



STATE SPOTLIGHT: MICHIGAN'S DISTRIBUTED SCIENCE ASSESSMENT SYSTEM

These resources are part of a series of reports about challenges facing statewide science assessments and innovative solutions states are enacting to meet those challenges.

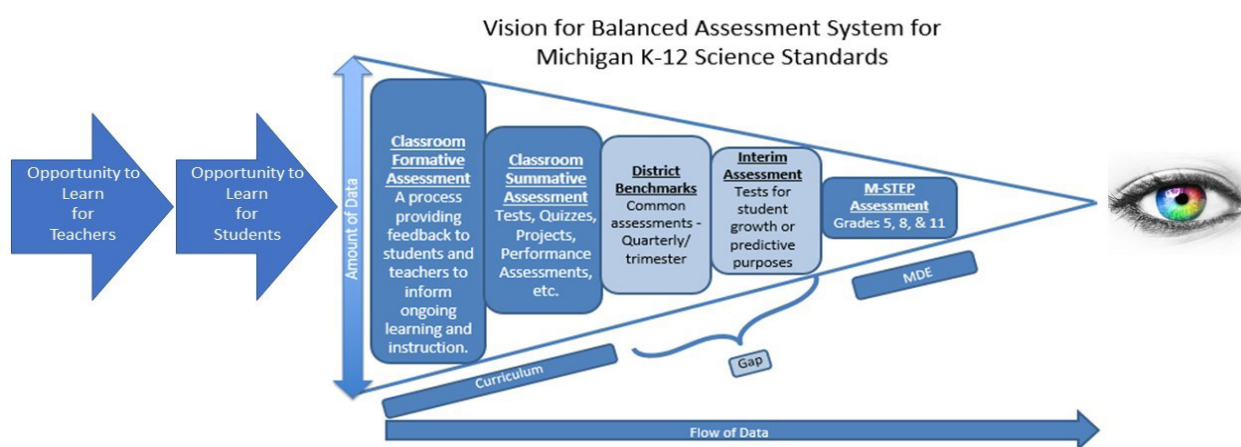
Transforming Science Assessment: Systems for Innovation is a series of resources designed to provide state education leaders with 1) information about **how states are currently pursuing statewide assessment systems in science**; 2) **analyses of what features influence different approaches**, with an eye to supporting state leaders as they make their own decisions regarding science assessment systems; 3) **detailed state profiles** that highlight how and why some states have made decisions regarding designing and enacting different examples of systems of assessment; and 4) **a how-to guide for policymakers** looking to enact systems of assessment in science. Some readers may find that it is helpful to review all the resources in this series; others might be particularly interested in a specific component of this report.

The suite of resources is organized in the following sections:

- A *high-level introduction* to science standards and assessment, the need for systems of assessments in science, and two major styles of approaches that are emerging from state efforts to turn the vision for a system of assessments in science into a reality
- *Deep dive into state-led assessment systems in science*
- *Deep dive into distributed assessment systems in science*
- *State Spotlights on systems of assessment in Nebraska, Kentucky, and Michigan (you are here)*
- *A guide for policymakers to help consider how to develop and implement assessment systems*

Introduction

In **Michigan**, the State Education Agency (SEA) is focusing on developing the statewide summative assessments in science while supporting local efforts to develop and implement three-dimensional assessments.



"The idea of an assessment system begins with a common sense point; no one assessment - or assessment occasion - can meet all the needs for information about what students know and can do in science" (p. 21 NASEM, 2017).

Figure 1: The Michigan SEA's Vision for a Balanced Assessment System

In Michigan, the vision for a balanced assessment system emphasizes the use of multiple sources of evidence, grounded in classroom experiences, to support inferences about student performance. Michigan routinely signals that while the state is focused on the statewide summative assessment in grades 5, 8, and 11, other components of the system need to be carefully considered, including classroom- and locally-based assessments.

Courtesy of the Michigan Department of Education

Michigan's System of Assessments At A Glance

- State-developed summative assessment in 5th grade, 8th grade, and high school
- Other components of the assessment system are supported by the state but must be locally led
- Central messages associated with the system:
 - Assessments are about gathering information to best support students and teachers
 - Three-dimensional assessment requires multiple sources of evidence of student performance at different times and a range of purposes, especially classroom-based performances that can most easily demonstrate how student thinking is evolving
 - The statewide summative assessment is only one piece of the puzzle, and will not give districts, teachers, and students all the necessary information to help support student achievement in science
 - All assessments should be grounded in the core innovations of new science standards, including a focus on making sense of phenomena and problems, and sense-making using the three dimensions

Why a Distributed System?

While Michigan's science leadership within the SEA is committed to science assessment systems, there are limited capacity and resources within the SEA to develop a comprehensive system of assessments that is state-driven. This, coupled with Michigan's geographic and demographic diversity and strong partnerships with districts and third-party organizations within the state, has led Michigan to focus on a distributed assessment system at this time.

Important State Contextual Factors

- Limited capacity and resources for science teaching, learning, and assessment within the SEA
- Limited SEA influence—or pathways for influence—over local- and classroom-level implementation levers, such as instructional materials or ongoing professional learning
- Wide student, teacher, and district diversity

State Role: Catalyzing System Development

In Michigan's system of assessments, the state plays three key roles to catalyze system development:

Designing and positioning the statewide summative assessment in science as part of a vision for a system of assessments

In terms of directly developing assessments, the SEA's role focuses on the science statewide summative assessments administered once per grade band. Michigan has worked to position the state efforts as just one piece of the puzzle, emphasizing that the statewide summative assessment is designed for specific purposes and uses, and will only provide some information about progress toward the standards—and, importantly, that other assessment opportunities, administered locally within classrooms, schools, and districts, will be important to provide comprehensive information about student and program progress (Figure 1). Michigan's strategies to position the statewide summative assessment as part of a system of assessments include:

- Coordinated messaging and communication throughout SEA communications to stakeholders. This includes state-led presentations and keynotes, webinars, newsletters and other regular communications from the SEA, and district-specific workshops, presentations, and communications.
- Professional learning for teachers, partners, and science leaders throughout the state
- Active participation—including advisory/board positions as well as meeting contributions—in science efforts across the state to ensure coherence. This includes SEA involvement with the Michigan Science Teachers Association, Michigan Assessment Consortium, Math-Science Centers, and ongoing research endeavors throughout the state.

Connecting to ongoing efforts at the classroom level to ensure that classroom assessments are complementary and coherent with other pieces in the system

Michigan's vision for their system of assessments begins with an emphasis on the role of classroom assessments. Knowing that 1) classroom assessments are most effective for teachers and students if they align to both standards and the curriculum being enacted, and 2) the SEA can currently play a limited role in the creation and selection of instructional materials within districts, Michigan has pursued other routes to influence the quality, availability, and use of classroom assessments. These include:

- **Connecting state- and research-based developers across state and classroom efforts.** Michigan is home to several research programs dedicated to NGSS instructional materials development and enactment (e.g., CREATE for STEM at Michigan State University) as well as research programs dedicated to science teaching, learning, and assessment through other avenues. The SEA strategically leverages these connections to support two-way influencing of classroom and state assessment efforts: researchers who are specifically involved in these classroom-based efforts are an important part of Michigan's summative assessment design, item writing, and content review processes for the statewide summative assessment, with the expectation that their classroom lens will directly influence the statewide summative assessment; conversely, state-research partnerships help researchers understand the scope, priorities, and limitations of the statewide summative assessment such that their efforts at the classroom level can be both consistent and complementary with the statewide efforts.
- **Leveraging commonly used state-developed classroom assessment resources.** The Formative Assessment for Michigan Educators (FAME) program, a collaboration between the Michigan Assessment Consortium and MDE, is a long-standing program with the goal of increasing formative assessment literacy across Michigan teachers through coaching and online communities. As a result, a large proportion of schools within Michigan are engaged with formative assessment programs in some capacity connected with FAME. The SEA is leveraging this existing connection within schools to push more science-disciplinary formative assessment practices that are consistent with the state's vision for implementing the NGSS.
- **Disseminating cross-state developed resources to support effective formative assessment in science.** Michigan's science leadership participates in the development of several cross-state resources for classroom-based assessments that can be broadly used and shared within the state. These include efforts with the Council of Chief State School Officers, Council of State Science Supervisors, Achieve, and research-practice partnerships.

Providing professional learning and support for districts designing local assessments

Knowing that district-level assessment decisions are a lynchpin in their vision for a coherent system of assessments, the SEA has made assessment professional learning for districts a key priority. This takes two major forms:

1. Inviting district science and assessment leads to participate in state-led efforts, such as item writing and content review for the statewide summative assessments
2. Providing district-specific professional learning for developing assessments for their specific needs

In both cases, the SEA is able to convey a common vision for those core features all assessments within the state should include; consistent understanding of the scope and limitations of the statewide summative assessment; and direct support for effectively designing rigorous, high-quality, and aligned science assessments that meet a specific purpose and intended use and can complement other information available. This is critical for the development and implementation of a coherent set of assessments with a distributed set of developers.

An Example of State-Signaled, District-Led Efforts

In Michigan, Wayne ISD has begun implementing new, district-wide assessment efforts that are intended to connect to and complement state-wide science assessment efforts:

Step 1: Understand the state design and structure district-level efforts accordingly. Wayne ISD’s science leadership began by attending SEA workshops and presentations about the statewide summative assessment design and implementation, focusing on understanding 1) what the vision for students’ science performance would look like, 2) what would be feasible to be assessed on the statewide summative assessment, and 3) which features need to hold true across all science assessments to maintain consistency with state efforts, and which features should be intentionally varied in order to provide more complementary and comprehensive understanding of student performance, particularly given the relative flexibility and classroom connection district-level efforts can leverage.

Step 2: Establish district priorities for local assessments. Back in Wayne, science leadership worked with other decisionmakers and teachers to assess their current implementation efforts and identify the major needs of the schools in the district. By surveying teachers and administrators, it became clear that while there were many needs for science assessment—better data to make decisions, benchmarking and growth indicators, etc.—one of the biggest needs from teachers was to see what “it” looks like. Teachers and administrators were primarily concerned about how to know if students were making progress toward the goals they would need to demonstrate on new statewide summative assessments. Wayne’s science leadership wanted to devise a systems of assessments that would meet that need while leveraging their ability to be innovative and flexible to push forward other science teaching and learning goals that likely wouldn’t be signaled explicitly by the statewide assessment. They decided to design a locally-developed task bank using a locally-determined platform with the following features:

Features consistent with the statewide summative assessment	Features that complement the statewide summative assessment
<ul style="list-style-type: none"> • Emphasize phenomena- and problem-driven assessments, including overlapping features of high-quality phenomena- and problem-based scenarios • Emphasize multi-question tasks that are consistent in approach to state clusters • Similar evidence-centered design approach • Similar ideas about rigor and alignment, including a focus on reasoning and the necessity and sufficiency of grade-appropriate practices, core ideas, and cross-cutting concepts • Focus on bundles of performance expectations, rather than individual PEs • Emphasis on fair and unbiased tasks 	<ul style="list-style-type: none"> • Directly accounting for students’ instructional experiences, including various degrees of transfer expected • Emphasizing integration across domains and diverse SEP/DCI/CCC combinations • More intentional targeting of SEPs and CCCs, including a wider range of expected sophistication within each dimension • More open-ended, classroom-embedded assessments that allow students to engage more deeply, make more decisions, etc. • More emphasis on social/group-assessments • Emphasis on the grade levels and content areas in which teachers felt they needed the most support

Step 3: Invite the SEA to lead an assessment development workshop. Because it was very important to Wayne ISD that their contributions to the assessment system for their teachers and students be consistent with the statewide summative assessment, they began their development process by asking the SEA to lead a workshop with teachers about assessment design, using the same tools and processes used for the statewide summative assessment. An outcome of this workshop was a set of assessment tasks that could be vetted, shared, and used across the district—the beginnings of a task library.

Step 4: Bring local assessment efforts to scale. Science leadership within Wayne used the state-provided materials regularly as part of workshops intended to support specific needs around classroom and district assessment development and use. This serves to scale the consistent and complementary features of assessments Wayne is prioritizing throughout the district through the lens of specific local needs; create a more knowledgeable educator base regarding assessment efforts locally and at the state level; and build both capacity of educators to develop and use local assessments as well as the bank of assessments itself.

Step 5: Next Steps. Wayne ISD continues to work on building capacity and the task bank, while planning for quality control and vetting processes as the work grows, guidance for teacher use of the tasks, mechanisms to connect the tasks into other implementation and professional learning processes within the district (e.g., PLCs looking at student work), and appropriate uses for interpreting the resulting information about student performance together with information from classroom-embedded assessments and the statewide summative assessment.