

Math Unit Internalization Protocol

Unit internalization is a core process of intellectual preparation that 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. Analyze how standards are embedded within the unit/module.** If support is needed in better understanding any element below, reference the [Kentucky Academic Standards \(KAS\) for Mathematics](#).
 - **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 formally assessed (e.g., end-of-unit assessments) 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.
 - **Within-Grade Coherence:** How do this unit’s/module’s standards fit within the course’s scope and sequence? How do standards in this unit connect to each other?
 - **Vertical Coherence:** How do the standards build off previous grade level standards? How will they prepare students for work in future grades?
- 3. Do the Math:** The end-of-unit/-module assessment can be completed prior to the PLC meeting in preparation for discussing questions below.
 - What standard(s) is each item assessing?
 - Based on the sequence of assessments within the HQIR, identify the embedded tasks that will be used as common formatives for student work analysis within PLCs.
 - How will you collaboratively coordinate the flow of support students receive in Tier 1 and Tier 2 during the module/unit aligned to the HQIR’s sequence of assessments/embedded tasks?

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

- 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?
- Which key lessons will be used for lesson internalization within PLCs for this unit (e.g., lessons featuring a complex task or instructional strategy/routine the PLC wants to practice or refine)?

5. Connect instructional practices to student learning.

- What are the specific instructional strategies and routines that will be used to support mastery of the mathematical skills and understandings?
- 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 relevant data (e.g., HQIR pre-assessment, student work samples) to determine student readiness levels and inform which students should receive additional support to access Tier 1 learning in the upcoming unit.

- What potential misconceptions and gaps in student learning do you see?
 - What guidance and resources do the HQIR provide to address those misconceptions and gaps?
 - How will Tier 2 be utilized to provide aligned support for upcoming learning in Tier 1?

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.)

- What student interests, strengths, and dispositions in your classroom do you want to build upon in this unit/module?
- 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.