

Math Unit Internalization Protocol

This unit internalization protocol provides a structure for developing teacher understanding of how unit/module standards, tasks and assessments operate within its overall arc of learning. The steps and questions below support “intellectual preparation” for teaching a unit/module from a high-quality instructional resource (HQIR). By starting with unit/module internalization, teachers understand how lessons fit into the big picture prior to using the [Math Lesson Internalization Protocol](#).

Set aside 60-90 minutes for this unit-level protocol, working in collaboration with other teachers during professional learning time. **This protocol includes more steps and questions than can be fully considered during that time; therefore, consider prioritizing those most aligned to district/school goals and professional learning focuses for the current stage of implementation (launch, early or ongoing).** For example, educators could choose to focus only on the “Understand” section of the protocol during launch and early implementation to build initial understanding of the resource. A [note-catcher](#) has been provided as a tool to capture thinking.

While this protocol can be used with any high-quality instructional resource (HQIR), check with the vendor for specific protocols for use with your district- or school-selected instructional resource.

UNDERSTAND: Internalize Unit Structure and Do the Math

- 1. Read any overview or narrative for the unit/module to understand the “big picture” of the learning.** Doing this as independent “prework” and then beginning with a calibrating conversation can help maximize collaborative time.
- 2. Identify and understand the standards in the unit/module.**
 - **Learn more about the standards.** Utilize the [Kentucky Academic Standards \(KAS\) for Mathematics](#) to address the following areas to gain a deeper understanding of the standards for this unit.
 - **Structure:** Within the unit, identify how standards are bundled and which are targeted for assessment.
 - **Cluster Heading:** What is the broader understanding the standards play a role in building?
 - **Standards for Mathematical Content:** Examine each standard to define what students should understand and be able to do. Is the target of the standard conceptual understanding, procedural skill/fluency and/or application?
 - **Standards for Mathematical Practice:** Examine each standard to define how students will engage in mathematical thinking.
 - **Vertical Coherence:** How do the standards build off previous grade level standards? How will they prepare students for work in future grades?
 - **Within-Grade Coherence:** How do standards in this unit connect to each other?
- 3. Do the Math: Complete the end-of-unit/-module assessment using strategies students would be expected to use. Align items to standards, and then check your thinking in the teacher guide. (This can be completed prior to the PLC meeting in preparation for discussing questions below.)**
 - What do students have to know, understand and be able to do in order to demonstrate mastery in this unit/module?
 - What standard(s) is each item assessing?

- What strategies, representations and language will students be expected to use when solving these items?
- Which HQIR-embedded tasks will be used as common formatives for student work analysis within PLCs?

4. Skim the lessons to gain an overall sense of the unit's/module's progression.

- Which standards are addressed in each lesson?
- How do standards progress within the unit (developing procedural skills and fluencies building from conceptual understanding to application) to prepare students for the end-of-unit assessment?

5. Connect instructional practices to student learning.

- How are students introduced to skills and concepts?
- How do key instructional practices (posing purposeful questions, facilitating mathematical discourse, eliciting and using evidence of student thinking, etc.) help students move toward mastery?
- How are mathematical representations utilized to deepen understanding of the concepts and procedures and as tools for problem solving?
- How will rubrics and models of exemplary work be used to support student learning?

TAKE STOCK: Analyze Student Learning Data

6. Review data, student work from instruction, or other relevant assessments, and make connections to specific lessons.

- What are the strengths and dispositions of different student groups (demographic, readiness levels, etc.) in your classroom you want to build on in this unit/module?
- Anticipating the range of students' background experience, vocabulary and perceptions, what learning approaches would most effectively engage students in this unit/module?
- What potential gaps in student learning do you see? *If available, read any guidance provided by the HQIR for each relevant assessment item to understand how this might be addressed within the unit/module.* What ideas do you have about how to address those gaps?
- What misconceptions might students have about the unit/module content? What opportunities exist to address the misconceptions?

TAKE ACTION: Make Adjustments to Unit

7. Develop a plan for what you will need to do to set yourself and your students up for success in this unit/module. (When considering an adjustment, the [Adjusting High-Quality Instructional Resources Tool](#) offers guidance to support doing so effectively.)

- How will you plan for opportunities for students of all backgrounds and readiness levels to engage in productive struggle as they move toward achieving mastery? Which HQIR-embedded supports will you use to ensure all students can be successful (those needing additional supports and those ready for enrichment and/or extension)? What additional supports are available as needed?
- Note lessons for which you anticipate increasing and/or reducing allotted time. How many instructional days will the unit/module now take? How will you utilize "buffer time," which often occurs between units/modules, to address unmet student learning needs? How will you account for any adjustments necessary to stay within the locally determined pacing window?

- Referring to your district’s instructional vision and curriculum document, which instructional priorities could further support/enhance learning and the student experience (elements of project-based learning, inquiry-based learning, portrait of a learner competencies, cooperative learning, cognitive strategies, standards-based grading, etc.)?
- How will you gather and analyze student feedback on their learning experience?

Unit Reflection: Upon completion of the unit/module, this [Math Unit Reflection Protocol](#) can be used to guide debriefing of successes, challenges and areas of possible improvement to inform how the unit/module is taught the following year.