

Systems of Assessment to Support Multiple Uses and Users

Scott Marion, Center for Assessment
Bill Penuel, University of Colorado Boulder

Reidy Interactive Lecture Series



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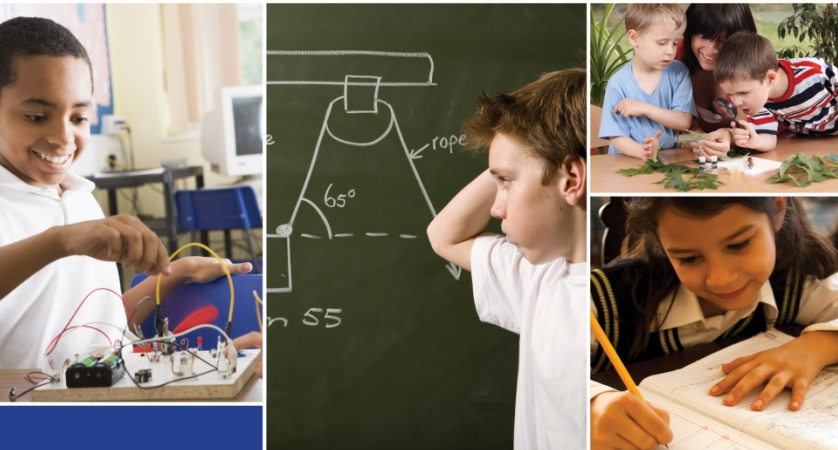
Key Recommendations of the NRC Committee

- Employ a system of assessments
- Start from the classroom
- Design rich, multi-part tasks
- Provide extensive support to educators



DEVELOPING ASSESSMENTS FOR THE NEXT GENERATION SCIENCE STANDARDS

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Major Reasons for a Systems Approach:

- Improve the quality and usefulness of information about NGSS learning and teaching
- Too much material to include on a single, end-of-year assessment: The standards are too many, and each one requires multiple components to assess.



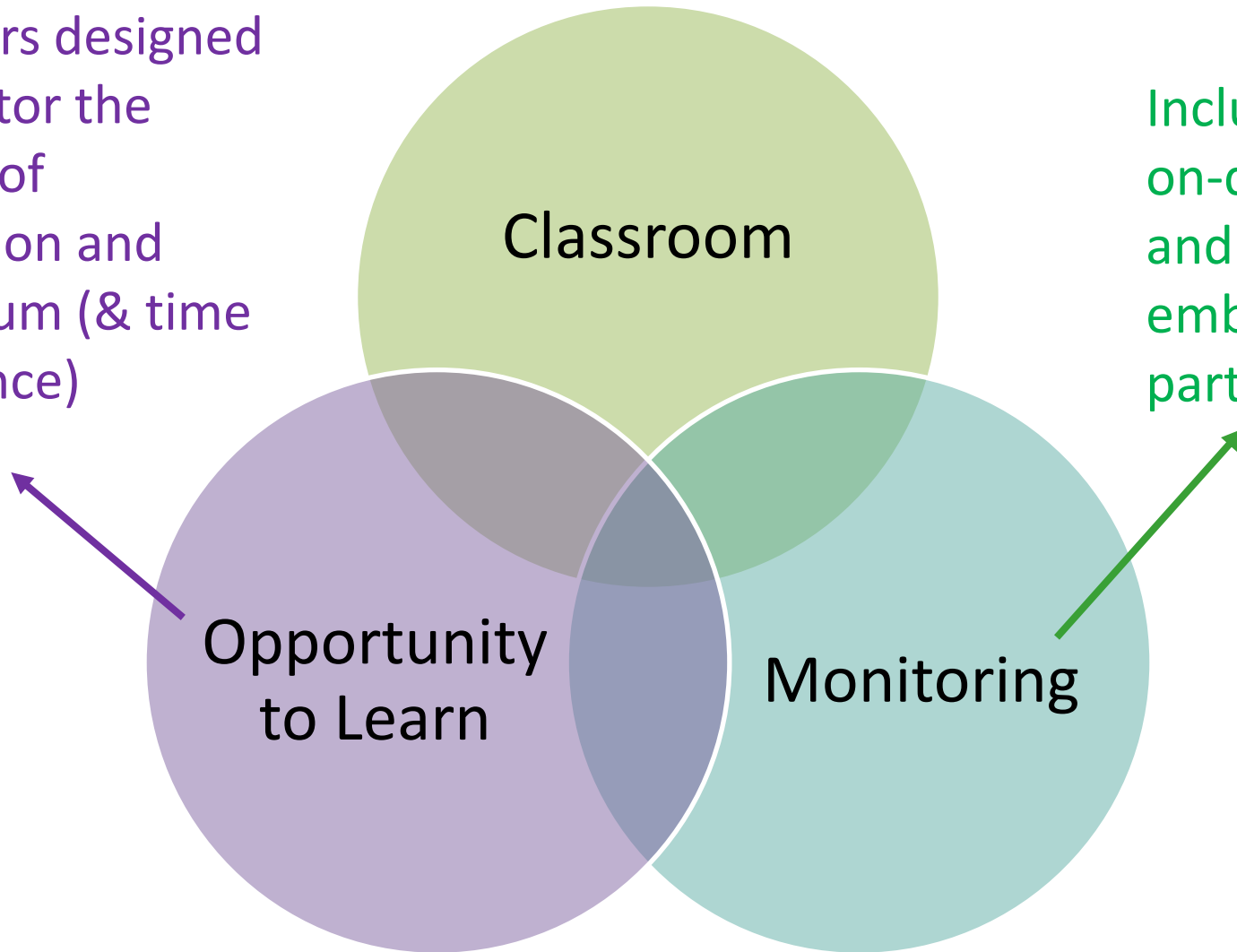
NRC Committee's Rationale for Systems Approach

The purposes for which information about student learning is needed should govern the design and use of assessments...

- guiding and informing teachers' day-to-day instructional decisions;
- providing feedback to students, as well as their parents and teachers, on students' academic progress;
- illustrating sound instructional and assessment activities that are consistent with the framework and NGSS;
- monitoring the science achievement of students across schools, districts, states, and/or the nation to inform resource allocations, identify exemplary practices, and guide educational policy;
- contributing to the valid evaluation of teachers, principals, and schools;
- determining whether students meet the requirements for a high school diploma; and
- evaluating the effectiveness of specific programs (e.g. new science curricula and professional development to support the transition to NGSS)

The 3 Parts Should Signify Important Learning Goals

Indicators designed to monitor the quality of instruction and curriculum (& time for science)



Includes both on-demand and classroom embedded parts

Beginning with the Classroom

...assessment systems have traditionally focused on large-scale external assessments, often to the exclusion of the role of classroom assessments. Achieving the goals of the framework and NGSS will require an approach in which classroom assessment receives precedence. This change means focusing resources on the development and validation of high-quality materials to use as part of classroom teaching, learning, and assessment, complemented with a focus on developing the capacity of teachers to integrate assessments into instruction and to interpret the results to guide their teaching decisions.

Several connected sets of questions can guide thinking about the components of an assessment system:

- What are the **purposes of the system** and how will it serve to **improve student learning**?
- What role will **accountability** play in the system?
- How will the assessment results serve **evaluation** and **improvement** functions?
- Given the intended use of each of the assessment components in the system, at **what levels** (i.e., individual or groups) **will scores and interpretative frameworks be needed**?
- How can the **opportunity to-learn** and other assessments improve **fairness** and **equity**?
- What level of **standardization** of different components is needed to support the intended use?

Balanced Assessment Systems to Serve Multiple Purposes



- Since *Knowing What Students Know* (Pellegrino, et al., 2001), we've seen increasing calls for Balanced Assessment Systems
 - Coherent
 - Based on a common vision and theory of learning
 - Comprehensive
 - Continuous

Assessment systems designed to serve multiple purposes require thoughtful planning about which data will be privileged at each level (Chattergoon & Marion, 2016).

A Call for Assessment Systems...

- The differing purposes and intended uses of large-scale and classroom level assessments make clear that **different assessments** are needed
 - standardized vs. dynamic/flexible
 - uniform vs. variable dates
 - independent vs. assisted (scaffolded) performance
 - delayed vs. immediate feedback
 - stringent requirements for technical accuracy vs. less stringent requirements

How do we keep these multiple assessments from becoming incoherent and inefficient?

But It is Really Hard!

- Coherent assessment systems often cross **political boundaries**, which leads to **incoherence** with respect to curriculum & instruction



Coherent assessment systems also require careful planning, deep contextual information, long-term collaborations, as well as knowledge about information flow that we might not fully understand yet to allow us to dynamically adjust system components

Political Boundaries and Balanced Assessment Systems

- **Coherence**

- Vision for domain competency and supporting learning toward that vision
- Curriculum
- Design specifications
 - Format, items
- Information flow

- **Comprehensiveness**

- Issues of implementation
 - timing and format
- Efficiency
- Resources

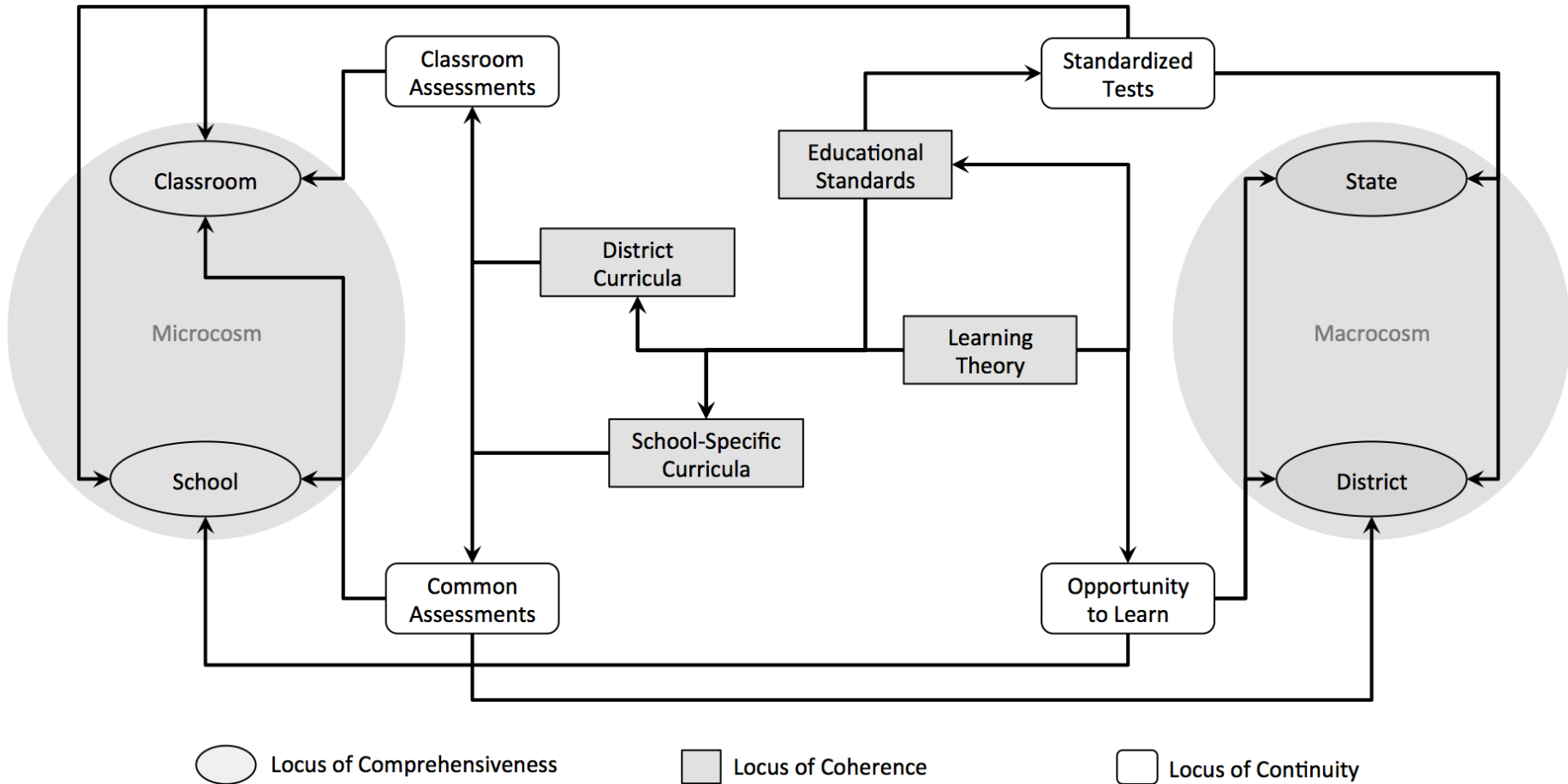
- **Continuity**

- Information flow
- Efficacy

Need to address issues that do not map neatly onto these criteria but critical to successful implementation of balanced assessment systems such as:

- Quality Control
- Assessment Literacy/Capacity

Macrocosm/Microcosm—information flow



Who's Responsible for Achieving Balance?

Microcosm: Classroom-Level Assessments



Macrocosm: System of Assessments



Is There a Way Forward?

Given these obstacles, what are some things that states can do to create more of a systems approach for assessing the NGSS?



We offer a few entry points and we look forward to learning from April and Sean

Different Entry Points for Including Classroom Tasks in a System

Provide high-quality tasks for local educators to optionally use in local instruction and assessment

Supply high quality tasks for **local grading/competency** determinations

Stand alone use reported as a low-stakes **indicator** or as part of an **local assessment** system to monitor progress through the year

Integrated with the **EOY** assessment to **enhance** the depth and breadth of science KSAs assessed

Stand alone use to support **generalizable** claims about student knowledge of the NGSS (i.e., no EOY test)

Increasing Technical Quality Requirements

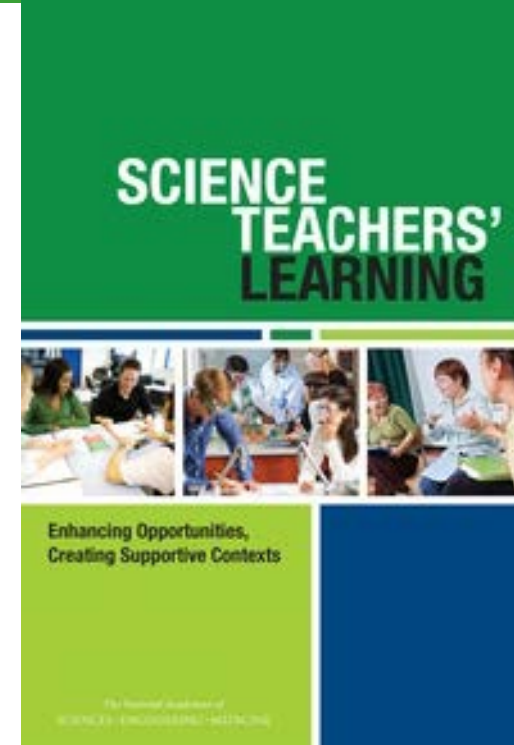
Changing Classroom Assessment Practices

- Teachers are already swamped with a multitude of assessment-related demands, therefore:
 - Efforts to enhance assessment literacy must be woven into **professional learning opportunities for curriculum development** associated with competency based learning systems
 - Teachers need better access to **materials that model teaching for understanding** that rely on extended instructional activities, formative tasks, scoring rubrics, and summative assessments used to evaluate learning of competencies
 - Educators **need extended support** while attempting to use these materials to teach in new ways

From Putnam & Borko (2000)

Supporting Teacher Learning to Adapt, Design, and Use 3D Assessments

- Programs of professional development are needed that:
 - Involve active participation of teachers who engage in the analysis of examples of effective instruction and the analysis of student work,
 - Are focused on relevant science content,
 - Align with district policies and practices, and
 - Are of sufficient duration to allow repeated practice and/or reflection on classroom experiences.
- Schools need to be structured to encourage and support ongoing learning for science teachers



Building a Coherent and Equitable System in Denver Public Schools

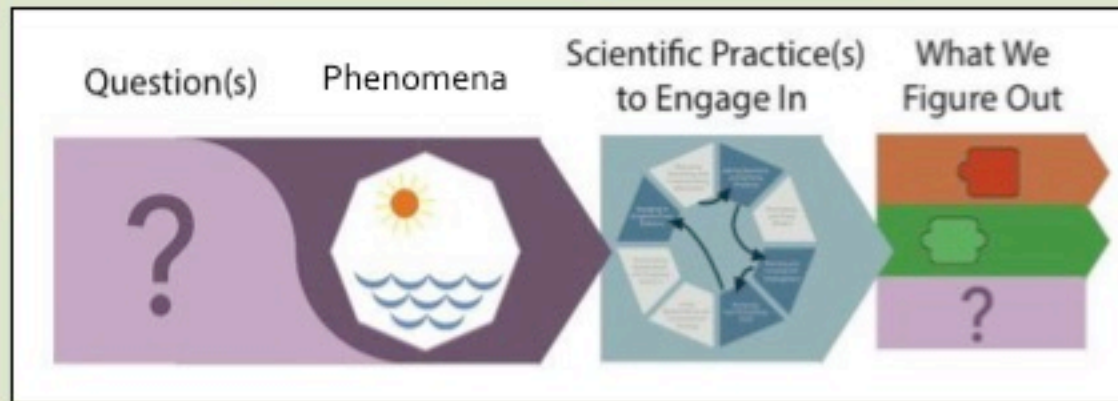
Driving Questions Board

Phenomenon Interest Survey

Consensus Building Discussions

Exit Tickets: What Did We Figure Out Today?

Exit Tickets: What Questions Should We Take Up Tomorrow



Eliciting Related Phenomena

Model Gallery Walks

Building a Model of the Phenomenon

Designing a Solution to a Problem

New, phenomenon-based biology units embed assessments to elicit interests, related experiences, and 3D learning performances.

Building a Coherent and Equitable System in Denver Public Schools

