Science Lesson Internalization Protocol

Lesson internalization is a core process of intellectual preparation that guides teachers as they prepare to teach a lesson within a high-quality instructional resource (HQIR). Allow 45-60 minutes, collaborating in grade-level teams, to work through the protocol. Specifically, this protocol assists teachers in:

- Understanding the lesson goals;
- Annotating the lesson to plan for all students to meet those goals; and
- Making modifications to the lesson based on student needs and planning pedagogical moves.

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 curriculum, check with your HQIR vendor for specific protocols for use with your selected instructional resource.

UNDERSTAND: Internalize Lesson Notes and Complete the Formative Task(s)

1. **Review the Standards: "Which performance expectation(s) (PEs) or part(s) of PEs from the *Kentucky Academic Standards (KAS) for Science* are addressed in this lesson?"**
   - Consider the Disciplinary Core Ideas within the lesson. What are the fundamental scientific ideas students will engage?
   - Consider the Science and Engineering Practices students will use to engage in scientific thinking throughout this lesson. Which practices leverage grade-appropriate elements of the Science and Engineering Practices (SEPs) to deepen students' understanding of how grade-appropriate Disciplinary Core Idea(s) (DCI) are developed throughout the lesson?
   - Consider the Crosscutting Concepts. Which elements of the Crosscutting Concepts (CCC) support students' sense-making and reasoning as they make connections within and across scientific disciplines?

2. **Complete the Formative Task(s): "What science skills/concepts from the performance expectation(s) are assessed in today's lesson?"**
   - Complete the formative task(s), applying the knowledge, understandings, skills and strategies students would be expected to use. (*This can be completed prior to the PLC meeting.*)
   - Compare answers and solution strategies to the teacher's guide. How do the questions require application of the knowledge, understandings and skills called for by the lesson's performance expectation(s) and learning goal(s)?

3. **Read and annotate lesson, including any teacher's notes: "What are students learning?"**
   - Determine the standards-based knowledge, skills and understandings students will develop by the end of the lesson.
   - Review the coherence of how this lesson builds on previous lessons and supports upcoming lessons.

This includes how the lesson aligns to the big ideas the unit/module and addresses its essential questions.

- Read the lesson learning goal(s) and compare it to the formative task(s) to understand the new learning students will engage in this lesson.
  - How will you explain to students why it is important that they learn this?
  - What success criteria will provide clear evidence that lesson goal(s) have been achieved?
  - What examples might help students envision what excellent work looks like?
- Review new vocabulary. What academic language will students need to acquire, and how will you support English learners in particular with that language?

4. **Read and annotate the lesson, including any teacher's notes: "How are students supported in their learning?"**
   - How will you communicate the learning goal(s) in student-friendly language? How will you ensure students understand the goal(s), success criteria and what success "looks like" (exemplars, student work samples, rubrics, etc.)?
   - What key instructional practices (driving question board, facilitating scientific discourse, eliciting and using evidence of student thinking, etc.) can help students move toward mastery?
   - What are the means of engagement (interactive structures, discussions, thinking routines, etc.) embedded to recruit student interest and to sustain effort during this lesson?
   - What key instructional practice or routine may need the support of lesson rehearsal?
   - Where will students share and receive feedback on evidence of their thinking?
   - 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?

TAKE STOCK: Identify Learning Gaps and Student Needs

5. **Understand your students, their strengths, and anticipate the challenges they might face.**
   - Identify and solve relevant problems/tasks on a pre-assessment students have taken *(this may include one or more questions given on a prior end-of-lesson assessment).*
   - Analyze student data from tasks leading up to this lesson. Based on your analysis, what supports for differentiation are required during the lesson? For students at lower readiness levels, what relevant data and insights are offered by aligned support from Tier 2?
   - Are there any specific misconceptions students may have about the lesson content? What guidance and supports are provided by the HQIR to address the misconceptions?

TAKE ACTION: Make Adjustments to Lesson

6. **Prioritize and adjust the lesson: "How can I tailor this lesson to the specific needs of my students?"** (*When considering an adjustment, the **Adjusting High-Quality Instructional Resources Tool** offers guidance to support doing so effectively.)*

- Identify local instructional priorities that 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.).
- Review or create structures to support English learners and students with learning and thinking differences, including how they can demonstrate what they know in multiple ways. Decide which supports to use universally. Work with inclusion staff (special education, gifted, etc.) on individual supports.
- If needed, make adjustments to tasks within the lesson to ensure students can connect science with relevant/authentic situations in their lives.
- If needed, make adjustments to tasks within the lesson to address learning gaps and misconceptions that are shared by most learners.
- If needed, adjust timing and/or cut out a portion(s) of the lesson confirmed as non-essential to students attaining the performance expectations(s) or lesson goal(s). Vendors can support confirmation.

7. **Reflect on the planned lesson: "Do the lesson adjustments and added supports align with the performance expectation(s) and the learning goals?"**
   - Revisit the standard(s)/learning goals(s) and formative task(s) to ensure they align with any lesson adjustments or added supports.
   - Determine what is most important to look for as evidence of student learning and refine lesson success criteria as needed.