

3-D Interim Assessments Guided by Coherence, Shared Models of Learning, and Attention to Equity



What is the Issue?

It is widely recognized that the paradigm shift for science education identified in *A Framework for K–12 Science Education* necessitates a significant redesign of science assessments if visions of the *Framework* are to be met. Further, the NGSS writers and assessment experts¹ put forth a vision for assessments² that included a range of strategies intended to answer different, but complementary questions for supporting classroom instruction and providing insight into science curriculum and instruction across multiple levels within the educational system (e.g., classroom, district, state). Specifically, a system of NGSS assessments has been proposed that starts from the “bottom up” at the classroom level, potentially integrated into instructional units, to help teachers make ongoing instructional adjustments with the aim of moving toward vertically coherent assessments at the local (e.g., district-level) and state-levels. To date, however, while resources and guidance have begun to emerge to support the development of classroom-level assessments and state collaborative efforts are attending to the need for state-level summative assessments, little emphasis has been placed on interim assessments. Given this, clarification is provided here for how teachers and leaders can think about interim assessments as a valuable part of a more balanced and comprehensive NGSS assessment system. Additionally, strategies for taking advantage of available interim assessment resources are also provided to begin to address this challenge.

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Why It Matters To You

- **Teachers** need assessment resources that can provide them insight into the extent to which their instruction is supporting student learning. Interim assessments can provide needed information that can be examined with other teachers and leaders within the same district to support targeted approaches for improving future instruction.
- **Local Leaders (school and district), in collaboration with teachers,** can use interim assessments to improve instructional or curriculum choices as aggregated data across classrooms and across schools are examined.
- **Development of interim assessments might be shared** across districts to better leverage scarce resources.
- **Results from interim assessments might be incorporated with those from large-scale state assessments** to provide better profiles of student learning.

¹ National Research Council. 2014. *Developing Assessments for the Next Generation Science Standards*. Washington, DC: The National Academies Press. ² National Academies of Sciences, Engineering, and Medicine. 2017. *Seeing Students Learn Science: Integrating Assessment and Instruction in the Classroom*. Washington, DC: The National Academies Press. *Corresponding author contact info todd.campbell@uconn.edu

What are Interim Assessments

- Interim assessments are common classroom assessments administered by groups of teachers in departments, schools, districts, or states. They can be used to elicit insight into students' facility with science and engineering practices, crosscutting concepts, and disciplinary core ideas in explaining phenomena or solving problems. Like formative assessments, they can provide information to individual teachers. However, unlike formative assessments they can be meaningfully aggregated to provide information at broader levels.
- For teachers, interim assessments can (1) generate meaningful student work to provide insight into whole group and small group performance, as well as variability among individual students' performance, (2) provide a measure to evaluate transfer from the learned context to a novel one, (3) be presented in novel ways to provide a more contextual measure of the performance of both test-wise and test-wary students, and (4) support teachers as they learn about 3D assessments and supporting student learning beside one another.
- For teachers and education leaders, interim assessments can (1) inform decisions about equity and access as similarities and differences are identified across classrooms, schools, and districts, (2) provide an anchor for professional learning that is situated around student work/artifacts, (3) be used to help students orient to 3-dimensional assessments, NOT as practice for assessments, but rather as a bridge to help students connect what they are learning daily with opportunities they'll have to engage in and demonstrate learning on summative assessments, and (4) serve as a 'link' or allow for calibration of vertical coherence between classroom and summative assessments when incorporated into a balanced assessment system.

Issues to Think About

- What coherent shared model of learning guides curriculum, instruction, and interim assessments (e.g., sociocultural theories of learning recognize that students bring important knowledge and interests connected to community that should help shape curricular storylines that connect student knowledge and interests to disciplinary knowledge and practices)? This happens in the context of responsive instruction that supports classroom communities of learners in shaping learning goals.
- Who will be involved in interim assessment teams (e.g., learning communities that involve teachers, local leaders, science coaches, department heads)?
- What is the purpose of your team's work with interim assessments (e.g., supporting classroom instruction; providing insight into curriculum and student learning)?

Recommended Actions You Can Take

To the extent possible, develop or select interim assessments that are integrated with high-quality curriculum when considering the following recommended actions:

- In teams of teachers and local leaders, select assessment tasks based on the usefulness of the information they reveal rather than on the topic or phenomenon they feature. Know what you want an assessment to measure before you begin the selection process.
- Decide on the scale at which you'd like to aggregate the results from interim assessments (e.g., across classes, schools, districts).
- Start by implementing existing interim assessment tasks from high-quality sources as opposed to attempting to create new ones, at least until the process becomes comfortable. The following websites offer example assessments that can serve as good starting points for resources adaptable for interim assessment work:
 - [Kentucky Through Course Tasks](#)
 - [Next Generation Science Assessment](#)
 - [SNAP Assessments](#)
 - [Wisconsin Performance Tasks](#)
- Plan time as a team to deliberate over the outcomes/artifacts that emerge from interim assessments to decide what it can tell the team about student learners. Be sure to take action to improve learning based on what is learned.

Attending to Equity

- **Assessments should value multiple modes of engagement and expression** by giving students opportunities to engage in open-ended and extended tasks. This authentic approach better aligned with how scientists work can lower the anxiety associated with high-stakes assessments. Also, using less language-embedded items may assist multilingual learners ([NAP, 2012](#)).
- **Assessments should be relatable and adaptable** to a wide range of student interests that allow them to draw on their unique backgrounds.
- **Assessments should focus on relevant phenomena or problems to elicit explanations or solutions** that are relatable to the intended audience and draw on student and community interests and expertise ([STT 31](#)).

ALSO SEE STEM TEACHING TOOLS

- [ACESSE Resource C: Making Science Instruction Compelling for All Students](#)
- [ACESSE Resource D: How to Craft 3D Classroom Science Assessments](#)
- [ACESSE Resource G: Learning to See the Resources Students Bring to Sense-Making](#)