Next Generation Science Standards and MRSEC K-12 Outreach

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What is worth evaluating?

"Would you tell me, please, which way I ought to go from here?"

"That depends a good deal on where you want to get to," said the Cat.

From Carroll, L., & Tenniel, J. (1923). *Alice's adventures in Wonderland and Through the looking glass*. New York: Macmillan.

Start with where you want to go.

Stage 1: Identify desired outcomes and results.

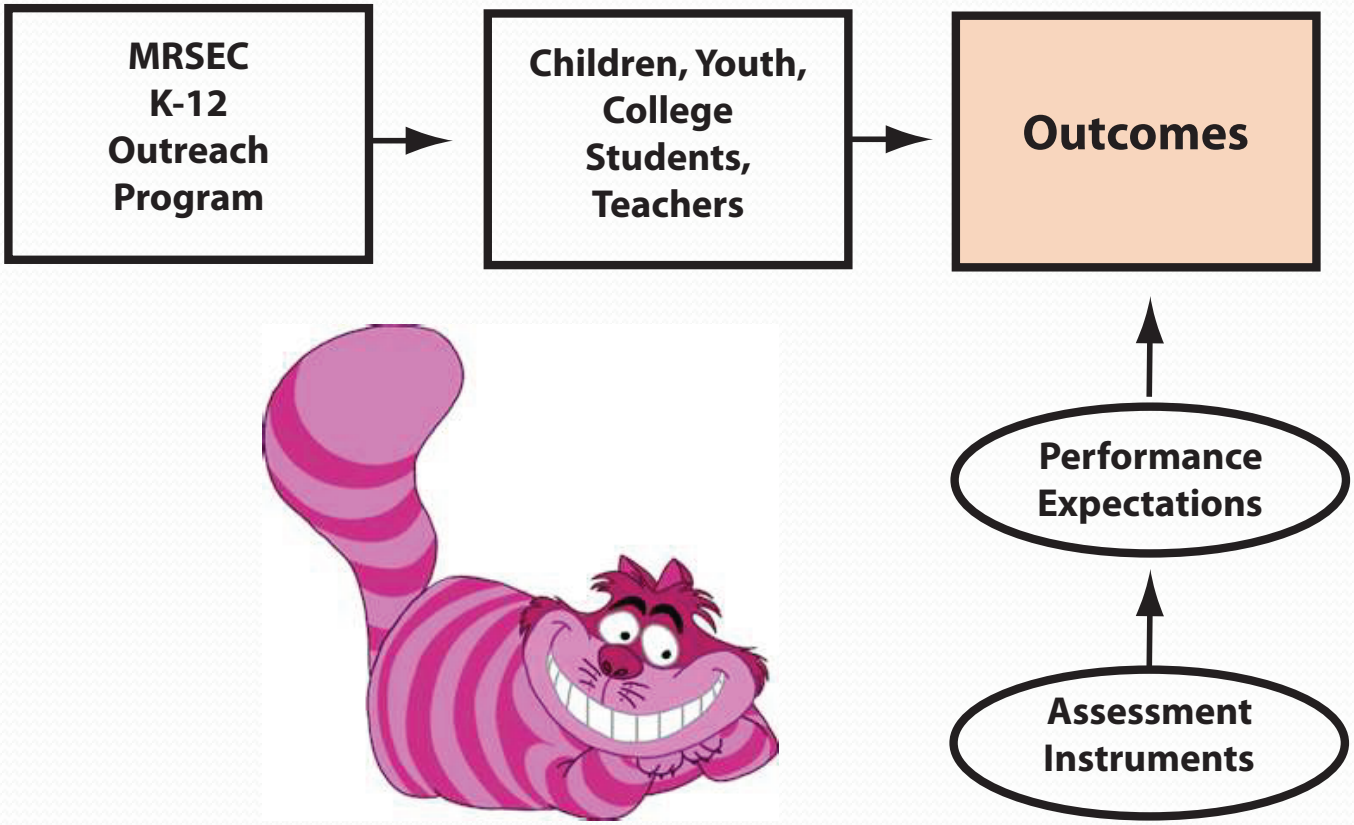
Stage 2: Determine what constitutes acceptable evidence of competency (assessment).

Stage 3: Plan instructional strategies and learning experiences

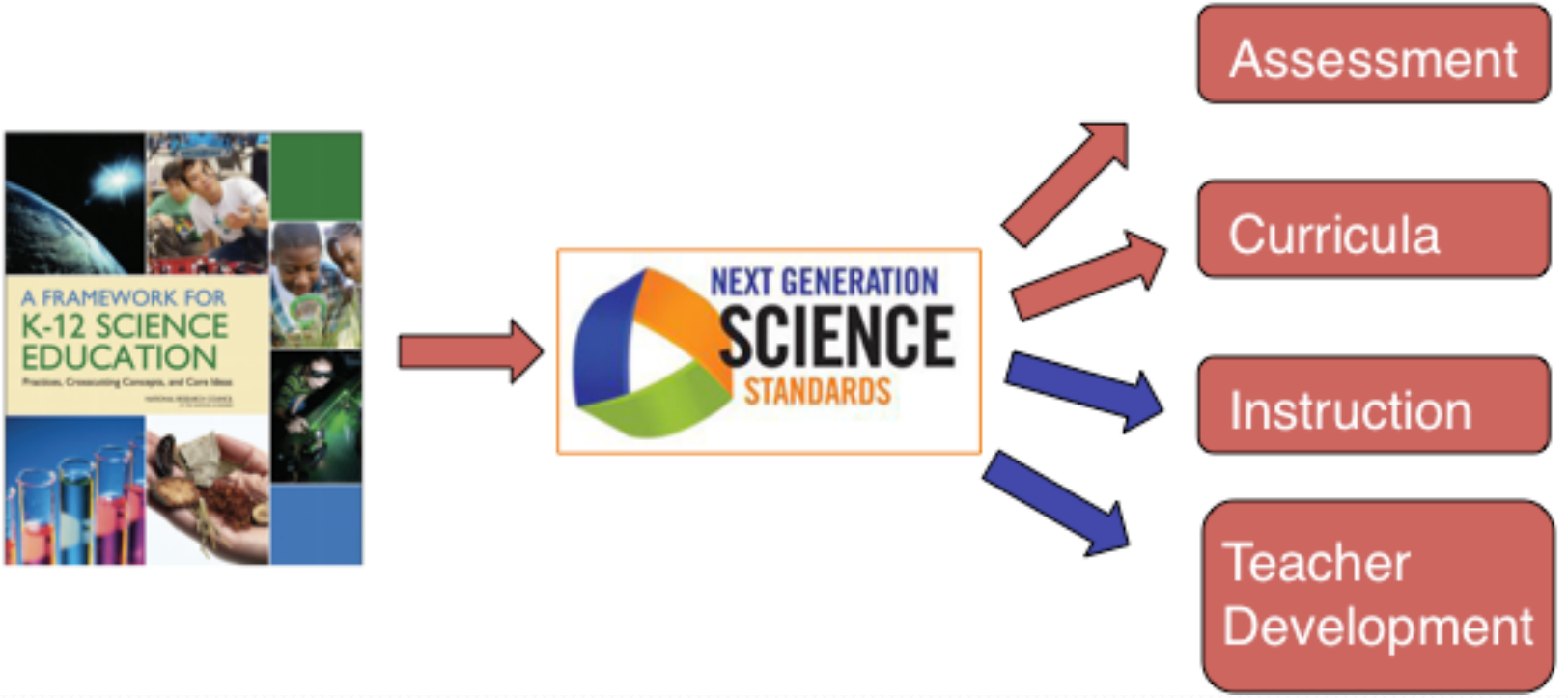
Stage 4: Assess students' competency through authentic tasks.

From Wiggins, G. P., & McTighe, J. (1998). *Understanding by design.* Alexandria, Va: Association for Supervision and Curriculum Development.

Start with where you want to go.



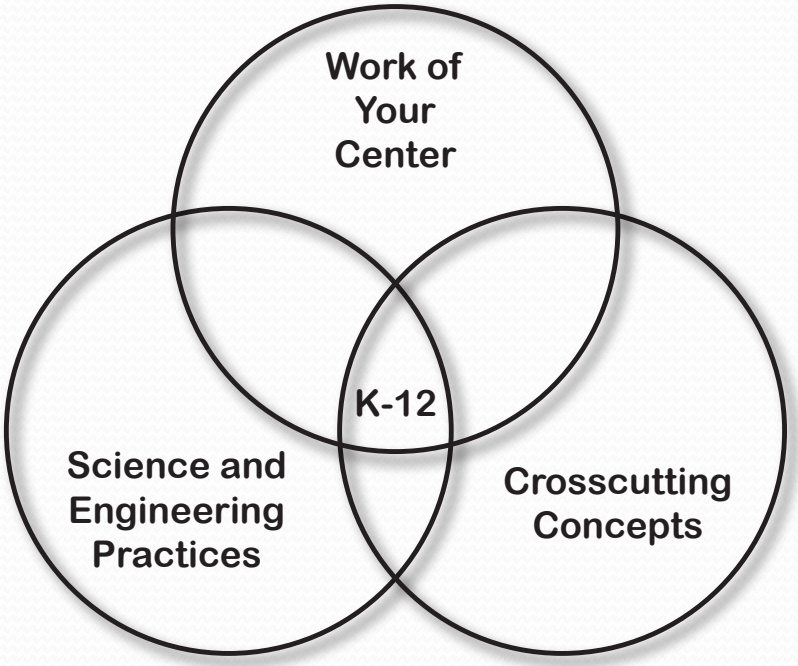
Next Generation Science Standards



- **Science and Engineering Practices**
- **Core Disciplinary Ideas**
- **Crosscutting Concepts**

What is worth evaluating?

MIT



University of Massachusetts

University of Massachusetts

MIT

Science and Engineering Practices

1. Asking questions
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. Using mathematics and computational thinking
6. Constructing explanations and designing solutions
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

Crosscutting Concepts

1. Patterns
2. Cause and effect
3. Scale, proportion and quantity
4. Systems and system models
5. Energy and matter in systems
6. Form and function
7. Stability and change of systems
8. Interdependence of science, engineering, and technology
9. Influence of science, engineering, and technology on society and the natural world