect responses in a positive manner (Marzano, 2017).

Empowering Students as Questioners

Student questions are a powerful lever for learning; they should be utilized by both students and teachers. While questioning acts as an authentic feedback tool for teachers to assess where student learning is along a standards-based progression, empowering students as questioners helps to accelerate learning and level the playing field for all learners, particularly underachieving students. According to author and researcher Jackie Walsh (2021), equipping learners as questioners provides multiple benefits for students including:

- Increasing motivation and ownership;
- Improving student performance on academic outcomes;
- Supporting students in self-regulation, reflection and monitoring;
- Increasing preparedness for college and their future workforce; and
- Improving students' abilities to assume civic responsibilities necessary for life in a democratic society (Walsh, 2021).

Knowing the benefits listed above are critical for citizens of any age, teaching students how to ask themselves questions, generate questions for others and effectively respond to questions becomes a moral imperative for today's educators.

Wait Time vs. Think Time

Several decades of classroom research consistently indicate a lack of student questioning across all grade levels and disciplines. Research from the 1970s until now points to classrooms where less than five percent of the questions asked in classrooms are from students. So why are so few students asking questions? While many students do not feel safe to take risks and ask questions in classrooms where community-building has not been a priority, the rapid pacing in most classrooms is often the culprit. In classrooms where students were engaged in asking questions of themselves and their peers, consistent use of wait time was present (Rowe, 1972; Dillon, 1988; Walsh, 2021).

Research by Mary Budd Rowe suggests that waiting at least three seconds before accepting a response from students improves the quality of questions students ask (Renton, 2020). Students get too little time to process information, ideas and language in today's classrooms to contribute to meaningful dialogue. This often leads to student disengagement and conversations being overrun primarily by louder, more confident, English-speaking students.

Students often viewed as less able to contribute to classroom conversations by their teachers are often not waiting passively; they are spending that time thinking. Hence, more recent language in the field has shifted from "wait time" to "think time." When given more think time, students often viewed as less able to contribute to discussion outperform those teachers perceive as higher ability (Stahl, 1994; Renton, 2020).

Teachers ask on average 400 questions a day of their students; more questions, however, do not equate to improvements in students' learning or thinking. While improving the quality of questions teachers ask is critical to increasing classroom rigor, what often becomes a roadblock to student thinking is the amount of wait time allowed for students to respond. The average student is only allowed 0.8 seconds of "think time" before teachers accept a response. Having under one second to respond often leads to fewer student attempts to answer and less participation in classroom discussion. A three second minimum is recommended *before* accepting a response from students with an additional three seconds recommended *after* the response is shared. Allowing additional wait time increases the number of questions students ask, decreases the number of students who do not respond at all, encourages voluntary questioning and helps to provide an equitable learning environment for all students (Marzano & Simms, 2014; Renton, 2020).

Metacognition and Self-Questioning

Metacognition is defined as the ability to observe our own thinking. It helps students to monitor their learning and to **self-regulate** (adjust an instructional strategy or approach based on self-observation or feedback) by having greater consciousness of themselves and an understanding of the tasks and of the strategies needed to complete them. Students need explicit instruction and modeling in how to become metacognitively aware. How many times have adults been reading and gotten to the bottom of the page only to realize they have no recollection of what they just read? When this happens, adults will often go back and reread or ask questions automatically in their head (i.e., What just happened? Does what I just read make sense?). Students need to be taught how to pause and generate their own questions periodically throughout a text using the strategy of self-questioning; many do not inherently know how to question themselves as they read. By teaching students to self-question, educators give them the tools they need to monitor their comprehension and regain understanding. Teachers can model self-questioning for students using think-alouds or think-alongs (For additional information on think-alouds or think-alongs see Evidence-Based Instructional Practice #3 on Explicit Teaching and Modeling in the Model Curriculum Framework) (Fisher, et al., 2016; Walsh, 2021).

Types of Self-Questioning

There are three general types of self-questions students often ask: academic, dialogic and exploratory. Self-questions can be metacognitive or cognitive. When students ask themselves

metacognitive questions, they are doing so to self-monitor thinking and learning. **Cognitive self-questions** help students make meaning of what they are hearing or reading and assist learners as they problem solve to think through tasks. **Academic questions** use discipline-specific language and assist students in developing deeper content understandings which move them closer to their intended learning outcomes. **Dialogic questions** help students to understand another person's perspective or thinking. The third type, **exploratory questions**, stem solely from a student's natural curiosity and motivation to learn more or spark their own creativity (Walsh, 2021).

The comprehension strategy of questioning helps students predict and anticipate what might happen next in a text, solve problems and clarify textual information, but it can also prove valuable in teaching students relevant real-life skills as they investigate and research topics across disciplines (Frey & Fisher, 2013). Teaching students to continually self-question source accuracy and credibility is helpful as students engage in research and investigation. Teachers may want to consider posting the following model questions for students: 1) Does this site contain accurate information? 2) Is the hosting institution identified on the site? 3) When was the site last updated? Is it current information? 4) Are any included links to other sites of similar quality? Teaching students to consider these four questions will help them to critically analyze and evaluate Internet sources and bridge self-questioning habits students will use when confronted with new information in the future (Fisher, et al., 2016).

Tips and Protocols for Explicit Teaching of Self-Questioning

Education researchers Doug Fisher and Nancy Frey (2013) suggest teachers consider the following five tips for explicitly teaching self-questioning:

- Teach students how to break their reading into manageable chunks to maintain understanding.
- Encourage students to use headings and subheadings as stopping points to stop and self-question.
- Allow students to chunk information for themselves when texts do not contain headings and subheadings. Students can record questions they have in a notebook.
- Conference with individual students to check in on their self-questioning. See if students can answer the questions they generate.
- Allow time for students to practice questioning with teacher reinforcement and feedback.

Table 5.17 below offers some suggested protocols teachers can use to support students as they practice metacognitive strategies and learn to self-question.

Table 5.17. *Sample Questioning Protocols to Support Self-Questioning*

Questioning Protocol	Description
Question Everyone	Teachers tell students they will be calling on them randomly or by picking the student who looks least interested. Teachers may draw names from a bag or draw popsicle sticks with a student's name on it to select a random student to respond. Students are encouraged to respond whenever they are called upon by the teacher (Knight, 2013).
10 by 10	Students work in small groups or individually to generate ten questions about a given subject, text, or topic. As a group they select their best questions for use in a whole-group discussion (Stobaugh, 2019).
Think-Pair-Square-Share	Students work to form individual questions, share them with a partner, join with another pair to synthesize their questions into one and share each final group's question in a whole group discussion (Stobaugh, 2019).
Quads	Students brainstorm four questions after learning a new section of content. After trading questions with another student, students answer another person's questions. Students circulate the room pairing up and answering the questions of others until all questions are answered. Students then read and evaluate all responses to check for their credibility and accuracy.
Think-Puzzle-Explore (TPE)	Supports student metacognitive thinking by helping learners unpack learning goals or assess lesson/unit key concepts in a way that safely surfaces preconceptions by prompting students with: • *"What do I think I know?"* • *"What puzzles me?"* • *"How might we explore?"* When used regularly, this thinking routine is internalized for students as they transfer these questions to new learning experiences (Walsh, 2021; Ritchard & Church, 2020).

Questioning Strategies to Support Formative Assessment

To make decisions about what happens next in teaching and learning, teachers must evaluate evidence by noticing the actions of learners that best reflect their understanding of the content and skills related to learning goals and success criteria. Assessments *as, for*, and *of* learning help educators evaluate how successful they were in implementing what works best (i.e., evidence-based instructional practices). According to John Hattie, evaluation focuses the attention on learners' progress toward what he terms their skill, will and thrill. Hattie defines **skill** as where students are in their thinking, **will** being where students are in their disposition, and **thrill** relating to students' motivations. When designing classroom formative assessment, Hattie

suggests teachers keep the following questions in mind as they plan to collect meaningful evidence of student learning (Hattie, et al., 2021):

- **Questions for Evaluating Skill:**
    - Does the student focus on single ideas or one way of thinking about the experience or task, not noticing other aspects of the learning?
    - Does the student work with multiple ideas, but does not yet see connections between those ideas?
    - Does the student see relationships between different concepts, skills or other content?
    - Does the student apply ideas to different contexts? (Walsh, 2021; Hattie, et al., 2021)
- **Questions for Evaluating Will and Thrill:**
    - Does the student recognize the difference between where he/she is and where he/she is going?
    - Does the student set goals for closing this gap?
    - Does the student apply learning strategies to close the gap?
    - Does the student self-evaluate his or her progress in closing the gap? (Walsh, 2021; Hattie, et al., 2021).

Posing intentional questions for students that are well thought out in advance helps ensure the questions asked are relevant and meaningful for students because they align to students' personal learning goals. Students can make changes to their work and adjustments to their learning strategies when effective questions are posed, and when they are given time to think and to make informed decisions (Novak & Slattery, 2017).

Forms of Questioning Tools

Teachers often use written questions in various forms to formatively assess where students are relative to a learning progression. Some of these forms include bell ringers (questions given as class begins), exit tickets (end-of-lesson checks for understanding to see if students understand and are ready to move on to new learning), homework, performance tasks, pre-planned discussion questions, reflection journals and assessments. Ideally, formative assessment items should give students an opportunity to demonstrate general mastery while pushing them to think at higher cognitive levels (Stanley, 2020). Since the ultimate goal is to empower students to engage in their own higher-order questioning, teachers must continually model the types of questions they want students asking while giving them ongoing opportunities to practice through feedback and support (Novak & Slattery, 2017).

Evidence-Based Instructional Practice # 6: Meaningful Feedback

Introduction

The formative assessment process is a key component of effective classroom instruction as students and teachers work in ongoing cycles of eliciting, interpreting and acting on evidence of student learning. At the heart of the formative assessment process is the use of descriptive and actionable feedback that allows students and teachers to make adjustments in order to close the gap between students' current level of understanding and the intended learning outcomes.

Research shows that feedback is one of the most powerful tools at a teacher's disposal and, when done well, can equate to an effect size equivalent to a 28-percentile gain in student achievement (Beesley & Apthorp, 2010). In the *Visible Learning* research, Hattie and Zierer (2019) found feedback to have an effect size ranging from .70 to .79, making it a powerful instructional strategy applicable across all disciplines and grade levels. In spite of the potential impact on learning, feedback is one of the most underutilized instructional practices.

While feedback can be powerful, it can also vary in its impact on learning. According to Hattie and Clarke (2019), **feedback serves many functions including reinforcing success, correcting errors, helping unravel misconceptions, suggesting specific improvements, giving advice for future improvement, praising, or punishing or rewarding.** "Who gives the feedback, whether it is task or ego related and how and whether it is received and acted upon are all factors in its effectiveness" (p. 6). For students to improve academically, they must receive honest, specific feedback that does not harshly judge or evaluate but encourages them to reflect on their work and think critically about how they can do better (Barron & Kinney, 2021). To tap into the power of feedback, teachers must develop an understanding of the key aspects of feedback that have the greatest capacity to positively impact student achievement, whether the feedback is from the teacher to student, student to teacher, student to student or student to self (Hattie & Clarke, 2019).

Impact of Meaningful Feedback on Student Learning

Feedback is a critical aspect of constructing memories, building executive function and "is the glue that holds the acquisition, consolidation and storage of learning together" (Alamrode, Fisher, & Frey, 2022; p. 110). Clear, descriptive feedback also supports students' cognitive development and helps to scaffold their learning. Meaningful feedback provides students with 'just-in-time' information about where they are in relation to the learning goal, helps them recognize which knowledge and skills are strong and which need improvement, and provides them with specific strategies for next steps. Once students gain a better understanding of where they are in their learning journey and the next steps they need to take to close the gap,

research shows they are more likely to take those steps and, as a result, their learning improves (Moss & Brookhart, 2019).

The quality of feedback students receive shapes their achievement motivation. Meaningful feedback increases students' autonomy and persistence in their work by "giving them the evidence they need to believe that they are, in fact, competent - and where they are not yet competent, giving them the means to become so" (Frey, Hattie, & Fisher, 2018; p. 89). When students have a clear understanding of what to do next, they see improvement as something they can control and are motivated to take those steps (Moss & Brookhart, 2019). Perseverance is impacted as well, as feedback "provides students with additional avenues of support and alternatives to the futile 'wheel-spinning' that effort alone cannot overcome" (p. 89).

Meaningful feedback also supports metacognition, which is a student's awareness of their own thinking and the use of this self-awareness to regulate their thinking. Feedback that supports self-regulation allows students to self-monitor, self-direct and can ultimately improve their performance on difficult tasks (Ruiz-Primo & Brookhart, 2018). Meaningful feedback is a critical element at every stage of the regulation process and provides support to students in (Ruiz-Primo & Brookhart, 2018; Allal, 2011; Vermunt & Verloop, 1999):

- Goal setting/orienting/planning;
- Monitoring progress toward the goal;
- Interpreting results from monitoring to adjust actions; and
- Evaluating whether the learning process has proceeded as expected and the learning goal has been achieved.

Fostering a Feedback Culture

The true power of feedback to impact learning is dependent upon the degree to which the learner views the feedback as meaningful and uses it to take action to improve. Feedback will not impact learning if students do not act on the information (Frontier, 2021; Chappuis, Brookhart, & Chappuis, 2021). So, if the most important aspect of feedback is what students do with it, then teachers must intentionally create the classroom conditions where students are open to receiving feedback (Frey, et al., 2018; Frontier, 2021).

Research consistently shows that one of the most important factors that affects students' perceptions of feedback is the relationship the student has with the teacher. Students need to know that their teacher cares about them, that they are safe, and that they will be treated respectfully by their teacher and peers when asking questions, making their thinking visible, or sharing misconceptions (Hattie & Clarke, 2019; Frey, et al., 2018). When students do not feel safe, respected or feel they do not belong, they are already at a disadvantage when provided

feedback. Their lack of trust leads to little, if any, engagement with the feedback and their motivation to act on it is mainly out of compliance (Hattie & Clarke, 2019).

In addition to student-teacher relationships, another key factor that impacts the feedback culture is the view towards making errors, being stuck or having misconceptions. Historically, "being wrong" has been seen as something to be ashamed of or to cover up and erase for fear of the stigma attached with negative perceptions of failure (Hattie & Clarke, 2019). If part of the classroom culture is to always "get things right," then anything that needs improvement is considered "wrong." A culture with a negative view of errors can be upsetting, disruptive, and frustrating for students resulting in decreased motivation to engage in the learning process (Hattie and Clarke, 2019; Brookhart, 2017).

Research shows that learning and feedback thrive on errors. **Classroom environments that support meaningful feedback are those in which errors are celebrated and seen as part of the learning process** (Fisher, Frey, & Hattie, 2021; Hattie & Clarke, 2019; Brookhart, 2017). One of the primary purposes for fostering a warm, trustworthy, and compassionate classroom environment is to allow learning to thrive on error. When the classroom environment values errors as part of the learning process, students are more likely to seek out and use feedback to plan and execute next steps for improvement (Brookhart, 2017). Student errors should be highlighted in a positive way, used as opportunities to relearn, and seen as part of the road to mastery. When teachers provide opportunities for students to discuss misconceptions and errors and encourage them to learn from those errors through self-correction, students' confidence increases, and they are more likely to try a range of strategies when dealing with errors (Hattie & Clarke, 2019).

For more information about the learning environment, please see EBIP 1: Establishing the Learning Environment.

Feedback and the Formative Assessment Process

The purpose of giving and receiving feedback is to close the gap between students' current level of understanding and the intended learning outcomes. Feedback is provided to students so they know where to go next in their learning and is received by teachers to inform decisions about where to go next in instruction (Almarode, et al., 2022). **Feedback should not be viewed as a one-way transmission model, but as one that operates between teacher and student.** Students' work, their understandings, questions, misconceptions, and errors are all feedback to the teacher about his/her own performance (Frey, et al, 2018).

Meaningful feedback should help students become more consciously aware of what they are doing, the decisions they make as they are doing it, and the problem-solving strategies and processes they use to correct, revise or improve their work. (Frey, et al, 2018). Feedback should

focus on what students are expected to say and do to demonstrate they have met the learning goals and success criteria and is only meaningful to students when they use it to inform their next steps to improve their learning (Almarode, et al., 2022; Frontier, 2021). In order for teachers to provide meaningful feedback and for students to understand and take action on it, both the teacher and the students must have (Frey, et al., 2018):

- A clear and shared understanding of the learning goals and success criteria;
- The ability to determine present level of performance;
- Strategies and processes that can be put into action; and
- Ways to gauge next steps to move forward.

To increase the likelihood that feedback is received and has an impact on learning, feedback should empower students to answer three critical questions about their learning: (1) "Where am I going?" (2) "Where am I now?" and (3) "Where to next?" (Hattie & Timperley, 2007). Table 5.18 provides a summary of the three feedback questions and their purpose in providing meaningful feedback to students.

Table 5.18. *Three Questions for Effective Feedback*

Three Questions for Effective Feedback	Purpose
"Where am I going?"	• "Feed Up" • Addresses the learning goals and success criteria • Provides a reminder or reframe of the intended learning outcomes
"Where am I now?"	• "Feed Back" • Compares students' current evidence of learning to the intended learning outcomes • Highlights a difference or gap in where students are right now and where they are headed
"Where to next?"	• "Feed Forward" • Provides individualized scaffolding or support to all students • Identifies next steps needed to close the gap between current performance and the learning goals and success criteria

Adapted from Almarode, et al., 2018; Fisher, et al., 2021; Hattie & Timperley, 2007

The formative assessment process is a continuous cycle in which teachers establish learning expectations, design lessons and tasks to elicit evidence of student understanding, identify gaps in students' knowledge and performance, monitor progress towards the goals, provide feedback, and then take action based on the results. Feedback is an important component of the formative assessment process and should be a part of ongoing teaching and learning. Students' responses, insights and behaviors are all feedback to the teacher and used to guide next steps in learning. **Formative feedback is most effective when combined with other key formative assessment practices including clarifying and sharing clear learning goals and success criteria and eliciting evidence of student thinking through lessons, assignments and tasks aligned to those goals** (Brookhart, 2017).

Clear Learning Goals

Clarifying and sharing clear learning goals and success criteria is a fundamental requirement for both feedback and learning. Learning goals and success criteria show students where to focus their time and effort and provide specific reference points for feedback. Success criteria help focus feedback on the most important features in students' work that are essential to reaching the learning goal, as well as provide the means for measuring progress along the way (Ruiz-Primo & Brookhart, 2018).

When students are not clear about what they are supposed to learn and how success will be measured, they often complete tasks and assignments merely out of compliance. They tend to spend their time trying to figure out or guess what the teacher wants them to do rather than engaging with the task and its intended learning (Hattie & Clarke, 2019). In this case, students tend to view any feedback given simply as more teacher directions. However, when students are actively engaged in the learning process and receive feedback aligned to the learning goals and success criteria, students are more equipped to respond to the three feedback questions to improve their learning: "Where am I going "Where am I now? "and "Where to next?" (Ruiz-Primo & Brookhart, 2018).

For more information about clear learning goals, please see EBIP 2: Clarifying and Sharing Clear Learning Goals.

High-Quality Tasks

In addition to clarifying and sharing clear learning goals and success criteria, teachers must ensure the work students are asked to do embodies those goals and is formatively assessed throughout the learning process using the success criteria. High-quality assignments and tasks aligned to clear criteria make meaningful feedback possible whether the "task" is responding to a question or prompt, participating in a class discussion, creating a model, writing an essay, or solving a problem (Ruiz-Primo & Brookhart, 2018). "Getting underneath student understanding, finding out what they really think, is the starting point for all feedback, from whichever

direction, because only then can the feedback be appropriately constructed to provide advice" (Hattie & Clarke, 2019; p. 4).

When assignments and tasks are of poor quality and/or do not match the intended learning outcomes in both content and cognitive level, the lesson will not provide appropriate evidence of student thinking and cannot be used to measure progress towards the goal. When teachers intentionally plan and utilize tasks, assignments and other opportunities to respond that align with the learning goals and success criteria, the resulting evidence of student understanding paves the way for meaningful feedback for both students and teachers (Almarode & Vandas, 2018; Ruiz-Primo & Brookhart, 2018). One useful resource that can support teachers in designing or selecting high-quality tasks aligned to the *Kentucky Academic Standards* is the Assignment Review Protocols.

As a part of designing or selecting high-quality tasks that make student thinking visible, teachers need to anticipate likely student responses in order to proactively plan for different types of potential feedback that can improve student learning. Ruiz-Primo and Brookhart (2018) recommend that teachers never give a task or assignment to students that the teacher has not completed beforehand. Completing the task ahead of time allows the teacher to anticipate potential errors students may make and to prepare questions and instructional moves in advance that help students focus on the critical aspects of the task when they complete it. "This helps teachers to develop an interpretative state of mind and to be prepared to provide more appropriate, robust, meaningful feedback, either orally or using instructional moves" (Ruiz-Primo & Brookhart, 2018; p. 91).

Feedback vs Grades

According to Brookhart (2017), feedback is "just-in-time, just-for-me information delivered when and where it can do the most good" (p. 1). Information provided to students at the end of a unit, project, task, or assignment is evaluation, not feedback. **Meaningful feedback allows students the opportunity to take action and use the information to improve learning during the learning process.** When given at the end of the task, the information is neither actionable since the task is finished, nor useful because there is little to no opportunity to apply it (Fisher, et al., 2018).

When students are given a grade along with comments/suggestions, students tend to focus more on the grade and ignore the comments, because a grade typically signifies, "You're done" (Chappuis, et al., 2021; Nottingham & Nottingham, 2017). Students see no point in revising their work based on the comments because the window for learning has closed. Often, "students will look at their grades first and, if it is a good grade, think to themselves, 'Why do I need to improve?' And if they got a bad grade, then they think, 'Why try to improve? I'm no good at this anyway" (Nottingham & Nottingham, 2017; p. 16).

At the heart of formative assessment and feedback is providing students opportunity to respond during learning when there is still time to take action and improve. **Teachers should deliberately plan lessons that include opportunities for students to use feedback which helps to cultivate a growth-oriented mindset and encourage students to view mistakes as a natural part of the learning process** (Chappuis, et al., 2021). Hattie and Clarke (2019) recommend teachers utilize ongoing and mid-lesson stops that direct students' attention back to the learning goal and success criteria, as well as the models and examples of what success looks like to help them self-assess where they are and determine their next steps. These strategic pauses can help students focus their time and effort, improve their ability to self-regulate and increase their motivation to engage in the learning process.

When teachers provide meaningful feedback that is likely to inform and motivate students and when they determine instructional next steps based on students' current understanding, all parts of the formative assessment process benefit. Students gain a better understanding of the learning goals and success criteria, acquire information that can be used for improvement and are more likely to take next steps in learning (Ruiz-Primo & Brookhart, 2018).

Providing Meaningful Feedback

Research shows that feedback has the potential to influence student outcomes positively or negatively. Some types of feedback are less effective than others and not all feedback is useful (Nottingham & Nottingham, 2021). "The type of feedback teachers provide, however well meaning, can in fact inhibit learning, so it is crucial to understand how to best leverage this powerful tool" (Frey, et al, 2018; p. 78). The power of feedback lies in its potential to move learning forward and must be structured in a way that helps students progress from surface learning to deep learning and enables them to transfer that learning to new problems or situations (Almarode & Vandas, 2018).

Feedback in the form of praise or rewards is one of the least effective types since it does not contain real information about student learning and should not be regarded as actual feedback. Feedback that is vague and/or general will not build student agency and help close the gap between students' current level of understanding and the intended learning outcomes (Fisher, et al., 2021). **For feedback to improve learning, the content of the feedback must focus on reducing the gap between a student's current understanding or performance and what is expected and seek to improve students' learning strategies that enable them to self-regulate their own learning.** Feedback "should contain information that is under the students' control (e.g., effort, ways to monitor or check work, strategies to set up a work plan), in contrast to evaluating an individual's ability or personality" (Ruiz-Primo & Brookhart, 2018; p. 16).

Characteristics of Meaningful Feedback

While there is no one formula for providing meaningful feedback, research does point to several characteristics that can maximize the chances that students will receive and take action on the feedback and improve their learning. Table 5.19 summarizes three characteristics of meaningful feedback (Fisher, et al., 2018; Chappuis, et al., 2021; Almarode and Vandas, 2018).

Figure 5.19. *Characteristics of Meaningful Feedback*

Characteristic	Description
Timely	• Occurs during the learning process, when there is still time for students to act on the feedback • Given while students are still mindful of the learning goals and success criteria and still working towards mastery of those goals
Specific	• Highlights specific strengths as well as area(s) of improvement • Identifies what was done correctly, describes a feature of quality present in the work, and/or highlights effective use of a strategy or process • Focuses on a narrow range of the most important portions of student work related to the most relevant success criteria • Highlights the area(s) of focus for continued learning by identifying a mistake, describing a feature of quality needing work, or a problem with a strategy or process
Actionable	• Limited to the appropriate amount of advice students are able to act on in a given time • Directs students toward specific steps they can take to close the gap between where they are and the intended learning outcomes • Developmentally and cognitively appropriate • Offers just enough guidance that the student is pointed in the right direction while not taking the thinking and cognitive challenge away from the student • Offers a reminder, asks a question, and/or makes a specific suggestion for action to take

Students must understand the feedback for it to be useful and for them to take action on it. "When students are lost in understanding the content of the feedback, they are not likely to know what to do with it; it may even cause them to feel as though they have failed twice. 'I don't know how to do this, and I don't understand what my teacher's telling me to do about it" (Chappuis, et al, 2021; p. 98-99). Teachers should always check to determine if students understand and can interpret the feedback provided. Possible questions teachers can ask to check for understanding include (Hattie & Clarke, 2019).

- "What did you understand from what I just said?"
- "How might you use this feedback in your next learning step?"
- "What else might you need from me right now to help in your learning?"

For feedback to be meaningful, students' work needs to demonstrate at least partial understanding of the learning goal and success criteria. Chappuis, et al., (2021) cautions that feedback is not always the best choice for an instructional intervention. **If a student's work does not demonstrate even partial mastery and there is little to nothing of substance to use as the basis for success comments, attempting to teach through feedback is generally ineffective. At this point, offering further instruction and re-teaching is the best option.**

Levels of Feedback

One of the main reasons feedback can vary greatly in its ability to improve student learning is that feedback must be aligned with where the students are in the learning cycle. When misalignment occurs, then the feedback is likely to be misinterpreted, misheard, or ignored (Hattie & Clarke, 2019). According to research, corrective feedback paired with information about processes and self-regulation has the greatest potential to improve student learning (Wisniewski, B., Zierer, K., & Hattie, J., 2020). Students benefit most from feedback that helps them to not only understand what mistakes they made, but also why they made those mistakes and what they can do to avoid them next time.

Research has identified three types of feedback that support and improve student learning: **task**, **process** and **self-regulation** (Hattie & Timperley, 2007). "The timing in the use of each type of feedback is dependent on the learning goals, success criteria, and current level of performance of the student" (Almarode & Vandas, 2018; p. 136). Figure 6.3 provides a summary of each feedback level, along with examples of teacher/student prompts to support each type.

Table 5.20. *Levels of Feedback*

Level	Description	Teacher/Student Prompts
Task Feedback	• Also known as corrective feedback • Provides students with information about the accuracy and completeness of a task • Supports the acquisition, storing, reproduction and use of knowledge • Supported by teacher modeling, use of examples and non-examples, as well as clear explanations of procedural steps, key features and context • Most useful when students are engaged in surface learning of new content to develop students' understanding of the content, ideas and terms	• How well has the task been performed? Is it correct or incorrect? • Does the answer meet the success criteria? • How can the student elaborate on the answer? • What did the student do well? • Where did the student go wrong? • What is the correct answer? • What other information is needed to meet the criteria?
Process Feedback	• Provides feedback to students on their thinking and the processes and/or strategies used to complete a task • Supports students in making connections and use of multiple strategies for error detection • Focuses on relationships between ideas and students' strategies for evaluating the reasonableness of an answer or solution • Provides cues about different strategies for approaching a problem or task • More effective than task-level feedback for deepening learning and creating understanding • Most useful when students develop proficiency of the specific content, ideas and terms	• What are the strategies needed to perform the task? Are there alternative strategies that can be used? • What is wrong and why? • What strategies did the student use? • What is the explanation for the correct answer? • What other questions can the student ask about the task? • What are the relationships with other parts of the task? • What other resources are provided that can help the student? • What is the student's understanding of the concepts/knowledge related to the task?

Self-Regulation Feedback	• Focuses attention on the students' use of self-regulatory skills and promotes metacognition through self-verbalization, self-questioning and self-reflection • Fosters students' ability to know what to do when they approach a new and different problem, are stuck or have to apply their understanding in a new way • Enhances self-evaluation skills, generates greater confidence to engage further in the task and helps students decide what to do for the best outcome • Appropriate for students who have reached a deep level of conceptual understanding and are armed with multiple strategies as they transfer their learning to more rigorous tasks	• How can I monitor my own work? • How can I reflect on my own learning? • What further doubts do I have regarding this task? • How does this compare with …? • What does all this information have in common? • What learning goals and/or success criteria have I achieved? • How have my ideas changed? • Can I now teach someone else how to …?

Adapted from Almarode & Vandas, 2018; Hattie & Clarke, 2019; Hattie, 2012)

Most of the feedback teachers provide to students is typically in the form of task feedback. Students tend to welcome this type because it is easier to apply than process or self-regulation feedback, which requires deeper, more conceptual thinking. However, teachers need to be careful they do not stay with task feedback, as doing so reinforces to students that this is the prime purpose of the lesson (Fisher, et al., 2021). As students demonstrate understanding of the content, ideas and terms, then the feedback increasingly shifts to process feedback. "Like task feedback, process feedback should be specific and constructive and should support learners' pathways toward self-regulation feedback. That is, it should deepen thinking, reasoning, explanations, and connections" (Almarode & Vandas, 2018; p. 138). When students have misconceptions or a gap arises in foundation or background learning, they benefit from both task and process feedback.

Students who have reached a deep level of conceptual understanding and are equipped with multiple strategies benefit from self-regulation feedback as they transfer their learning to more rigorous tasks. At this point, students see themselves as their own teachers with clear knowledge about where they are in their own learning process, how they are progressing to or beyond the learning goal and success criteria, and they can monitor their own progress. Even at this stage students need scaffolding as they progress toward this metacognitive awareness, and this can be supported by teaching students the art of self-questioning. Teachers can model this through the questions they pose to students as students move from processing to and through

self-regulation (Almarode & Vandas, 2018). As students shift from mastery of current learning goals to new learning goals in a given instructional unit, they will often require more task and process feedback initially until they once again transition from surface level learning to deeper levels of content understanding.

Peer-and-Self Feedback

Peer-and-self assessment plays a critical role in a strong formative feedback culture and helps students improve their self-regulation skills and their sense of self-efficacy. As they learn to become more self-regulatory, students are able to monitor, direct and regulate their own actions as they progress toward the learning goals. Both peer-and self-assessment are key components in the formative feedback loop and require students to understand and use the success criteria (Moss & Brookhart, 2019).

A review of the research on both self-and-peer assessment shows that a classroom culture characterized by strong teacher and peer relationships and a sense of psychological safety and trust are key factors in the success of these strategies (Andrade & Brown, 2016; Panadero, 2016 in Moss & Brookhart, 2019; p. 70). Teachers must take the time to intentionally "attend to the classroom learning culture before and during use of either of these strategies. Otherwise, these strategies may fail, and they may undermine students' feelings of safety" (Moss & Brookhart, 2019; p. 70).

Peer Feedback

Peer assessment involves students applying the success criteria to another student's work in order to provide formative feedback the peer may use for improvement. In terms of the formative assessment process, **peer assessment is best viewed as a collaborative learning activity focused on increasing students' clarity of the learning goals and the success criteria** (Panadero, 2016; Strijbos, 2016; Moss & Brookhart, 2019). Providing students the opportunity to examine and comment on one another's work results in the following benefits (Chappuis, et al., 2021; p. 102-103):

- It deepens understanding of quality for the student who is providing the feedback.
- It allows for students to receive comments on their work in a relatively short period of time, thereby increasing feedback opportunities for all.
- Some students are more apt to be open to feedback from a peer, which may be seen as less evaluative than that from a teacher.
- Students can often come up with suggestions for next steps because they are encountering the same issues.
- After giving someone else feedback, students are better able to view their own work through another's eyes, spurring new thoughts and insights useful in revising their own work.

Teachers can model feedback for students by using samples of student work, reviewing the learning goal and success criteria with the whole class, and analyzing the work in light of the criteria and discussing what feedback to provide and why. **Teachers should also provide opportunities for students to practice giving feedback in a controlled environment.** A possible way teachers might structure this practice is outlined below (Chappuis, et al., 2021; p. 103):

- The teacher selects an anonymous sample of student work exhibiting both strengths and areas needing improvement.
- Students work in pairs, with one assuming the role of "student" and the other that of "teacher." Each separately examines the sample and uses the success criteria to identify strengths and areas of need.
- Student pairs then meet in a simulated three-minute feedback conference. The "student" shares their thoughts first, and the "teacher" follows up with anything the "student" might have overlooked or with which the "teacher" disagrees. While the "teacher" talks, the "student" takes notes.
- At the end of the three minutes, the classroom teacher conducts a group debrief of the simulation, asking students what was easy and what was difficult about offering or receiving feedback. The class brainstorms solutions to potential problems.
- The students switch roles and engage in another round of the simulation with a different anonymous example.

The best time for peer feedback is after students have developed proficient understanding of the content, concepts and skills and are ready to examine connections and relationships among those concepts and ideas. If students are still in the surface level stage of learning, it is often more effective to re-teach concepts than to engage in peer feedback. Engaging in peer feedback too early in the learning process may result in students reinforcing wrong ideas and concepts. "But when asking students to play with ideas, explore relations between ideas and extend their thinking, peer feedback can be most powerful" (Hattie & Clarke, 2019; p. 97).

When students practice applying the criteria for good work through peer assessment, it helps to build general knowledge about the learning goal more than individuals' skills at meeting it. "Because peer assessment may not be the most direct path to improving students' own learning, it should be used when the purpose of a lesson is to provide external feedback to classmates about some work they will have an opportunity to revise" (Brookhart, 2017; p. 84). Following peer feedback, teachers should build in time for students to apply the peer feedback and their understanding of the learning goals and success criteria as they review their own work.

Self-Feedback

Research consistently shows that achievement improves when students are required to think about their own learning, articulate what they understand and can do well, and determine

what they still need to learn (Black & Wiliam, 1998; Hattie, 2009; Chappuis, et al., 2021). **Self-assessment (and self-feedback) should be viewed as both an instructional and an assessment strategy allowing students to evaluate their own work against the learning goals and success criteria and adjust learning strategies as needed.** "Self-assessment increases students' interest in feedback because the feedback is 'theirs''; it answers their own questions and helps them to develop the self-regulation skills necessary for using any feedback" (Brookhart, 2017; p. 80).

Self-assessment is grounded in students' response to the three primary feedback questions beginning with, "Where am I going?", then reviewing their own work or their thinking to determine, "Where am I now?" and finally answering, "Where to next?" Teachers need to intentionally model and teach self-assessment skills by helping students learn how to apply criteria to their own work, connect their success at doing so with their further learning and see that applying the success criteria helps them participate in the formative learning cycle. (Moss & Brookhart, 2019). The following strategies can help maximize the effectiveness of self-assessment (Andrade and Valtcheva, 2009; Moss & Brookhart, 2019; Ruiz-Primo & Brookhart, 2018):

- Clearly define the success criteria for the work students are going to assess.
- Design tools (e.g., templates, checklists or sets of reflective questions) that help students use the criteria.
- Teach students how to apply the criteria to examples of work and provide them opportunities to practice.
- Give students feedback about the quality of their feedback.
- Help students learn to use their feedback to improve.
- Provide sufficient time for students to use the feedback they generate.
- Use self-assessment formatively, not as a part of grading.

Self-assessment should occur regularly throughout the learning process to help build students' confidence, allow them to make plans for improvement and reinforce their awareness of these skills (Fisher, et al., 2021)."The more proficient a learner is at accurately assessing his or her own work, the more likely that student is able to prioritize and strategize next efforts to learn. Additionally, students who can self-assess are more responsive to feedback because they understand how feedback works" (Frontier, 2021; pg. 116).

Students also need opportunities to set goals as a result of their self-assessments, which moves students from "Where am I now" to "Where to next?" and "How can I get there from here?" When students successfully set, pursue and accomplish their own goals, it increases their confidence, independence and self-efficacy. When creating a goal, students should begin with a clear statement of the intended learning outcomes and a description of their current status in relation to those outcomes. Students then create an action place that specifies (Chappuis, et al., 2021):

- Steps they will take to achieve the goal;
- When and where they will do the work;
- Who they will work with; and
- Materials they will need to support them along the way.

As part of an effective feedback culture, both self-assessment (internal feedback) and teacher and peer feedback (external feedback) provide students the means to control their learning. As students encounter new concepts and skills, more teacher feedback is required that describes students' performance and offers strategies for improvement. The strategies teachers suggest and model early in the learning process become part of the students' repertoire for practicing that skill and understanding the content. Students begin to internalize the success criteria included in the teacher feedback as they review their own work (Brookhart, 2017). Over time, less teacher feedback is needed and students engage in more and more self-assessment as they deepen their conceptual understanding of the content and can identify their own learning strategies to continue progressing toward the goals.

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Appendix A: Curriculum Development Process Toolkit

The toolkit below contains sample artifacts and video clips from districts that participated in the Developing Local High-Quality Reading and Writing Pilot. More artifacts and videos from additional content areas will be forthcoming.

To guide district and school leaders in analyzing their approach to developing and implementing a local, standards-aligned curriculum, the KDE has developed a CDP Self-Assessment Tool.

Phase 1: Prepare for the Process

Professional Learning Support	Sample Artifacts	Additional Resources
• Introduction to the CDP Video and Slide Deck • Phase 1 Video and Slide Deck • Phase 1 Participant Handout • CDP PL Series Facilitation Notes	• Stakeholder Communication Examples • CDP Timeline Examples • CDP Team Structure Examples	• Stakeholder Inclusion and Communication to Build Buy-in Video Clips from Pilot Districts • Phase 1 Video Clips from Pilot Districts

Phase 2: Articulate K-12 Instructional Vision

Professional Learning Support	Sample Artifacts	Additional Resources
• Introduction to the CDP Video and Slide Deck • Phase 2 Video and Slide Deck • Phase 2 Participant Handout • CDP PL Series Facilitation Guide	• District Instructional Vision Examples	• Phase 2 Video Clips from Pilot Districts

Phase 3: Develop the Curriculum

Professional Learning Support	Sample Artifacts	Additional Resources
• Introduction to the CDP Video and Slide Deck • Phase 3 Video and Slide Deck • Phase 3 Participant Handout • CDP PL Series Facilitation Guide	• District HQIR Evaluation Rubric with Selection Criteria Examples • District Curriculum Document Examples	• Phase 3 Video Clips from Pilot Districts • Reading and Writing Instructional Resources Consumer Guide and Video Overview • Mathematics Instructional Resources Consumer Guide

Phase 4: Implement and Monitor the Curriculum

Professional Learning Support	Sample Artifacts	Additional Resources
• Introduction to the CDP Video and Slide Deck • Phase Video and Slide Deck • Phase 4 Participant Handout • CDP PL Series Facilitation Guide	• District Implementation Goals and Monitoring Plan Examples • District Professional Learning Plan Examples	• Phase 4 Video Clips from Pilot Districts • Curriculum-Based Professional Learning Guidance Document • Curriculum Implementation Framework • KDE's Characteristics of High-Quality Professional Learning

Appendix B

Leadership Strategy # 1: Establish Vision and Purpose

Action Step	Purpose	Considerations	Tools and Resources

Step 1: Create a Collaborative Leadership Team	• Create and sustain a culture of collective responsibility
	• Keep the school and/or district focused on its mission, vision and collective commitments
	• Anticipate and respond to the questions teams may have as work each critical element of the PLC process
		• Possible considerations when selecting team members:
		  ○ Position Power
		  ○ Expertise
		  ○ Credibility
		  ○ Leadership
		• Possible members might include:
		  ○ School and/or District Leaders
		  ○ Teacher Leaders from various schools and/or grade levels
		  ○ Instructional Coaches
		  ○ Classified and Support Staff Representative(s)
		  ○ Parent/Legal Guardian Representative(s)
		  ○ School-based Decision Making Council Representative(s)
		  ○ Board of Education Representative(s)
		• Does the makeup of the team represent all relevant perspectives and reflect the various expertise and experiences of the school or district?
			• Selecting and Reflecting on Guiding Coalition Members
			• Building an Effective, Balanced Leadership Team

Step 2: Analyze Current Reality	• Assess the school and/or district's current reality in regards to student achievement and culture
	• Conduct a root cause analysis to address underperformance
	• Identify evidence-based practices that support improving student achievement and school/district culture
	• Identify the gap between current systems, structures and practices in the school and/or district and the systems, structures and practices of high-performing schools and district
		• Possible evidence or data the team might analyze includes:
		  ○ Student and staff attendance
		  ○ Student discipline data
		  ○ Student learning data
		  ○ Data gathered from perception surveys from various stakeholder groups
		  ○ Demographic data
		• What are some ways in which the team might identify evidence-based practices that impact student achievement and school/district culture?
		  ○ Possible ideas include:
		  ■ Analyze a synthesis of the research on characteristics of high performing schools, such as PLCs, use of clear learning outcomes, ongoing monitoring of student learning, systematic approach to interventions and high
			• Data Focus
			• A Data Picture of Our School Template
			• Current Reality and Steps to Success Template
			• Whole Faculty Protocol for Analyzing Schoolwide Data

Action Step	Purpose	Considerations	Tools and Resources
		expectations for all student ● Conduct site-visits to see the PLC process in action	
Step 3: Build a Shared Foundation	● Engage staff in building consensus around the four essential pillars of the PLC foundation: ○ Shared Mission ○ Vision ○ Values (Collective Commitments) ○ Goals	● Questions to guide the creation of the PLC foundation: ○ Why do we exist? ○ What must our school become to accomplish this purpose? ○ How must we behave to achieve our vision? ○ How will we mark our progress? ● How will the school/district ensure every practice, policy and procedure is aligned to the fundamental purpose of ensuring high levels of learning for all? ● What must the school/district stop doing in regards to current practices, policies and procedures because they are not aligned to the mission or vision? ● How will school/district leaders clearly define, teach, model and continually reinforce the collective commitments?	● Guiding Questions for Clarifying Mission, Vision, Values, and Goals ● Protocol for Developing Mission and Vision ● Action Planning Template ● Elementary Example ● High School Example

Leadership Strategy # 2: Create Clarity and Coherence

Action Step	Purpose	Considerations	Tools and Resources
Step 1: Utilize a Loose-Tight Leadership Approach	• Establish the non-negotiables ("tights") that must be adhered to and honored at all levels of the school and/or district regarding PLCs	• How will school/district leaders build a shared understanding throughout the system for each non-negotiable critical to PLC implementation? • In what ways will people through the school/district be provided opportunities to offer input and ask clarifying questions around each non-negotiable? • Recommended PLC non-negotiables include: ○ Educators work collaboratively rather than in isolation, take collective responsibility for student learning and clarify the commitments they make to each other about how they will work together; ○ The fundamental structure of the school becomes the collaborative team in which members work interdependently to achieve common goals for which all members are mutually accountable; ○ The team establishes a guaranteed and viable curriculum, unit by unit, so all students have access to the same knowledge and skills regardless of the teacher to whom they are assigned; ○ The team develops common formative assessments to frequently gather evidence of student learning; ○ The school has created a system of interventions and extensions to ensure students who struggle receive additional time and support for learning in a way that is timely, directive, diagnostic and systematic, and students who demonstrate proficiency can extend their learning; and ○ The team uses evidence of student learning to inform and improve the individual and collective practice of its members	• Tools to Monitor Loose and Tight Leadership • Example of Simultaneous Loose-Tight Leadership
Step 2: Create Common Language	• Ensure all stakeholders are speaking a common language throughout the school and/or district regarding the key terms associated with the improvement strategies	• How will school/district leaders build understanding of each key term and how that concept or idea fits into the overall picture of the PLC process? ○ Possible steps for building understanding include: ■ Identifying the key terms required to move forward ■ Teaching those terms through descriptions, explanations and examples ■ Engaging staff in discussions of the key terms ■ Periodically assessing levels of understanding	• Glossary of Key Terms and Concepts
Step 3:	• Identify a few key evidence-based priorities that support continuous	• How will school/district leaders build an understanding throughout the system of how each key priority related to the PLC	• Aligning School Practices with Essential PLC

Action Step	Purpose	Considerations	Tools and Resources
Limit Initiatives	improvement and then pursue them relentlessly	process connects to the bigger picture of the vision, mission, values and goals to support one sustained improvement effort over time?	Characteristics • Template for Clarifying Mixed Messages
Step 4: Effectively Communicate Priorities	• Clearly communicate the goals and priorities to all stakeholder	• How will school/district leaders articulate a simple and consistent message regarding PLCs when speaking with various stakeholders? • How will school/district leaders ensure their actions align with the identified priorities? • How will school/district leaders ensure 2-way communication with all stakeholders throughout implementation of the PLC process to ensure all perspectives are heard and valued? • What formal and informal strategies will be utilized to seek feedback from stakeholders throughout implementation?	• Effective Communication Planning Template
Step 5: Develop Capacity to Lead the Process	• Build the capacity of staff to lead the change process • Provide ongoing training and support to staff to meet the established expectations.	• How will school/district leaders provide initial training for staff to build understanding of the PLC process and why the initiative is critical to improving student learning? • How will school/district leaders provide ongoing training throughout PLC implementation? • How might district leaders utilize principals' meetings to build capacity to lead the process in their respective schools, identify and resolve implementation challenges and to model the work of a PLC? • How might school leaders utilize their leadership team to build capacity, identify and resolve implementation challenges and model the work of a PLC? • How will school leaders identify and develop the capacity of teacher leads for school-based teams?	• Critical Questions for District Office Consideration • Critical Questions for Principal Consideration

Leadership Strategy # 3: Create Collaborative Systems and Structures

Action Step	Purpose	Considerations	Tools and Resources
Step 1: Organize Staff into Meaningful Teams	• Organize staff into meaningful collaborative teams that require people to work together interdependently to achieve common goals for which all members are mutually accountable.	• How will school and/or district staff be organized into meaningful teams based on the criterion that members have a shared responsibility for student learning and addressing the four questions that drive a PLC? • Possible team structures include: ○ Grade-level or course content teams ○ Vertical teams ○ Electronic teams ○ Interdisciplinary teams ○ Logical Link Teams • Will some individuals need to be a part of more than one PLC? How will leaders ensure those individuals are given the necessary time to be an active member of each team?	• Checklist for Establishing and Maintaining Collaborative Teams Schoolwide
Step 2: Provide Time for Teams to Collaborate	• Provide teams with the necessary time to do the work being asked of them as part of the PLC process	• How will school and/or district leaders work with team leads to address the following: ○ agree on the work that must be done, ○ determine a timeline for completion of the work, and ○ clarify the products or evidence teams will provide to demonstrate their work. • How will school and/or district leaders provide teams with meaningful and timely professional learning necessary to complete the work? • How will school and/or district leaders provide teams with the necessary templates and models to help guide and assess the quality of their work?	• Making Time for Collaboration
Step 3: Clarify the Work Teams Must Accomplish	• Establish clear parameters and priorities that guide teams toward the goal of improving student learning	• How will school/district leaders build an understanding throughout the system of how each key priority related to the PLC process connects to the bigger picture of the vision, mission, values and goals to support one sustained improvement effort over time?	• Critical Issues for Team Considerations • "Are We Focused on the Right Work?" Graphic Organizer • Possible Products and Team Characteristics
Step 4:	• Develop highly effective, systematic interventions that provide students with	• How will school leaders work with staff to create a school-wide system of interventions into the school schedule?	• Designing a System of Interventions

Action Step	Purpose	Considerations	Tools and Resources
Create a School-wide System of Interventions	the additional time and support they need	• Considerations for non-negotiable elements of a school-wide system of interventions: ○ Interventions must be provided in addition to effective, grade-level Tier I instruction, not in place of it. ○ An effective system of interventions starts with the foundation of strong Tier I instruction delivered to all students. ○ There must be a systematic and timely process to identify students who need additional time and support. ○ The master schedule must allocate time for supplemental and intensive interventions. ○ Interventions must be targeted by student, by standard. ○ Interventions must be provided by trained professionals. ○ Interventions must be mandatory; not optional for students to attend. ○ Interventions must not come at the expense of students who succeed in core instruction.	• Systematic Intervention Worksheet • Checklist to Evaluate the Effectiveness of Our Systematic Support System • Intervention Targeting Process

Leadership Strategy # 4: Monitor Implementation

Action Step	Purpose	Considerations	Tools and Resources
Step 1: Monitor and Provide Ongoing Support	• Establish a process for monitoring the work of the collaborative teams • Clearly communicate priorities and goals and the evidence that will be gathered to determine what is working, what is not working and what is needed to improve	• What products of the collaborative teams will be used to monitor implementation (i.e. team norms, SMART goals, common assessments and student data)? • How will school and/or district leaders provide differentiated support to collaborative teams based on analysis of each team's products? • Who will have the responsibility for collecting and analyzing the data? How might the collaborative leadership team be a part of the process? • How will school and/or district leaders create feedback loops focused on transparency of results from common assessments, collective analysis of results and shared responsibility for improving results? • How will district leaders provide time and support for principals to work collaboratively to identify and resolve problem areas in a school and learn from those that are being successful in improving student learning? • How will school and/or district leaders continually build trust among the staff to ensure the focus is on informing and improving practice, not about rating or ranking the schools and/or the teachers?	• Possible Products and Team Characteristics • Critical Issues for Team Considerations • Professional Development for Learning Teams • Action Planning Template

Step 2: Address Conflict	• Confront individuals when their behavior is in direct conflict with the established "tights" of the collective commitments	• How will school and/or district leaders address conflict and resistance and hold individuals accountable to the agreed upon behaviors?
		• Considerations when having crucial conversations to address conflict:
		  ○ Conduct the conversation in private.
		  ○ Express specific concerns regarding the behavior of the individual and avoid generalities or judgements about attitudes.
		  ○ Contrast the individual's behavior with the collective commitments that staff has made to better achieve the mission of the school. Remind the individual that these commitments were created by the entire faculty and that he/she had a voice in this process.
		  ○ Invite the individual to explain his/her behavior in light of the commitments. Look for areas of agreement and common ground. Be prepared to share specific research and evidence to support why the requested behaviors are desirable and
			• Administrator Role in Team Conflict
			• Suggestions for Addressing Conflict

Action Step	Purpose	Considerations	Tools and Resources
		necessary. ○ Clarify the very specific behaviors that you will require of the individual both verbally and in writing to avoid any misunderstandings. ○ Invite the individual to suggest any support, training, or resources he/she may need to comply with the directive. ○ Clarify the specific consequences that will occur if the individual does not comply with the directive. ● How will school and/or district leaders monitor the individual's behavior and follow through on the specific consequences if the person fails to adhere to the discussed behaviors?	
Step 3: Celebrate Progress	● Recognize and celebrate the effort and incremental progress achieved throughout implementation	● How will school and/or district leaders build in opportunities for intentional and specific celebrations that reinforce the shared mission, vision, collective commitments and goals of the school and/or district? ● How will school and/or district leaders work within their leadership teams to establish a series of incremental, manageable steps aligned with implementation of key elements of the PLC process that will be used to mark short-term wins along the way? ● Key factors for incorporating celebration into the school and/or district culture: ○ Explicitly state the purpose of the celebration ○ Make celebration everyone's responsibility ○ Establish a clear link between the recognition and the behavior or commitment you are attempting to encourage and reinforce ○ Create opportunities for many winners	● Opportunities for Celebration

Appendix B

Annual Work of a PLC

Action Step	Purpose	Considerations	Tools and Resources

Step 1: Create Team Norms	• Create norms that clarify the team's expectations of one another regarding procedures, responsibilities, and relationships	• Considerations for Team Norms:
		  ○ Each team should create its own norms.
		  ○ Norms should be stated as commitments to act or behave in certain ways rather than as beliefs.
		  ○ Norms should be reviewed at the beginning and end of each meeting for at least six months.
		  ○ Teams should formally evaluate the effectiveness of their norms at least twice a year.
		  ○ Teams should focus on a few essential norms rather than creating an extensive laundry list.
		  ○ One of the team's norms should clarify how the team will respond if one of more.
		• Possible areas for developing expectations when creating team norms:
		  ○ Time (i.e., punctuality, timeliness)
		  ○ Communication (i.e., listening, responding)
		  ○ Decision-making (i.e., inquiry, advocacy)
		  ○ Participation (i.e., attendance, engagement)
		  ○ Expectations (i.e., roles, responsibilities)
		  ○ Conflict Resolution
		• What process or protocol will the team use to ensure all team member's voices are heard when creating norms?
		• How will the team continually revisit the norms and make adjustments as necessary to ensure productive team collaboration?
			• Protocol for Developing Team Norms
			• Establishing Team Roles
			• Team Trust Survey
			• Sentence Stems for Communicating Responsibly
			• Managing Team-Based Conflict

Step 2: Establish Team SMART Goal	• Translate the broader goals of the school and/or district into specific goals for grade-level or course content teams to improve student learning	• Criteria for establishing a SMART goal:
		  ○ Strategic and specific
		  ○ Measurable
		  ○ Attainable
		  ○ Results-oriented
		  ○ Time bound
		• Considerations when establishing the team's SMART goal:
		  ○ Is the goal based on past student achievement?
		  ○ Does the goal include the improvement goal for the indicator being monitored?
			• Criteria for Planning SMART Goals
			• SMART Goal Worksheet
			• Sample 8th Grade Smart Goal

Action Step	Purpose	Considerations	Tools and Resources
		○ Do all members of the team feel confident that through their collective actions they can achieve the goal? ○ Do all members have a clear understanding of the goal, how each member can contribute to achieving the goal and the specific evidence that will be gathered to monitor progress toward the goal? ● Has each team established short-term goals that will be used to measure progress along the way to reaching the annual SMART goal? ● How will school and/or district leaders monitor the individual's behavior and follow through on the specific consequences if the person fails to adhere to the discussed behaviors?	

Recurring Work of a PLC (Each Unit of Instruction)

Action Step	Purpose	Considerations	Tools and Resources

Address Question 1: What do we expect our students to learn?	• Clarify and reach consensus on the essential knowledge, skills, and/or concepts necessary for students to reach the intended depth of the grade-level standards for each unit of instruction.	• How will each team collaborate to determine the essential learning outcomes aligned to the KAS and local curriculum documents for each unit of instruction?
		• Possible action steps teachers can use as they engage in collective inquiry to address the first question of a PLC for each unit of instruction:
		  ○ Collectively study the standards using the KAS documents, local curriculum documents and other supporting internal and external resources.
		  ○ Clarify and reach consensus on the essential knowledge, skills, and/or concepts necessary for students to reach the intended depth of the grade-level standards for that unit.
		  ○ Determine a learning progression that leads students to what they are expected to know and be able to do.
		  ○ Determine what proficiency looks like for each essential learning outcome.
		  ○ Establish common pacing guides and agreed-upon assessment schedules.
		  ○ Commit to one another to actually teach the agreed-upon curriculum.
		• Possible questions teams can use to create a learning progression:
		  ○ What prior knowledge is necessary for learners to successfully engage in this learning?
		  ○ What skills and concepts did students need to master in prior standards?
		  ○ What learning experiences must they have to successfully build their prior learning and background knowledge?
		  ○ What key vocabulary is explicit or implicit within the verbiage of the standard or curriculum expectations?
		  ○ What scaffolding is necessary for all learners to successfully engage in this learning?
		  ○ What do we know about students that can make these learning experiences more meaningful?
			• *Kentucky Academic Standards* documents
			• Breaking Down a Standard Protocol
			• Teaching Cycle Planning Template
			• Balanced Assessment Module 3: Clarifying and Sharing Learning Goals and Success Criteria

Action Step	Purpose	Considerations	Tools and Resources

Address Question 2: How will we know if they are learning?	• Create team-developed common assessments aligned to each unit's intended learning outcomes and establish the criteria the ream will use to assess the quality of student work
	• Discuss, analyze and respond to results of student learning from common assessments to improve student learning and teacher practice
		• Possible steps teams can use when creating common formative assessments for each unit of instruction:
		  ○ Determine which essential learning outcomes from the unit to include on the assessment.
		  ○ Discuss the cognitive demand associated with each learning outcome.
		  ○ Decide what type of assessment item to use and how many will be necessary to ensure reliability.
		  ○ Match the rigor and the learning goal to the type of item that will best assess it.
		  ○ Decide how many questions the student must get correct or what level of a rubric or other established criteria the student must achieve in order to be considered proficient.
		  ○ Review the assessment plan to determine how much time the assessment will take.
		• Possible questions for consideration when analyzing student results:
		  ○ Teacher-focused considerations:
		  ■ What instructional strategies appeared to work well?
		  ■ What instructional strategy or practice failed to produce results for the whole group as well the subgroups?
		  ■ According to the data, what lesson or activity should the team reconsider?
		  ■ What questions need to be reviewed and changed on the assessment?
		  ○ Student-focused considerations:
		  ■ How many students achieved a level well above proficiency, how many achieved a level just above proficiency, and how many did not achieve proficiency?
		  ■ What knowledge, concept and/or skills appeared to be especially difficult?
		  ■ What patterns emerged in terms of student performance by question difficulty?
		  ■ What patterns emerged as far as subgroups?
		  ■ How helpful do students find the assessment to be in providing feedback on their learning?
		• What protocols or tools might teams use to structure and support analysis of student results on common formative assessments?
			• Sample Protocol for Developing a Common Assessment
			• Common Formative Assessment Plan
			• Common Assessment Data Analysis Protocol
			• Team Data Template
			• Unit Reflection Template

Address Question 3:	• Ensure all students experiencing difficulty in reaching proficiency on	• How will teams use the results of their common formative assessments to respond to student needs at the Tier I level?	• Proactive Intervention Planning Form

Action Step	Purpose	Considerations	Tools and Resources
How will we respond when some students do not learn?	essential learning goals within each unit receive additional time and support ● Provide targeted interventions by student, by standard	● How will teams use the results of their end-of-unit assessment to provide supplemental targeted interventions by student, by standard? ● Possible steps teams can use to design supplemental Tier 2 targeted interventions: ○ Identify concerns ○ Determine cause ○ Target desired outcome ○ Design intervention steps ○ Monitor progress ○ Assign lead responsibility	● Intervention Targeting Process ● Unit Reflection Template
Address Question 4: How will we extend learning for students who already know it?	● Design and provide extension activities for students that have met proficiency	● How will the team ensure extension activities stretch students beyond the essential learning outcomes or levels of proficiency and allow them to dig deeper into the content of the unit? ○ Possible examples include: ■ Challenging students to look at specific concepts and ideas from different perspectives ■ Apply skills to new situations or contexts ■ Look for different approaches to solving a problem ■ Use the skills they have learned to create a product or new outcome ● Possible questions to assist collaborative teams as they plan student extensions ○ What standards will be used in the extension? ○ What type of extension will be most beneficial to the majority of students that have demonstrated proficiency? ○ How will student learning be measured for this extension? ○ Which team member will lead the extension?	● Teaching Cycle Planning Template

Appendix C

The Kentucky Department of Education's Balanced Assessment Modules

Module 1: Comprehensive, Balanced Systems of Assessment

Through this module, participants will learn about the essential components of a comprehensive, balanced assessment system and how different assessments can work together to support student learning. The module will take a closer look at different assessment types and purposes, how a knowledge of the standards leads to meaningful assessment and build an understanding of the assessment cycle.

Module 2: Understanding Formative Assessment

Through this module, participants will build a common understanding of the assessment cycle in the formative assessment process. The module will both define formative assessment and take a closer look at the essential conditions necessary for formative assessment.

Module 3: Clarifying and Sharing Learning Goals and Success Criteria

Through this module, participants will learn about how the standards and associated learning expectations inform high quality assessment. The module will focus on how to elicit meaningful evidence of student learning through clarification of learning progressions, learning goals and success criteria.

Module 4: Eliciting Evidence of Student Learning

In section 1 of this module, participants will learn about designing and eliciting evidence of student learning aligned to the standards. The module will take a closer look at strategies for eliciting evidence aligned to the depth of the standard and criteria for high-quality classroom assessments. In section 2, participants will learn about valid assessment practices. The module will also consider how to ensure assessment practices are culturally relevant and free from unintended barriers.

Module 5: Interpreting Evidence of Student Learning

Each content-specific module is designed to address the unique needs of interpreting evidence of student learning in Mathematics, Reading and Writing, Science or Social Studies. Participants will learn about strategies for interpreting student evidence, engaging students in the interpretation and analysis of their own evidence, using student learning evidence to guide the formative assessment process, and identifying patterns in student responses that can inform teacher and student learning.

Module 6: Acting on Evidence of Student Learning

Each content-specific module is designed to address the unique needs of acting on evidence of student learning in Mathematics, Reading and Writing, Science or Social Studies. Participants will learn about strategies to adjust instruction in the moment as well as to improve teacher practice over time. The module will also focus on the characteristics of meaningful feedback and how students and teachers might use the evidence of student learning to adjust learning tactics and instruction.

The Kentucky Department of Education's Assessment Leadership Modules

Module 1: Leading a Comprehensive, Balanced Assessment System

This module supports school and district leaders in understanding the characteristics and value of a comprehensive, balanced assessment system, as well as the role that leaders play in developing and sustaining a comprehensive, balanced assessment system.

Module 2: Leading for High-Quality Formative Assessment

This module supports school and district level leaders in understanding the formative assessment process and the culture necessary for high-quality formative assessment to improve student outcomes. The module also takes a closer look at how leaders can empower teachers and foster student ownership of learning within the formative assessment process.

Module 3: Using Assessment Leadership Tools

This module orients school and district level leaders to a suite of tools to support comprehensive, balanced assessment systems and high-quality formative assessment practice. This module also helps leaders determine the purpose of each tool in the context of their own system, which tools are most relevant, and when and how to use them.

Assessment Leadership Toolkit

This toolkit, in combination with the three modules, is intended to help guide leaders as they work to develop and implement a comprehensive, balanced system of assessment and formative assessment at the local level. This toolkit is organized into two sections:

- **Section 1** is designed to support leaders as they engage with the process of building a comprehensive, balanced system of assessment. It is closely connected to Leadership Module 1.
- **Section 2** is designed to support leaders as they work to implement and support the formative assessment process at their school or in their district. It is closely connected to Leadership Module 2.

Appendix D

Evidence-Based Instructional Practices Toolkit

Evidence-Based Instructional Practice	Professional Learning Support	Content-Specific Support
Establishing the Learning Environment	• EBIP 1 Overview Video • EBIP 1 Facilitation Considerations	• EBIP 1: Mathematics • EBIP 1: Reading and Writing • EBIP 1: Science • EBIP 1: Social Studies
Clarifying and Sharing Clear Learning Goals	• EBIP 2 Overview Video • EBIP 2 Facilitation Considerations	• EBIP 2: Mathematics • EBIP 2: Reading and Writing • EBIP 2: Science • EBIP 2: Social Studies
Explicit Teaching and Modeling	• EBIP 3 Overview Video • EBIP 3 Facilitation Considerations	• EBIP 3: Mathematics • EBIP 3: Reading and Writing • EBIP 3: Science • EBIP 3: Social Studies
Discussion	• EBIP 4 Overview Video • EBIP 4 Facilitation Considerations	• EBIP 4: Mathematics • EBIP 4: Reading and Writing • EBIP 4: Science • EBIP 4: Social Studies
Questioning	• EBIP 5 Overview Video • EBIP 5 Facilitation Considerations	• EBIP 5: Mathematics • EBIP 5: Reading and Writing • EBIP 5: Science • EBIP 5: Social Studies
Feedback	• EBIP 6 Overview Video • EBIP 6 Facilitation Considerations	• EBIP 6: Mathematics • EBIP 6: Reading and Writing • EBIP 6: Science • EBIP 6: Social Studies