Facilitator Guide

Module 6:
Acting on Evidence of Student Learning

MATHEMATICS

Facilitator Guide

Module 6: Acting on Evidence of Student Learning

Through this module, participants will learn about strategies to take pedagogical action to move student learning forward toward the Learning Goals, characteristics of effective feedback, and ways to promote effective peer and family feedback.

This module includes materials for:

- An approximately one-hour professional learning session, including a PowerPoint presentation and this facilitator guide.
- An approximately one-hour teacher collaboration activity session, including a PowerPoint presentation and a teacher collaboration facilitator guide

Module 6 Learning Goals

Participants will understand:

- Strategies to take pedagogical action based on evidence of student learning
- Characteristics of effective feedback
- How to use formative assessment to strengthen teaching practice

Module Success Criteria

Participants will be able to:

- Reflect on and improve the use of descriptive feedback that moves students toward Learning Goals
- Reflect on teaching practice through the use of formative assessment strategies

Role of the Facilitator

The facilitator's role in this module is to 1) facilitate the professional learning module and 2) facilitate the teacher collaboration activity. Guidance for facilitating the teacher collaboration activity can be found in the *Teacher Collaboration Activity Facilitator Guide*.

- All materials have been prepared for facilitators and further details are available in this document.
- Facilitators should review all materials and make adjustments based on timing, group size, local priorities, local norms, presentation format (in-person or digital learning environments) and facilitator's personal presentation style.
- Facilitator notes (available here and as slides notes for each slide) provide flexible options for content delivery, and activities are designed to support facilitator decisions.
- The facilitator for this module does not have to be an expert on formative assessment. While this facilitator guide is intended to provide the background knowledge and scaffolding necessary for facilitators to lead the sessions in this module, the priority for facilitators should be to support participant sense-making. Therefore, facilitators should not feel pressure to be seen as "experts" on formative assessment.

Table: Agenda

Section	Time
Section 1: Introduction	5 minutes
Section 2: Review: Formative Assessment Process	5 minutes
Section 3: Taking Pedagogical Action	15 minutes
Section 4: Characteristics of Effective Feedback	20 minutes
Section 5: Formative Assessment Process and Teaching Practice	10 minutes
Section 6: Tying it All Together	5 minutes

What you will need:

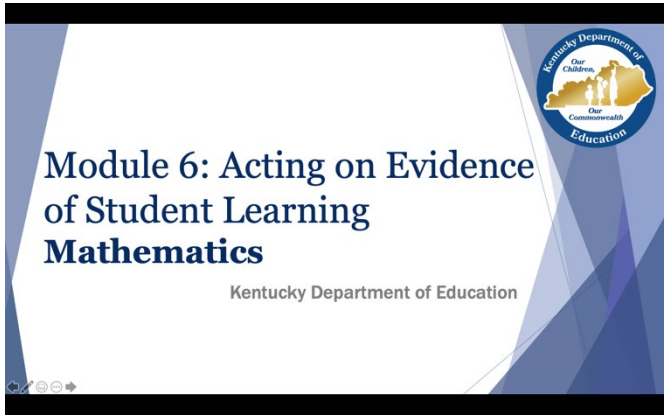
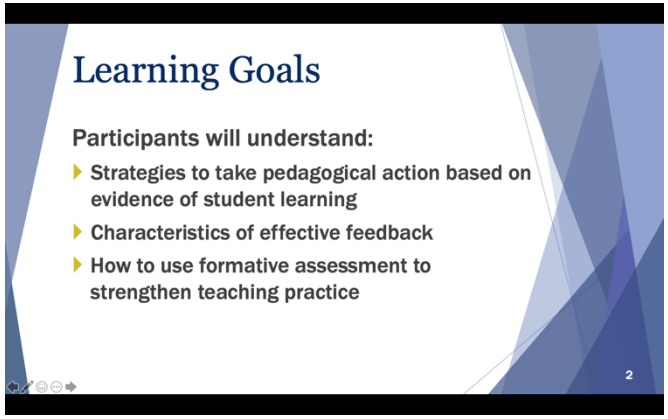
- Module 6: PowerPoint presentation
- *Taking Pedagogical Actions in the Formative Assessment Process* handout

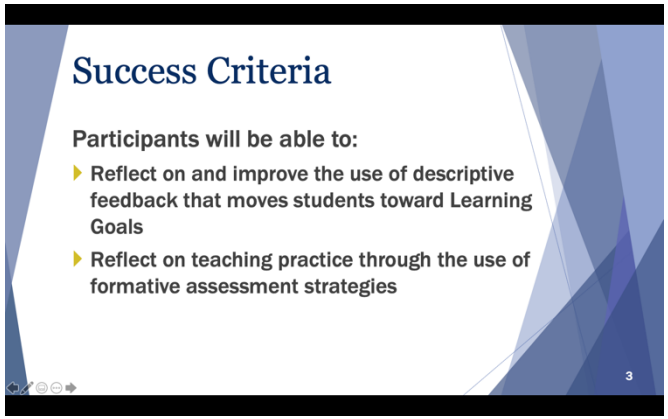
Facilitator preparation:

- Preview the slides and read the slide notes carefully.

Section 1: Introduction

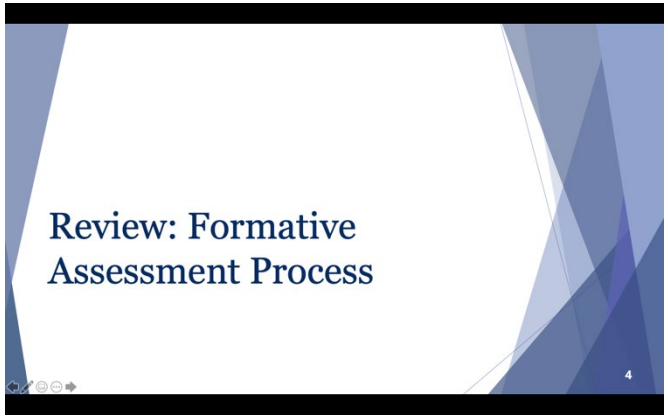
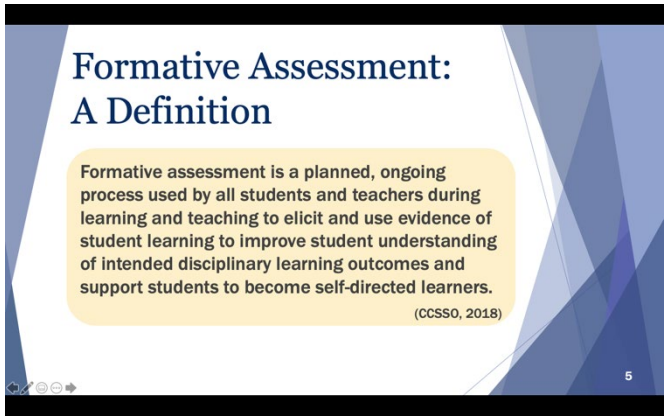
Table: Slides 1–3

Slide #	Guidance	Slide Image
1	Title slide	
2	**Introduce the content on the slide by providing the following information.** As you have seen in Modules 1–5, understanding where we, as learners, are heading and how we will know if we are successful is essential for teaching and learning and is a key aspect of quality assessment practices. At the end of this presentation, you should understand: • Strategies to take pedagogical action based on evidence of student learning • Characteristics of effective feedback • How to use formative assessment to strengthen teaching practice	

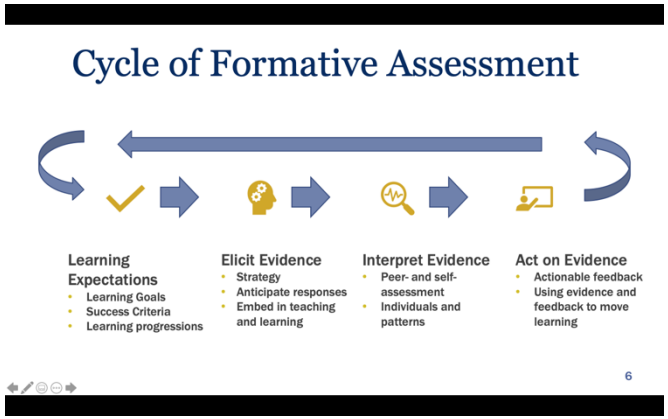
Slide #	Guidance	Slide Image
3	**Introduce the content on the slide by providing the following information.** At the end of this learning sequence (including this module and the teacher collaboration activity), you should be able to: • Reflect on and improve the use of descriptive feedback that moves students toward Learning Goals • Reflect on teaching practice through the use of formative assessment strategies Facilitators may want to note that the terms *classroom* and *classroom setting* are used throughout this presentation and can refer to both physical classrooms and distance learning environments.	

Section 2: Review: Formative Assessment Process

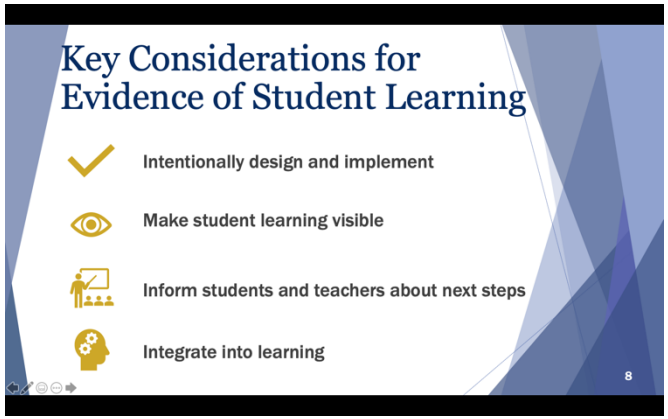
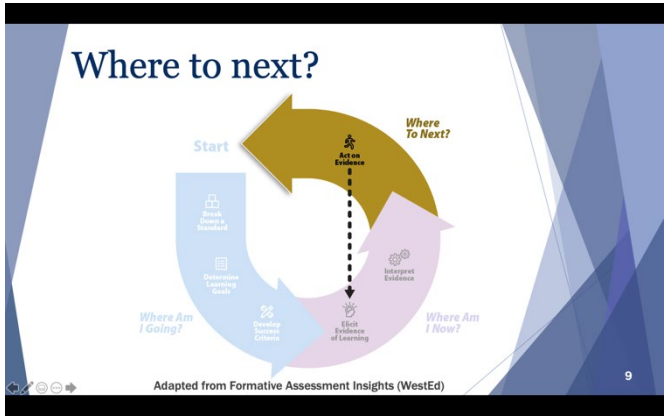
Table: Slides 4–9

Slide #	Guidance	Slide Image
4	Section Introduction slide	
5	**Introduce the content on the slide by providing the following information.** This definition of formative assessment comes from the Council of Chief State School Officers (CCSSO). If participants engaged in Modules 2, 3, 4 and 5, facilitators may want to acknowledge that they have seen this definition in previous modules. Ask participants to read and reflect on this definition. **Next, facilitate a brief discussion in which participants consider this definition in the context of what it says about acting on evidence of student learning in the formative assessment process.** Consider using some of the following questions to support the discussion.	

Slide #	Guidance	Slide Image
	• What words or phrases in this definition address acting on evidence of student learning in the formative assessment process? • What does this definition, taken as a whole, tell you about acting on evidence of student learning in the formative assessment process? Some key things to notice might be the following: • This definition flags **using** evidence to improve student understanding for two purposes, **disciplinary learning and becoming self-directed learners**. • The definition emphasizes that formative assessment is **planned and ongoing** and acting on evidence of learning isn't something that happens primarily by accident or spontaneous inspiration. • The definition emphasizes that **students and teachers** both elicit and use evidence of student learning. Acting on evidence is not just for teachers. For more information on this definition, including the reasoning behind it, refer to this document: https://ccsso.org/resource-library/revising-definition-formative-assessment	

Slide #	Guidance	Slide Image
6	**Introduce the content on the slide by providing the following information.** This slide takes a closer look at the cycle of assessment in the specific context of formative assessment. **Learning Expectations:** Establishing Learning Goals and Success Criteria is an essential entry point for the formative assessment process. Learning Goals describe what students will learn in a learning period (like a lesson or unit) and success criteria describe what specifically students will do to demonstrate that they have met the Learning Goals. Students should have a strong understanding both of what they are supposed to learn and how they will know and show when they are successful. Learning Goals and Success Criteria should be aligned to the learning expectations or standards associated with learning progressions. **Eliciting Evidence:** These 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 and using math manipulatives to represent their thinking, observation, discussion and questioning. **Interpreting Evidence:** To support you in making decisions about useful, real-time pedagogical action, it helps to anticipate common potential student responses in advance and, based on the learning progression, have pedagogical actions aligned to these responses at the ready. **Acting on Evidence:**	

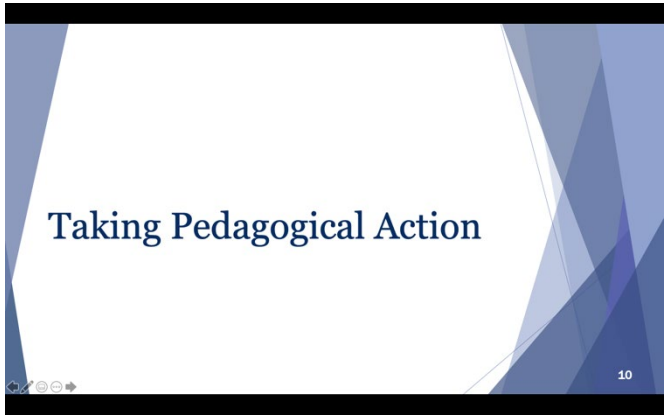
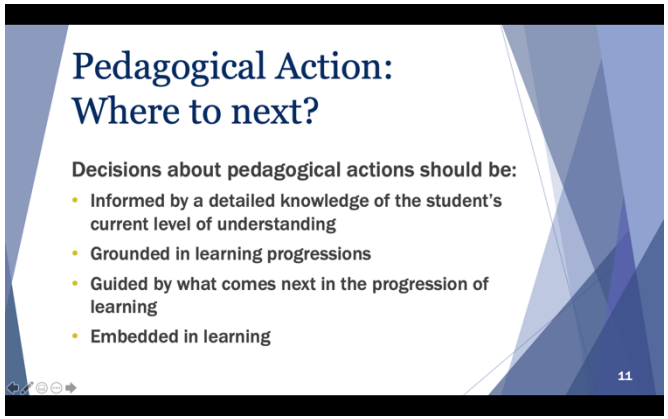
Slide #	Guidance	Slide Image
	Formative assessment is ultimately about what comes next for students to move toward their Learning Goals. Students and teachers need to work together so that they all understand their next steps.	
7	**Introduce the content on the slide by providing the following information.** As discussed in previous modules, self-directed learners need to understand what they are learning and how to get there. Learning Goals and Success Criteria work in tandem to help students understand where they are going with their learning so that they can actively manage their own learning**.** If a lesson 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 represent the checkpoints along the route, giving students specific information to understand their progress and make adjustments to move their learning forward. Learning Goals and Success Criteria are essential tools for students to understand where they are in their learning so that they can become self-directed learners. As we consider how to take pedagogical action based on evidence of student learning, Learning Goals and Success Criteria serve as a critical guide. For more information on Learning Goals and Success Criteria, see Module 3 in this series. Facilitators may want to note for the purposes of this presentation, the word “lesson” may refer to the learning plan for a single class period or could reflect a learning plan that covers several days. It’s a coherent set of learning opportunities focused on the same content and goals.	

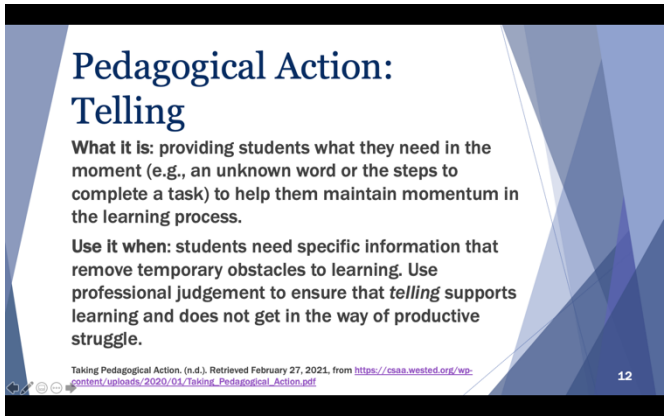
Slide #	Guidance	Slide Image
8	**Introduce the content on the slide by providing the following information.** As discussed in previous modules, evidence of student learning informs student and teacher decisions about next steps to move students toward their Learning Goals. A critical element of lesson planning is integrating strategies to gather evidence of student learning during the learning and then having the requisite tools and strategies at your fingertips to interpret and act on the evidence. Taking appropriate pedagogical action is dependent on eliciting meaningful evidence of student learning that is aligned to the Learning Goals and Success Criteria. For more information on eliciting meaningful evidence of student learning, see Module 4 in this series.	
9	**Introduce the content on the slide by providing the following information.** In the final module of this series, Acting on Evidence of Student Learning, we will focus on the third question in this cycle, "Where to next?" In the formative assessment process, students and teachers establish answers to the questions, "Where am I going?" and "Where am I now?" But the formative assessment process doesn't stop with understanding where students are in their learning. Formative assessment is ultimately about using that information to answer the question, "Where to next?" so that students can move toward their Learning Goals. You may notice the dashed line that connects "act on evidence" to "elicit evidence of learning." This reflects the iterative nature of formative assessment. After taking pedagogical action, it is important to elicit further evidence to determine if the action taken successfully	

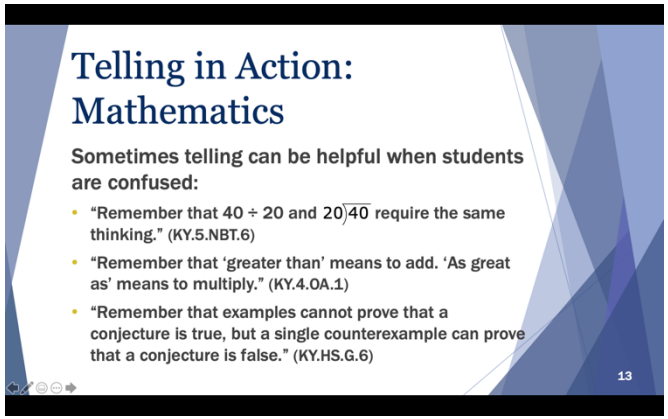
Slide #	Guidance	Slide Image
	moved student learning forward and to inform what comes next to help students progress toward their Learning Goals.	

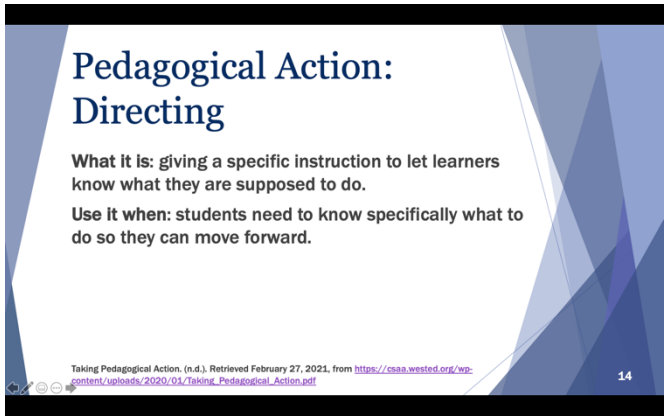
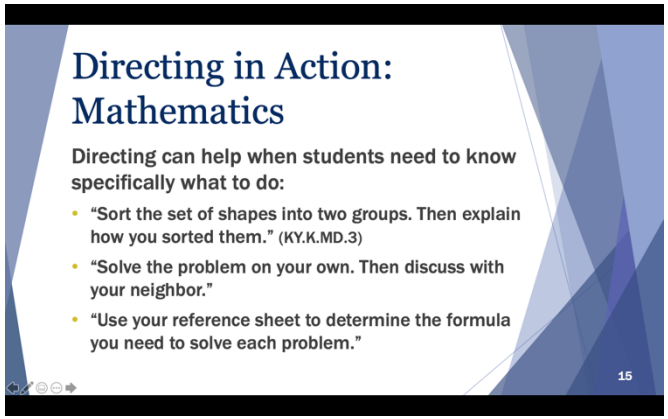
Section 3: Taking Pedagogical Action

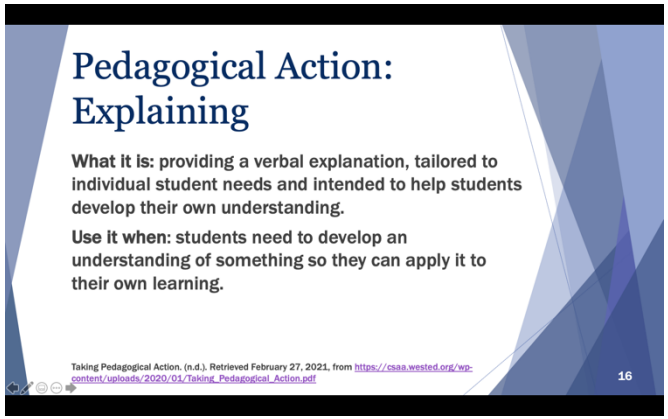
Table: Slides 10–25

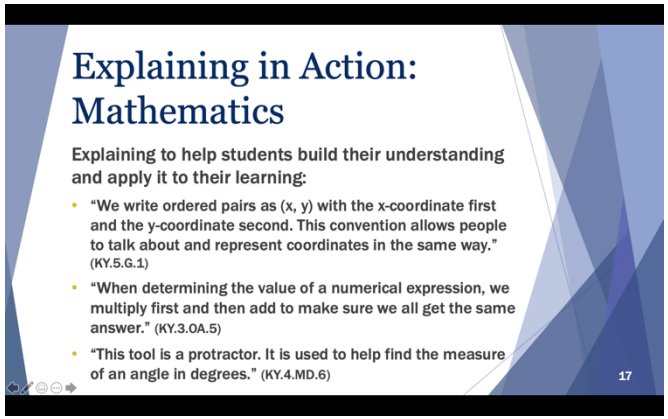
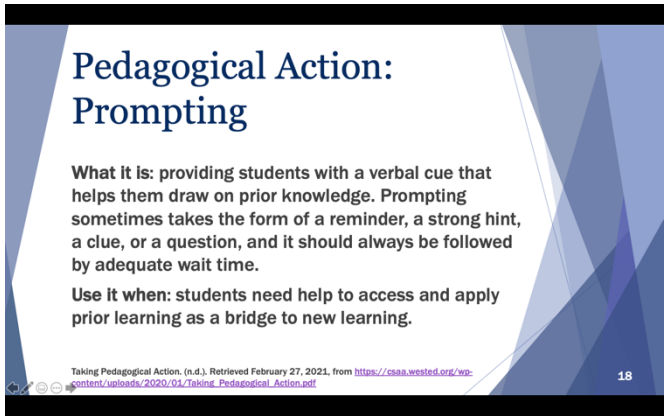
Slide #	Guidance	Slide Image
10	Section introduction slide	
11	**Note to facilitators:** Participants may wish to reference the Taking Pedagogical Action in the Formative Assessment Process handout. **Introduce the content on the slide by providing the following information.** In the formative assessment 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 information is used to inform teacher and student actions that respond to the evidence to help students take the next step in their learning. Effective decision making about appropriate and effective pedagogical action requires a strong understanding of student learning progressions. Teachers are already using the strategies we will discuss, but our focus today is on deepening teacher capacity to use these strategies intentionally and strategically to move student learning forward. These	

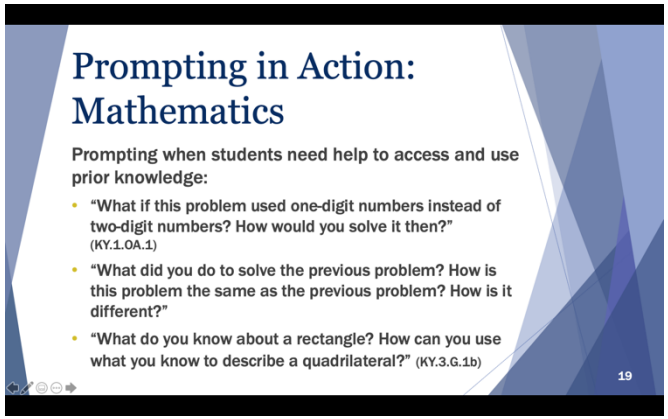
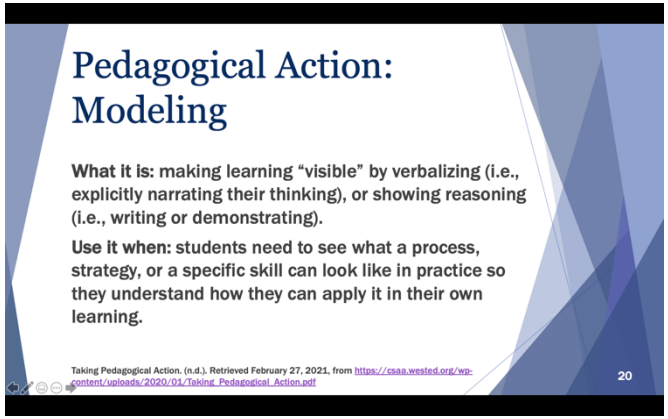
Slide #	Guidance	Slide Image
	individual actions may work in tandem with each other, but they should be deployed to achieve particular learning outcomes in response to a specific learning need. Each individual action is not intended to be used as a blanket teaching or instructional method. Pedagogical action can take a variety of forms and may happen in the moment or in a learning period that follows, but the action should be grounded in where students are in their learning, focused on the next steps in student learning and take place during learning. In the slides that follow, we will discuss some different strategies for pedagogical action.	
12	**Introduce the content on the slide by providing the following information.** Walk participants through the information on the slide about *telling* as a pedagogical action. Facilitators should draw attention to the "When to use it" section, emphasizing that *telling* should be used strategically only when students are stuck and providing specific information directly will eliminate a barrier and allow students to keep moving forward. *Telling* is not simply standing in front of a classroom and lecturing and shouldn't be used to get in the way of productive struggle but to keep students from spinning their wheels.	

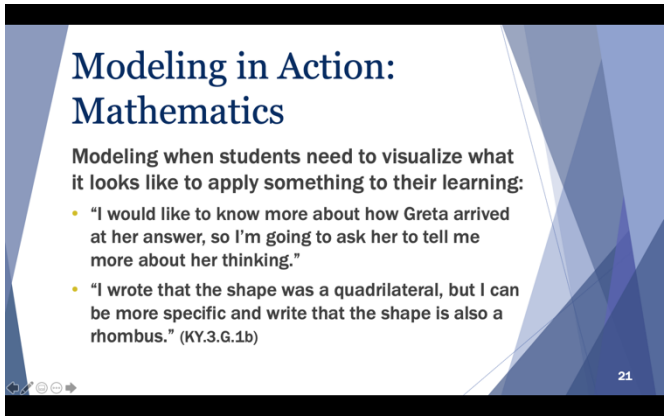
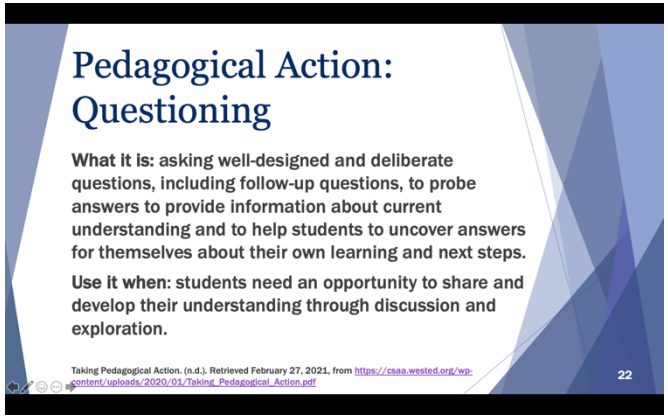
Slide #	Guidance	Slide Image
13	**Introduce the content on the slide by providing the following information.** The examples on this slide offer situations when using the strategy of *telling* could be effective in eliminating barriers that surface in evidence of student learning. These examples reflect students who may be struggling to recall relevant mathematical knowledge needed to complete a new math task. Note that relevant standards are included after each sample statement. Keep in mind that, as emphasized on the previous slide, using telling as a strategy requires professional judgement to ensure that this action supports student learning. *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 making conjectures and building a logical progression of statements to explore the truth of conjectures. One important use of cases and counterexamples is in high school geometry when students might conjecture that the diagonals of a parallelogram bisect each other, after having experimented with a representative selection of possible parallelograms (KY.HS.G.6). When providing opportunities for students to think and organize their own thoughts with given information, inserting statements to challenge the reasoning can help to shift student thinking away from incorrect conceptualizations towards correct conceptions.* **Next, facilitate a brief discussion in which participants brainstorm examples of how they currently use the "telling" strategy in the classroom. If time is a consideration, hold all discussion until slide 25.**	

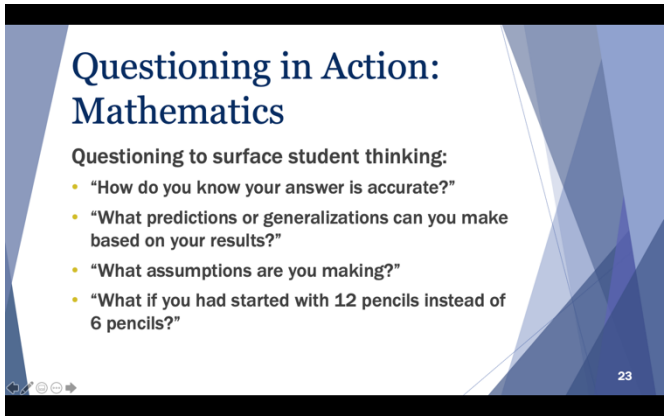
Slide #	Guidance	Slide Image
14	**Introduce the content on the slide by providing the following information.** Walk participants through the information on the slide about *directing* as a pedagogical action. *Directing* is a strategy that is useful when students need to know specifically what to do.	
15	**Introduce the content on the slide by providing the following information.** The examples on the slide offer situations when providing students with specific directions about what to do next may keep them moving forward toward their learning goals. **Next, facilitate a brief discussion in which participants brainstorm examples of how they currently use the "directing" strategy in the classroom. If time is a consideration, hold all discussion until slide 25.**	

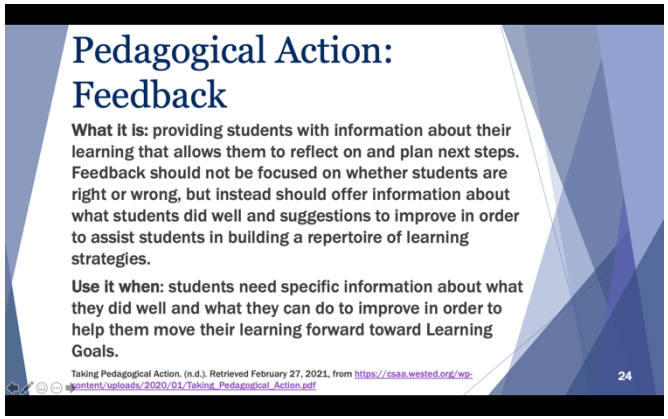
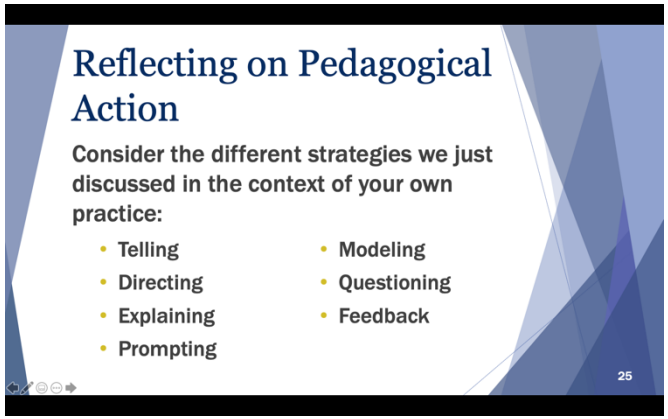
Slide #	Guidance	Slide Image
16	**Introduce the content on the slide by providing the following information.** Walk participants through the information on the slide about *explaining* as a pedagogical action. *Explaining* is similar to *telling* in that it is providing information directly to students, but this action is focused on helping students develop their own understanding of something so that they can apply it to their learning. In contrast, *telling* should be used strategically only when students are stuck and providing them with specific information will eliminate a barrier and allow students to keep moving forward. *Explaining* can be effective when introducing an unfamiliar concept, clearing up misconceptions, describing a process or clarifying how technology can be used as a problem-solving tool. The Breaking Down a Standard tool can serve as a resource for exploring student places where explanations might benefit student learning related to specific mathematics content. Grade-level examples can be found at this website: https://kystandards.org/standards-resources/mathematics-resources/breaking-down-a-mathematics-standard/	

Slide #	Guidance	Slide Image
17	**Introduce the content on the slide by providing the following information.** The examples on the slide offer situations when providing an explanation to students may help them build their understanding so that they can apply it to their own learning. *In mathematics, not all concepts can be discovered. Explanations are often needed for mathematical symbols and operations or to justify the need for differentiating between mathematical objects.* **Next, facilitate a brief discussion in which participants brainstorm examples of how they currently use the "explaining" strategy in the classroom. If time is a consideration, hold all discussion until slide 25.**	
18	**Introduce the content on the slide by providing the following information.** Walk participants through the information on the slide about *prompting* as a pedagogical action. Facilitators should note that *prompting* is most effective when the teacher has a clear picture of the current status of the individual student's learning. *Prompting* should not take the learning away from the student but should be used in a way that allows the student to successfully bridge to new learning.	

Slide #	Guidance	Slide Image
19	**Introduce the content on the slide by providing the following information.** The examples on the slide offer situations when providing students with prompts to activate prior knowledge and apply it may help them move forward in their learning. *Prompting* may take the form of a strong hint, a clue or question, and it should always be followed by adequate wait time. *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.* **Next, facilitate a brief discussion in which participants brainstorm examples of how they currently use the "prompting" strategy in the classroom. If time is a consideration, hold all discussion until slide 25.**	
20	**Introduce the content on the slide by providing the following information.** Walk participants through the information on the slide about *modeling* as a pedagogical action. *Modeling* is a good strategy to support students to understand how to do something so they can apply it to their own practice. Note that during 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. Mathematical modeling, both in the workplace and in school, uses mathematics to answer questions using real-world context. See pp. 8–9 of the KAS for further discussion of mathematical modeling.	

Slide #	Guidance	Slide Image
21	**Introduce the content on the slide by providing the following information.** The examples on the slide offer situations when showing students what it looks like to apply a skill or process will help them move forward in their learning. **Next, facilitate a brief discussion in which participants brainstorm examples of how they currently use the "modeling" strategy in the classroom. If time is a consideration, hold all discussion until slide 25.** Walk participants through the information about *modeling* as a pedagogical action on the slide, elaborating as necessary. *For example, facilitators may want to highlight that in mathematics, modeling is an excellent strategy for guiding students through ways of thinking about a set of representations or solution strategies.*	
22	**Introduce the content on the slide by providing the following information.** Walk participants through the information on the slide about *questioning* as a pedagogical action. Facilitators should note that *questioning* as an effective strategy involves probing questions and exploration of ideas to uncover student thinking, not simply asking a question and moving on. *In mathematics, the design of purposeful and well-timed questions is supported by an understanding of learning progressions. This understanding involves recognition of the Coherence within and across Kentucky Academic Standards, which are sequenced to make mathematical sense and are based on the progressions for how students learn. The Clarifications and Coherence section of the Getting to Know the KAS for Mathematics (Section 1E) provides a focused investigation of the connections within and across grade level to develop teachers' understandings of how the Clarifications communicate expectations of*	

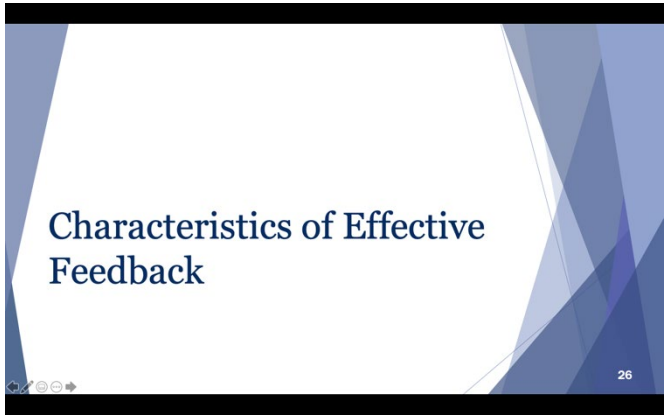
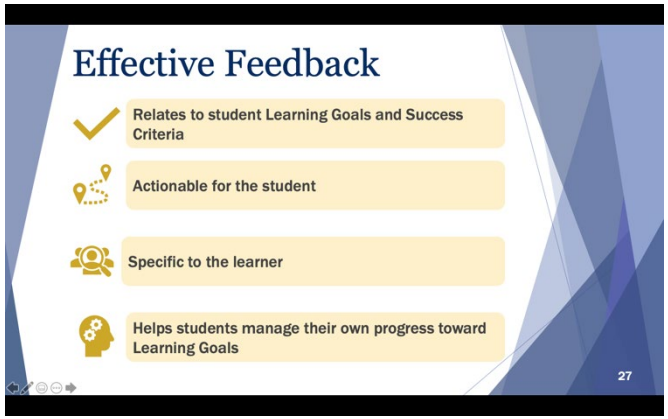
Slide #	Guidance	Slide Image
	the standards more clearly and concisely. The module in its entirety can be found at this website: https://kystandards.org/wp-content/uploads/2019/06/Module_1_Getting_to_Know_the_Kentucky_Academic_Standards_for_Mathematics.pptx	
23	**Introduce the content on the slide by providing the following information.** The examples on the slide offer situations when questioning may help surface student learning and keep students moving forward toward their Learning Goals. *Facilitators may want to note 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.* *The questions on this slide are included in or adapted from Engaging the SMPs: Look-fors and question stems, a teacher resource from the Kentucky Department of Education that offers questions designed to promote student engagement with the Standards for Mathematical Practice. The document is located on the KDE website: https://education.ky.gov/curriculum/standards/kyacadstand/Documents/SMP_Look_Fors_and_Question_Stems.pdf* **Next, facilitate a brief discussion in which participants brainstorm examples of how they currently use the "questioning" strategy in the classroom. If time is a consideration, hold all discussion until slide 25.**	

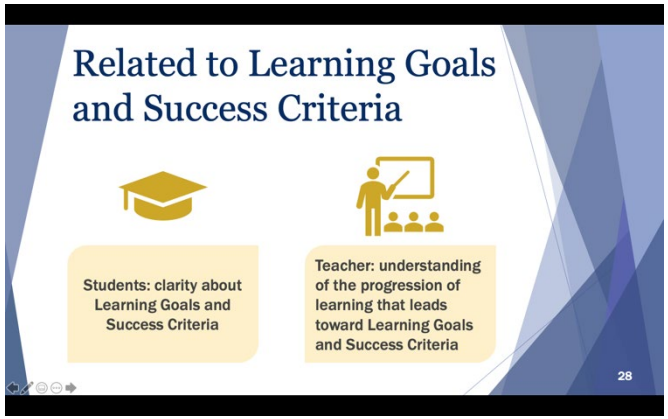
Slide #	Guidance	Slide Image
24	**Introduce the content on the slide by providing the following information.** Walk participants through the information presented on the slide about *feedback* as a pedagogical action. Tell participants that *feedback*, both teacher-directed feedback and student feedback, is such a central element of the formative assessment process that we will explore this pedagogical action in greater depth later in the presentation.	
25	**Note to facilitators:** Participants may wish to reference the Taking Pedagogical Action in the Formative Assessment Process handout. **Facilitate a discussion in which participants reflect on the strategies for pedagogical action presented on the previous slides in the context of their own practice. Note that we will be discussing feedback in depth in the next section of this module.** Facilitators may want to consider some of the following questions: • Which strategies do you rely on most? • How do you decide which strategy to use in specific instances? • Which strategies are well-suited to the content and the students you teach? • Which strategies would you like to try to engage in more? • What challenges do you find with any of these strategies? • How have you engaged in these different pedagogical actions in a remote context?	

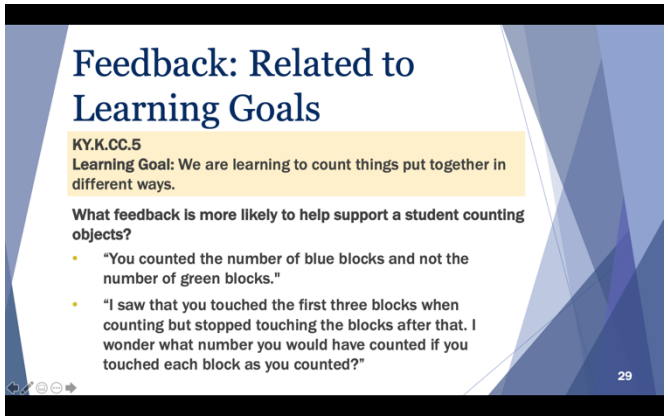
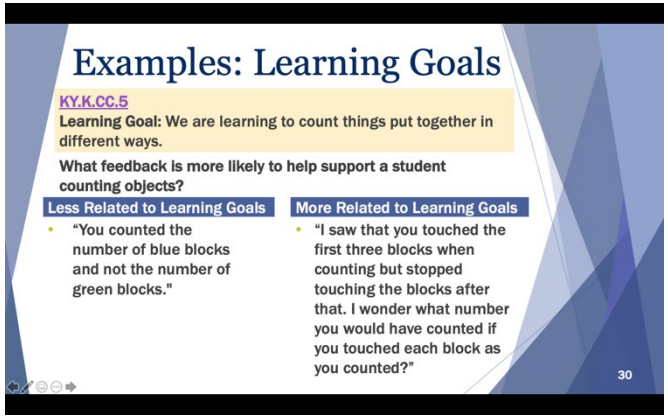
Slide #	Guidance	Slide Image
	• Which of these pedagogical actions are well-suited for a remote learning context, and which are more challenging in a remote learning context?	

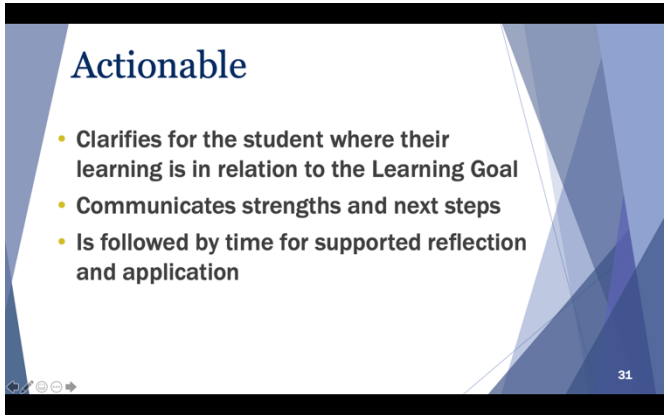
Section 4: Characteristics of Effective Feedback

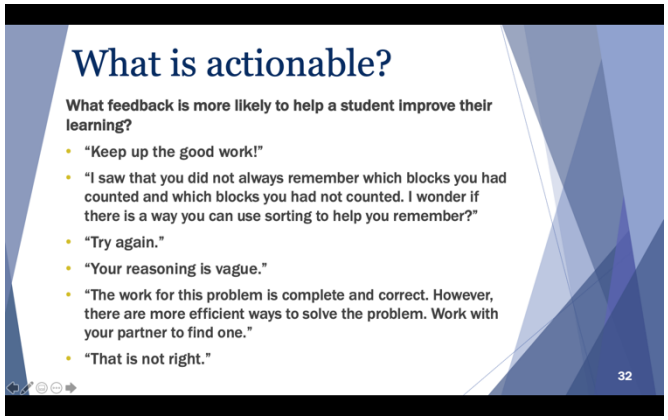
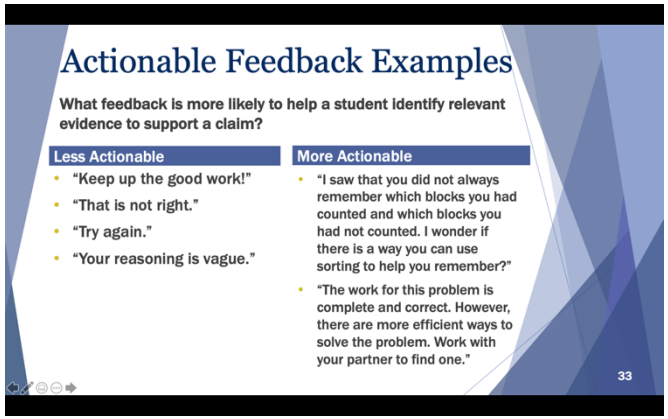
Table: Slides 26–42

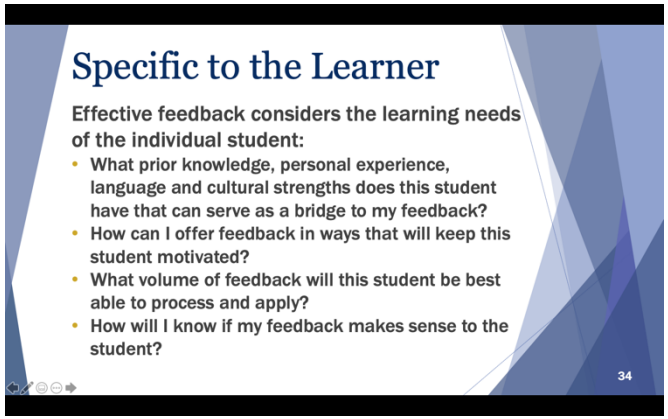
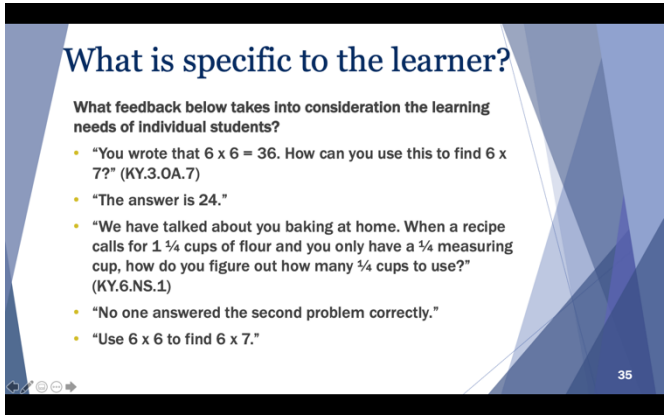
Slide #	Guidance	Slide Image
26	Section introduction slide	
27	**Introduce the content on the slide by providing the following information.** In the formative assessment process, *feedback* is designed to empower students to make decisions about where to go next in their progress toward their Learning Goals. This requires thoughtful feedback that: • Relates to student Learning Goals and Success Criteria • Is actionable • Is specific to the learner • Helps students manage their own learning We will explore each of these attributes of meaningful feedback in the following slides.	

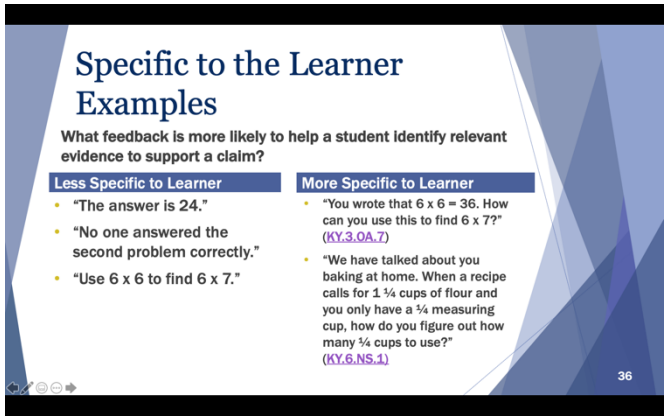
Slide #	Guidance	Slide Image
28	**Introduce the content on the slide by providing the following information.** The primary purpose of feedback in the formative assessment process is to help students understand where they are in their learning relative to where they are going. This means that in order to engage fully in applying feedback to their learning, students must have a clear understanding of their Learning Goals and Success Criteria. It 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. *In mathematics, an understanding of learning pathways involves recognition of the Coherence within and across Kentucky Academic Standards. The standards are sequenced to make mathematical sense and are based on the progressions for how students learn. The Clarifications and Coherence section of the Getting to Know the KAS for Mathematics (Section 1E) provides a focused investigation of the connections within and across grade level to develop teachers' understandings of how the Clarifications communicate expectations of the standards more clearly and concisely. The module in its entirety can be found at this website: https://kystandards.org/wp-content/uploads/2019/06/Module_1_Getting_to_Know_the_Kentucky_Academic_Standards_for_Mathematics.pptx*	

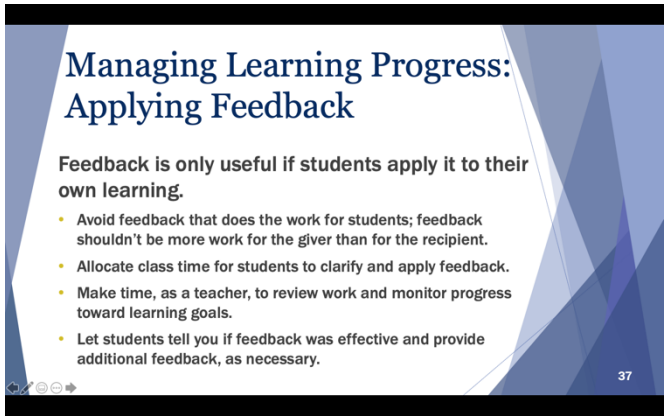
Slide #	Guidance	Slide Image
29	**Introduce the content on the slide by providing the following information.** Ask participants to read the Learning Goal and question posed on the slide. The Learning Goal listed is taken from the example given in Modules 3, 4 and 5. Ask participants to consider the feedback examples presented on the slide. Then ask them to consider which of the two examples of feedback presented on the slide are more related to learning goals and which is less related to learning goals. Next, give participants the opportunity to discuss which feedback examples are more aligned to the Learning Goal. • What feedback is more likely to help a student move toward this learning goal?	
30	Introduce the content on the slide by providing the following information. Possible examples of feedback that is less helpful and more helpful in moving students toward their Learning Goals are included on this slide. Participants may have other examples that they feel are well aligned to Learning Goals and Success Criteria. Facilitators may want to state explicitly that the point is not that feedback must never attend to any learning beyond the stated Learning Goals and Success Criteria for the lesson. Instead, the point is that teachers should be strategic about their feedback, focusing on the most important aspects of student learning. **Next, facilitate a short discussion where participants think about how they target their feedback to student Learning Goals.** Facilitators may consider using some of the following questions to support the discussion: • How do you prioritize what to focus on when giving feedback to students?	

Slide #	Guidance	Slide Image
	• How do the Learning Goals and Success Criteria inform your feedback? • Are there general areas of feedback you always focus on regardless of the Learning Goals? What do you notice about how your students relate your feedback to their Learning Goals?	
31	**Introduce the content on the slide by providing the following information.** Feedback is effective if it creates a shift in student thinking that allows them to move their own learning forward. • Provide clear, descriptive language that can signal to students where they currently are in their learning and what they can do to make progress toward the Learning Goals. • Feedback should focus on what students are doing well and how they can improve. Feedback is most actionable when students can apply it not only to their current learning but to develop an understanding of how to apply it to new contexts as well. • Students need time during their learning to process feedback, ask clarifying questions and apply or plan to apply it to their next steps in 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. • Summative comments and corrections may provide students with the information needed for students to understand where they are in relation to the Learning Goals and specifically what to do next to improve, provided they allow time for supported reflection and application. Often, a letter grade does not offer students the opportunity to reflect and respond in a way that	

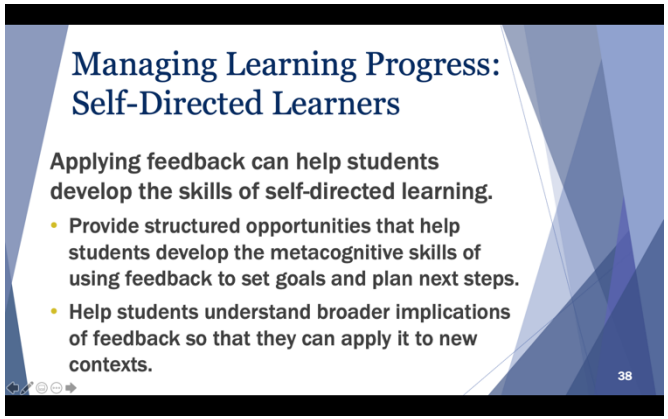
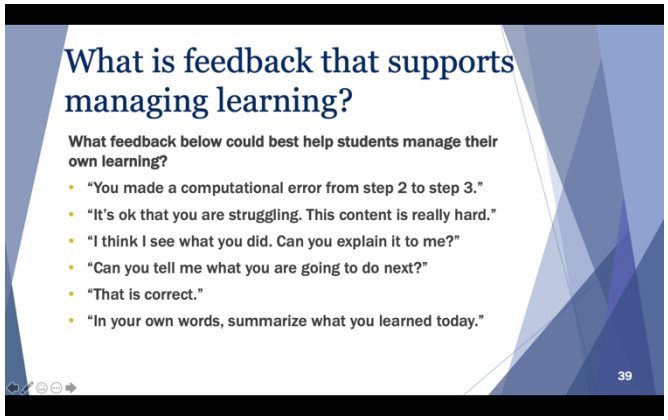
Slide #	Guidance	Slide Image
	allows them to take the next steps to reach their intended learning outcome.	
32	**Introduce the content on the slide by providing the following information.** Ask participants to read the question on the slide or read it to them. Then ask them to consider which of the examples of feedback presented on the slide are more likely to help a student improve their learning and which are less likely to help a student improve their learning. **Next, give participants the opportunity to discuss which of the feedback examples on the slide provide actionable information for students.** • Which feedback is more actionable for a student?	
33	**Introduce the content on the slide by providing the following information.** Ask participants to read the examples on the slide or read it to them. Participants may have other examples that they feel are more actionable for students. These examples are merely intended to support discussion and prompt participant thinking. **Next, facilitate a short discussion where participants think about how they can ensure their feedback actionable for students.** Facilitators may want to consider using some of the following questions to support the discussion: • When have you noticed that students have trouble applying feedback? How do you know if your feedback feels actionable to your students?	

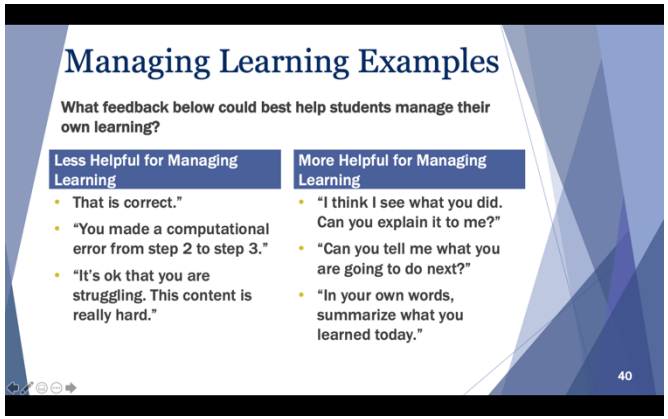
Slide #	Guidance	Slide Image
34	**Introduce the content on the slide by providing the following information.** There is no one-size-fits-all when it comes to feedback. Students are individuals and are in different places in their learning; they bring different assets, experiences and prior knowledge, and they have different communication styles. Effective feedback considers the needs of the specific learner and what will help them make progress in their learning. Consider: • 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? • How will I know if my feedback makes sense to the student?	
35	**Introduce the content on the slide by providing the following information.** Ask participants to read the examples on the slide or read it to them. Then ask them to consider which of the examples of feedback presented on the slide are more specific to the learner and which are less specific to the learner. Facilitators may want to acknowledge that the general examples on the slide may not fully capture the work of targeting feedback to actual students in a classroom but are intended to help support thinking about what that process looks like.	

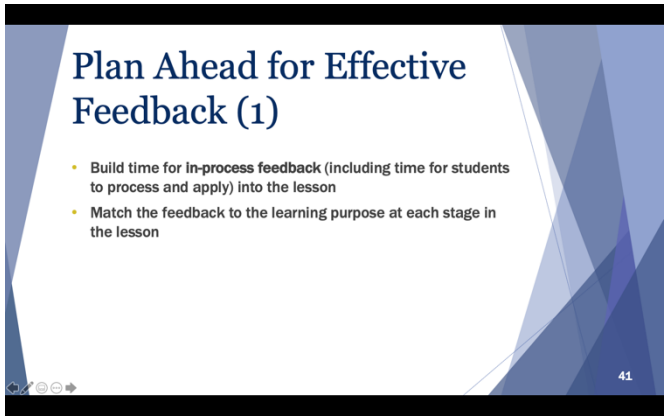
Slide #	Guidance	Slide Image
	Next, give participants the opportunity to discuss which of the feedback examples on the slide might be more specific to a learner. • Which feedback may be more specific or targeted toward a learner?	
36	**Introduce the content on the slide by providing the following information.** Ask participants to read the examples on the slide or read it to them. Participants may have other examples that are targeted to their own learners. These are just examples to help prompt participant thinking about what feedback will work for their own students. **Next, facilitate a short discussion where participants think about how they can make their feedback targeted to specific learners.** Facilitators may want to consider using some of the following questions to support the discussion: • How do you determine what kind of feedback would work best for specific students? • How have you used your knowledge of your students to frame your feedback? • When have you noticed that your feedback has helped students stay engaged and motivated? • When have you noticed that your feedback didn't resonate with your students? • How can you ensure feedback is specific to the learner in the future?	

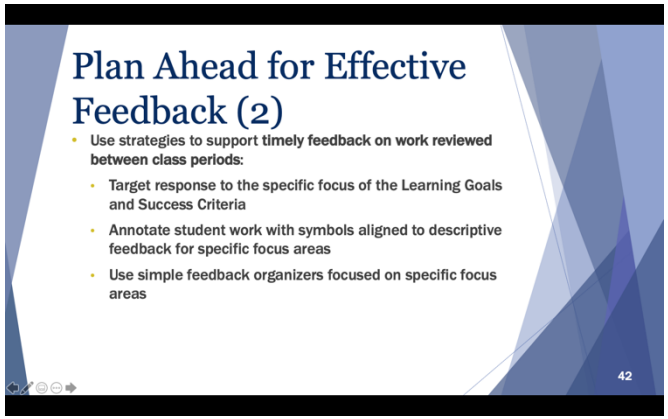
Slide #	Guidance	Slide Image
37	**Introduce the content on the slide by providing the following information.** Feedback is effective when it helps students build their own capacity as self-directed learners. • This demands feedback that doesn't do the work for students but helps students clarify where they are in their own learning as well as understand and plan for actions they can take to move ahead in their learning. • 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," doesn't position students to understand what they did well and apply it to new contexts in the future. • Teachers also need to make time to review student work and monitor students progress toward Learning Goals in order to focus and prepare to give meaningful feedback that will allow students to manage their learning. • Student voice should be used to evaluate the effectiveness of and make improvements to feedback. 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 the teacher determine if feedback was effective and intervene if it wasn't. It can also inform the teacher's overall practice, helping develop a sense of the kind of feedback that is most effective for specific students and in general. Additionally, A Family's Guide to Understanding Student Assessment was developed to help families understand how assessment can support student learning. This guide includes questions that families can ask students and their teachers to help families support learning at home.	

Slide #	Guidance	Slide Image
	This guide can be found at this website: https://education.ky.gov/curriculum/standards/kyacadstand/Documents/A_Family's_Guide_to_Student_Assessment.pdf The resource described below applies to the content on slides 37–40. *The Integrating Social, Emotional and Academic Development (SEAD) within the Kentucky Academic Standards (KAS) for Mathematics resource is designed for educators to utilize when planning instruction to meet the needs of all learners. Each grade level document provides:* • *Connections between social and emotional competencies and the content and practice expectations set forth in the KAS* • *Design considerations and specific examples of what integrating SEAD might look like within the specific grade level* • *Questions to empower teachers to self-reflect on ways to integrate SEAD within effective mathematics instruction,* • *Questions that teachers can use with students to encourage the development of social and emotional competencies while also engaging students with the Standards for Mathematical Practice* *Referencing this resource during planning can help teachers consider ways to foster student self-management when planning instruction. Each grade level document can be found at this website: https://kystandards.org/standards-resources/mathematics-resources/integrating-sead-mathematics/*	

Slide #	Guidance	Slide Image
38	**Introduce the content on the slide by providing the following information.** Self-directed learners know how to take feedback and generalize it to novel learning contexts. Teachers can help students become self-directed learners by helping them develop the metacognitive skills that allow them to get better and know how to use feedback. This can take the form of providing not only time but also scaffolds to help them unpack feedback and plan their next steps in learning. It can involve providing structured support for students to think about how they could use the feedback in different situations, like upcoming activities or in other subject areas.	
39	**Introduce the content on the slide by providing the following information.** Ask participants to read the examples on the slide or read it to them. Then ask them to consider which of the examples of feedback presented on the slide are more helpful for managing learning and which are less helpful for managing learning. **Next, give participants the opportunity to discuss which of the feedback examples on the slide may better support students to manage their own learning.** • Which feedback may be better suited to helping students apply feedback to manage their own learning?	

Slide #	Guidance	Slide Image
40	**Introduce the content on the slide by providing the following information.** Ask participants to read the examples on the slide or read it to them. Participants may have other examples that they feel would better support their own students to manage their own learning. These examples are intended to help prompt participant thinking about the feedback practices in their own classrooms. **Next, facilitate a short discussion where participants think about how they can make their feedback actionable for students.** Facilitators may want to consider using some of the following questions to support the discussion: • How have you supported your students to clarify and apply feedback? • How do you support students to use feedback to set goals? • Are there situations in which you have struggled to provide feedback that illustrates what to do next without doing the work for students? • When have you noticed that students were able to apply feedback in new contexts? What helped them to do that?	

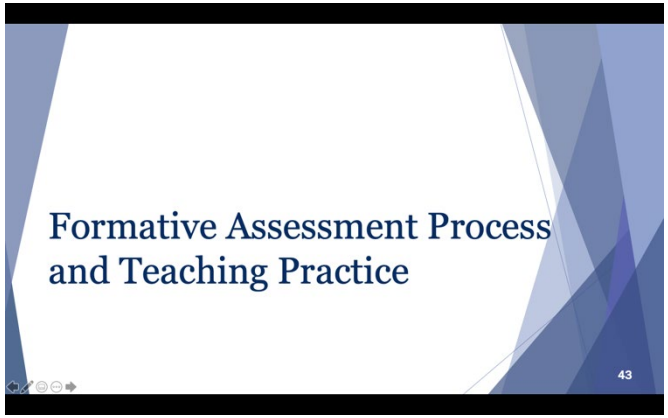
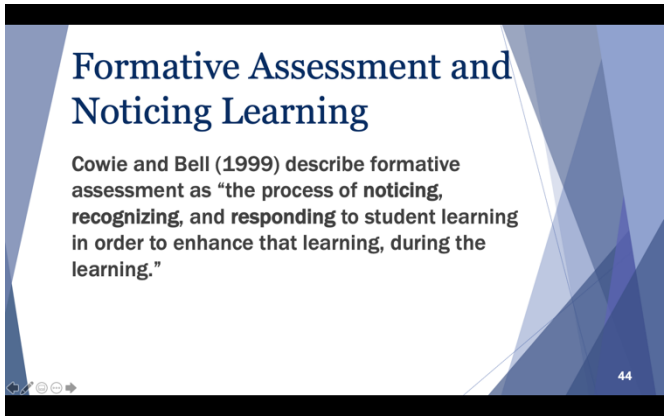
Slide #	Guidance	Slide Image
41	Introduce the content on the slide by providing the following information. Feedback is most effective when it is given during teaching and learning so that students can integrate it into their progress toward their Learning Goals. Therefore, teachers need to plan ahead to give students effective feedback. • This means building in specific times and strategies for feedback in the lesson design as well as noticing opportunities for in-the-moment feedback during the lesson. It also means building in time for students to process feedback, ask questions that clarify the meaning of the feedback and apply, or plan to apply, feedback to their own learning. • Planning for feedback means being thoughtful and strategic about the specific feedback that will support students to manage their next steps in learning. On an earlier slide, we discussed ensuring that feedback is appropriate for the specific learner, but different feedback is also appropriate at different points in a lesson. For example, towards the start of a lesson, when students are beginning a learning task, early feedback may be appropriate to head off an initial misconception. Later in the lesson, feedback that pushes students to reflect on the effectiveness of their learning strategies might be appropriate.	

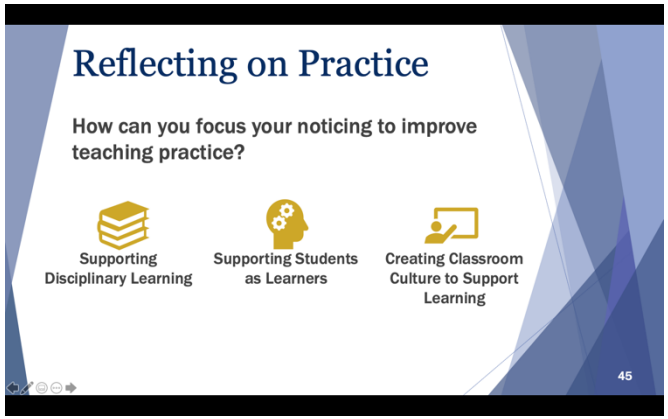
Slide #	Guidance	Slide Image
42	**Introduce the content on the slide by providing the following information.** • Teachers often need to review evidence of student learning in between class periods. However, for the feedback to support students to manage their own learning toward the Learning Goals, the feedback must be timely. There are several strategies that teachers can employ to ensure that feedback is tightly focused to the specific learning areas of the lesson. This slide presents some examples, but participants may have more strategies of their own to share. Additionally, A Family's Guide to Understanding Student Assessment was developed to help families understand how assessment can support student learning. This guide includes questions that families can ask students and their teachers to help families support learning at home. This guide can be found at this website: https://education.ky.gov/curriculum/standards/kyacadstand/Documents/A_Family's_Guide_to_Student_Assessment.pdf **Next, facilitate a conversation in which participants reflect on how they plan for effective feedback in their classroom.** Facilitators may consider using some of the following questions to support the discussion: • How do you address feedback in your lesson planning? • What strategies do you use to ensure that students have an opportunity to process and apply feedback? • What strategies do you use to help you provide effective, targeted and timely feedback for work you review outside of class time? • What strategies have you employed to provide effective feedback in a remote learning context?	

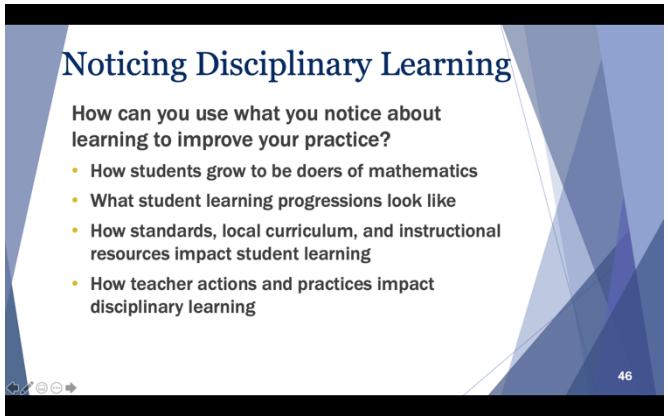
Slide #	Guidance	Slide Image
	• How do you plan for feedback at different points in a lesson? Adapted from: Six Insights About Feedback, WestEd Formative Assessment Insights (https://wested.box.com/s/fwiy1abigrllotguxprywoqy48hy58cd)	

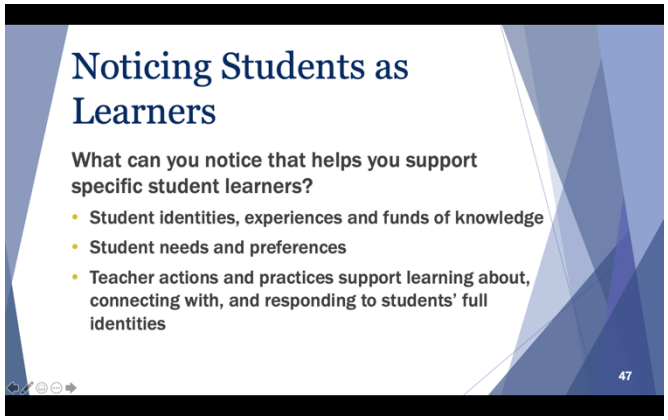
Section 5: Formative Assessment Process and Teaching Practice

Table: Slides 43–48

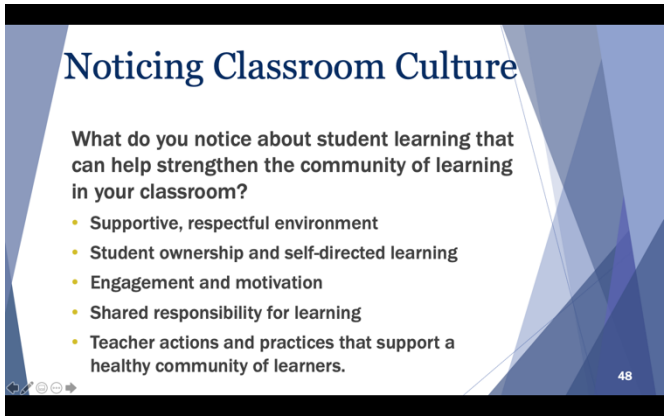
Slide #	Guidance	Slide Image
43	Sometimes the value of the formative assessment process for teachers and teaching practice gets lost—professional learning communities (PLCs) can create dedicated time for colleagues to collaboratively identify common learning goals, develop assessments linked to those goals, conduct the assessments across student subgroups and process the results together to determine next steps. A critical element in planning for future learning opportunities for students is the integration of 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.	
44	Read to participants the Cowie and Bell definition of formative assessment or ask participants to read it to themselves. **Next, facilitate a discussion that prepares participants to explore how noticing learning can help them not only respond to the needs of specific learners in their classrooms but also improve their teaching practice.** Facilitators may want to consider using some of the following questions to support the discussion: • What does it mean to notice, recognize and respond to learning? • How might noticing and recognizing learning be different than ways you might observe what happens in a classroom?	

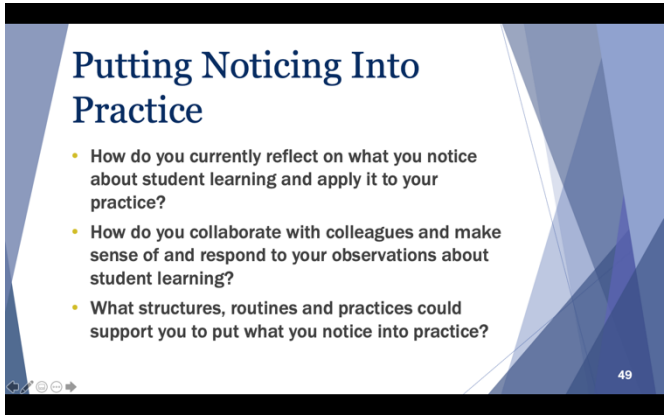
Slide #	Guidance	Slide Image
	• What kind of information might you gain through noticing, recognizing and responding to learning? • How do you currently reflect on student learning and plan to apply new ideas to your practice?	
45	**Introduce the content on the slide by providing the following information.** In this section, we focus on three different areas of teaching practice that can be improved through the attention to learning that is at the heart of the formative assessment process. Focused attention to learning can help improve teaching practice related to: • How students learn in the disciple • How to meet the needs of specific learners you teach • How to build a classroom environment that fosters learning for all students But using observations about student learning to improve practice requires more than just noting learning when it happens. Teachers must reflect on what happened with learning and why, and then use that information to make and try out changes in practice. This kind of iterative, reflective practice can be supported by PLCs that are anchored in inquiry about teaching practice. But, even without formal structures like PLCs, teachers can invest time in reflection on their practice by themselves and with colleagues in order to adjust their practice based on what they notice. In the next few slides, we will explore these areas and the kinds of observations about learning that can help inform teaching practice.	

Slide #	Guidance	Slide Image
46	**Introduce the content on the slide by providing the following information.** Noticing disciplinary learning and using it to improve practice requires teachers to anchor their observations in their knowledge of the discipline and how students learn to become doers of mathematics. Noticing disciplinary learning can shed light on questions about: • How students grow as doers of mathematics • What learning progressions for specific skills might look like for diverse learners and what strategies can help support students to keep moving forward along that progression • How students interact with the local curriculum aligned to the Kentucky Academic Standards, instructional resources and materials, and what adjustments teachers can make to support student learning • What teachers can do differently to help students meet their disciplinary Learning Goals and become self-directed learners who know how to learn and grow as doers of mathematics **Next, facilitate a short discussion in which participants share what they have noticed about disciplinary learning and how they have used it to improve their practice.** Facilitators may want to consider using some of the following questions to support the discussion: • What observations about learning have helped you expand your understanding of student learning progressions? • How have your observations about local curriculum, resources and materials changed the way you use them with students? • What have you noticed about learning that has changed the way you teach?	

Slide #	Guidance	Slide Image
	What teacher actions and practices have you tried based on things you have noticed about student learning?	
47	**Introduce the content on the slide by providing the following information.** Noticing student learning and using what is noticed to improve the capacity to meet the learning needs of students requires teachers to focus on and respond to both how the specific students in their class learn as well as teacher actions and practices that best support learning about students as learners. Noticing learning and reflecting on what it says about meeting the needs of individual learners can help inform practice related to: • Connecting with the strengths, identities and experiences of specific students and using it to inform teaching of those students in future instruction. • Understanding the needs and preferences of individual students and planning instruction that takes those things into account. While *needs* may be specific accommodations outlined in an IEP or 504 plan, needs can also be other supports and scaffolds that teachers and families have identified that will allow students to be successful in their learning (e.g., a student may have trouble staying in their seat for the duration of class, but if they move around, they can better attend to their learning). Student preferences relate to how students learn and share their learning best (e.g., some students may prefer to share their ideas verbally, while others would prefer to take some time and write things down). • Reflecting on practices that invite students to bring their identities, experiences and funds of knowledge into learning and	

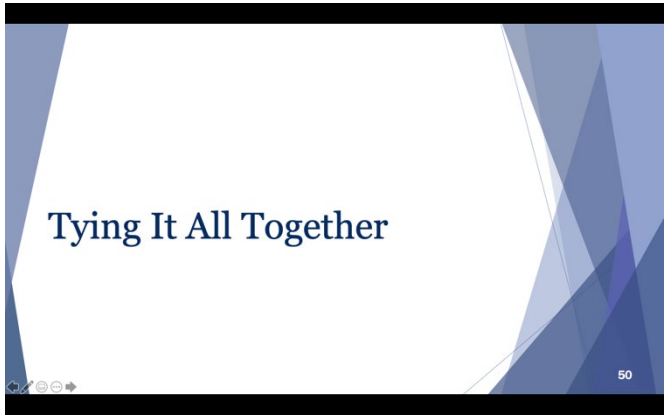
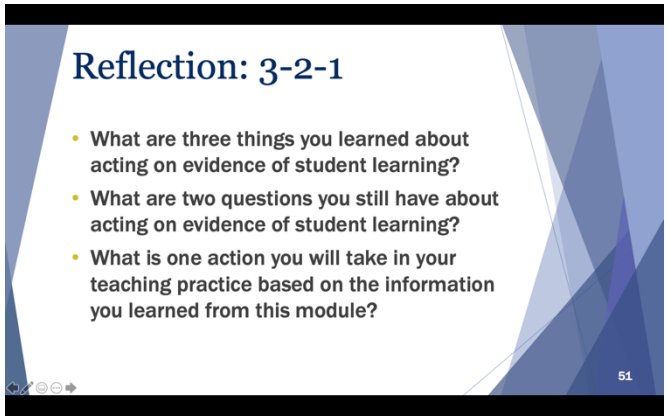
Slide #	Guidance	Slide Image
	how to use that information to engage students and support their learning. • Reflecting on strategies to understand student needs and preferences and identifying pedagogical actions that can be most effective for different types of learners. *The Integrating Social, Emotional and Academic Development (SEAD) within the Kentucky Academic Standards (KAS) for Mathematics resource might also be referenced here in relationship to fostering student self-awareness. (https://kystandards.org/standards-resources/mathematics-resources/integrating-sead-mathematics/)* **Next, facilitate a short discussion in which participants share what they have noticed about understanding and responding to students as learners and how they have used it to improve their practice.** Facilitators may want to consider using some of the following questions to support the discussion: • What kinds of observations about learning have helped you understand the learners in your class better? • How do you use what you know about your students to improve your practice? • What teacher actions and practices have helped you learn about your students and respond to what you learn in your teaching?	

Slide #	Guidance	Slide Image
48	**Introduce the content on the slide by providing the following information.** Module 2 of this series includes an exploration of the essential role that classroom culture plays in learning and the role of classroom culture as a foundation for effective formative assessment practice. Building and improving a classroom culture that sustains learning is an important aspect of teaching practice. By noticing factors that support and inhibit learning, teachers can investigate and respond to questions about the extent to which teachers are engaging in actions and practices that do the following: • Create a safe environment in which students can share their ideas, take risks and learn from mistakes. • Support students in setting goals and identifying next steps, taking ownership of their learning and in becoming self-directed learners. • Foster student engagement in and motivation about learning. • Signal a shared responsibility for learning that can support meaningful collaboration that is essential for peer- and self-assessment. *The Integrating Social, Emotional and Academic Development (SEAD) within the Kentucky Academic Standards (KAS) for Mathematics resource might also be referenced here in relationship to fostering student social awareness and relationship skills. (https://kystandards.org/standards-resources/mathematics-resources/integrating-sead-mathematics/)* **Next, facilitate a short discussion in which participants share what they have noticed about learning and classroom culture and how they have used those observations to improve their practice.**	

Slide #	Guidance	Slide Image
	Facilitators may want to consider using some of the following questions to support the discussion: • When have you noticed that aspects of your classroom culture have supported student engagement and learning? • When have you noticed that your classroom culture isn't supporting learning, and what changes did you make? • What do you look for in learning to give you information about how your classroom culture is influencing student learning? • What kinds of observations about learning have informed your classroom culture? • What teacher actions and practices have you changed in order to create a community of learners?	
49	**Now, facilitate a discussion in which participants reflect on how to not only notice learning but how to use it to improve their practices.** When facilitators know that participants are engaged in a PLC, they can directly connect the discussion to how the PLC can provide structure to put noticing about learning into practice. If participants are not generally involved in PLCs, facilitators can focus the discussion on informal ways that teachers can build in opportunities for individual reflection and collaborative sense-making with peers.	

Section 6: Tying It All Together

Table: Slides 49–51

Slide #	Guidance	Slide Image
50	Section introduction slide	
51	**Facilitate a discussion that allows participants to reflect on their own practices for gathering evidence of student learning.** Facilitators can use the questions on the slide or may wish to include their own questions.	

Slide #	Guidance	Slide Image
52	Please have participants fill out the survey to provide feedback. This survey must be filled out in order to receive EILA credit. https://docs.google.com/forms/d/e/1FAIpQLSc2PKmsmIcjvyxaRiVIgF74HzVO_2C7uiwvjFlhr2yTabNChw/viewform	