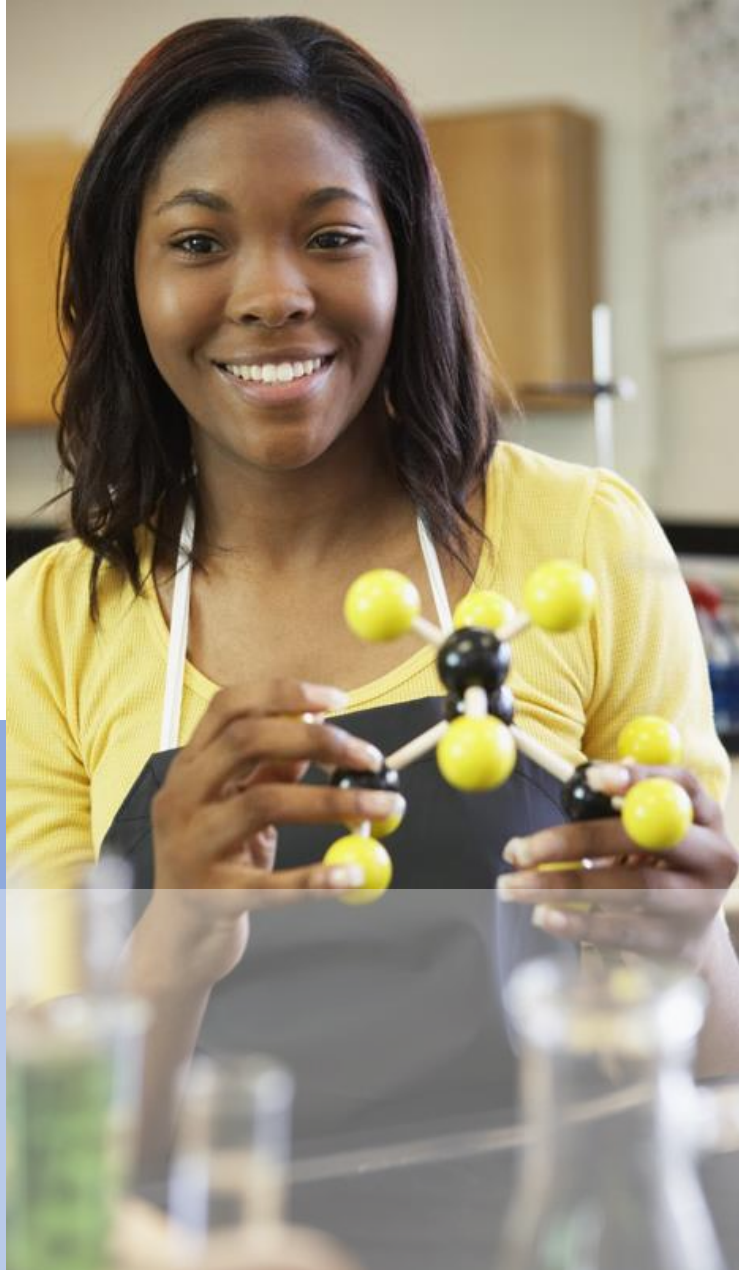




Implementation of NYS P-12 Science Learning Standards

Board of Regents P-12 Committee - December 11, 2023



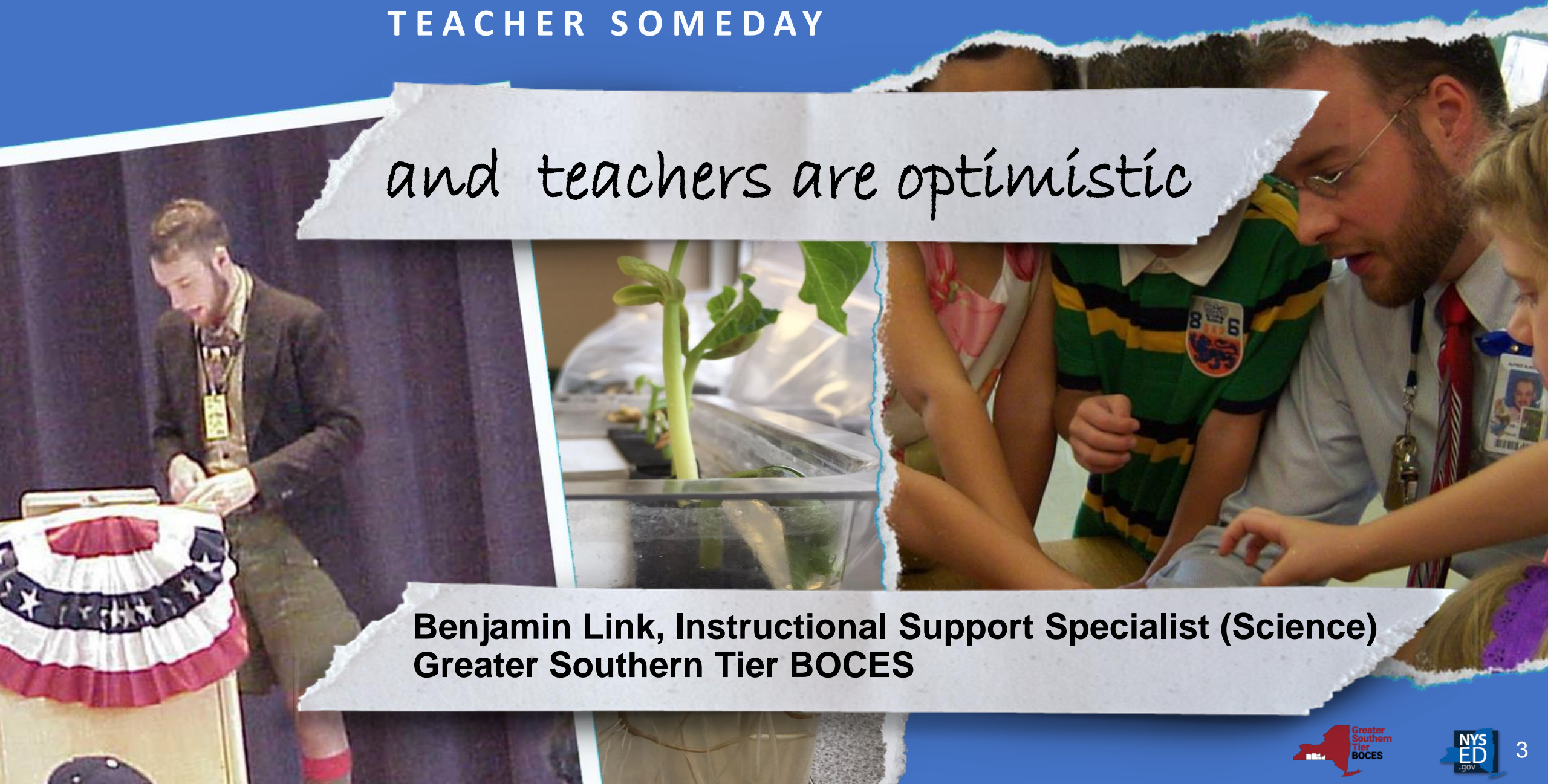


New York State P-12 Science Learning Standards (NYSP12SLS)

- Developed in collaboration with NYS educators and stakeholders over multiple years (2010-2016)
- Based on guiding documents grounded in the most current research in science and scientific learning
- Reflect the importance of every student's engagement with natural scientific phenomenon
- Reflect a shift towards a more modern and comprehensive approach to science

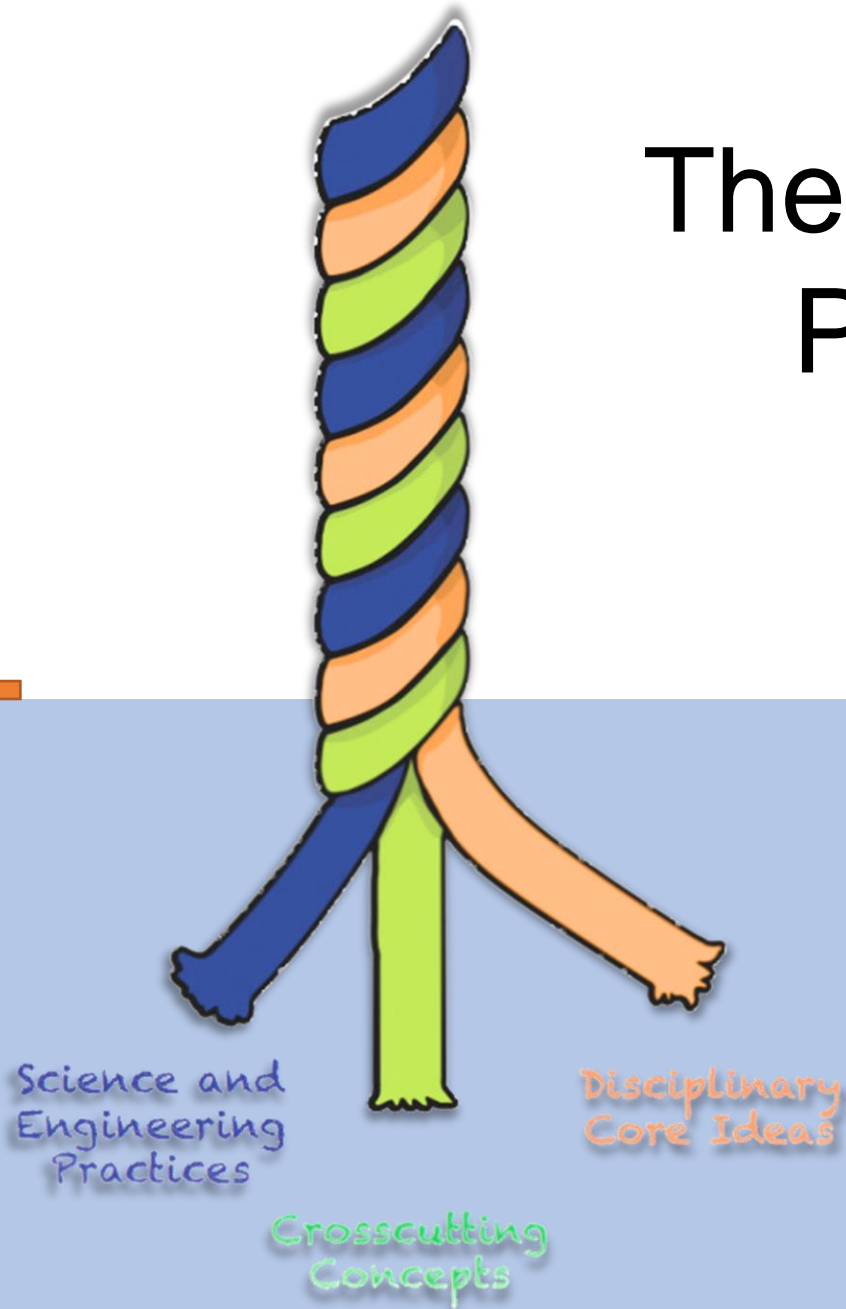
YOU'RE GOING TO BE A
TEACHER SOMEDAY

and teachers are optimistic



**Benjamin Link, Instructional Support Specialist (Science)
Greater Southern Tier BOCES**

The Three-Dimensionality of our Performance Expectations

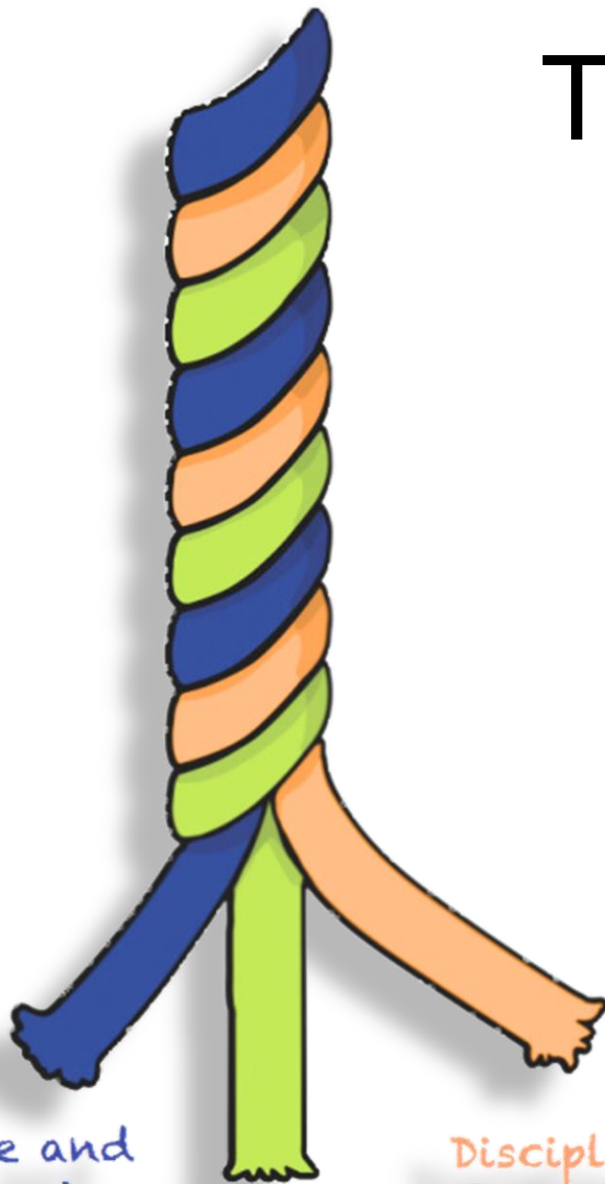


Disciplinary Core Ideas (the content)

Science and Engineering Practices (how we explore)

Crosscutting Concepts (thinking, connections, and sensemaking)

The Three-Dimensionality of our Performance Expectations



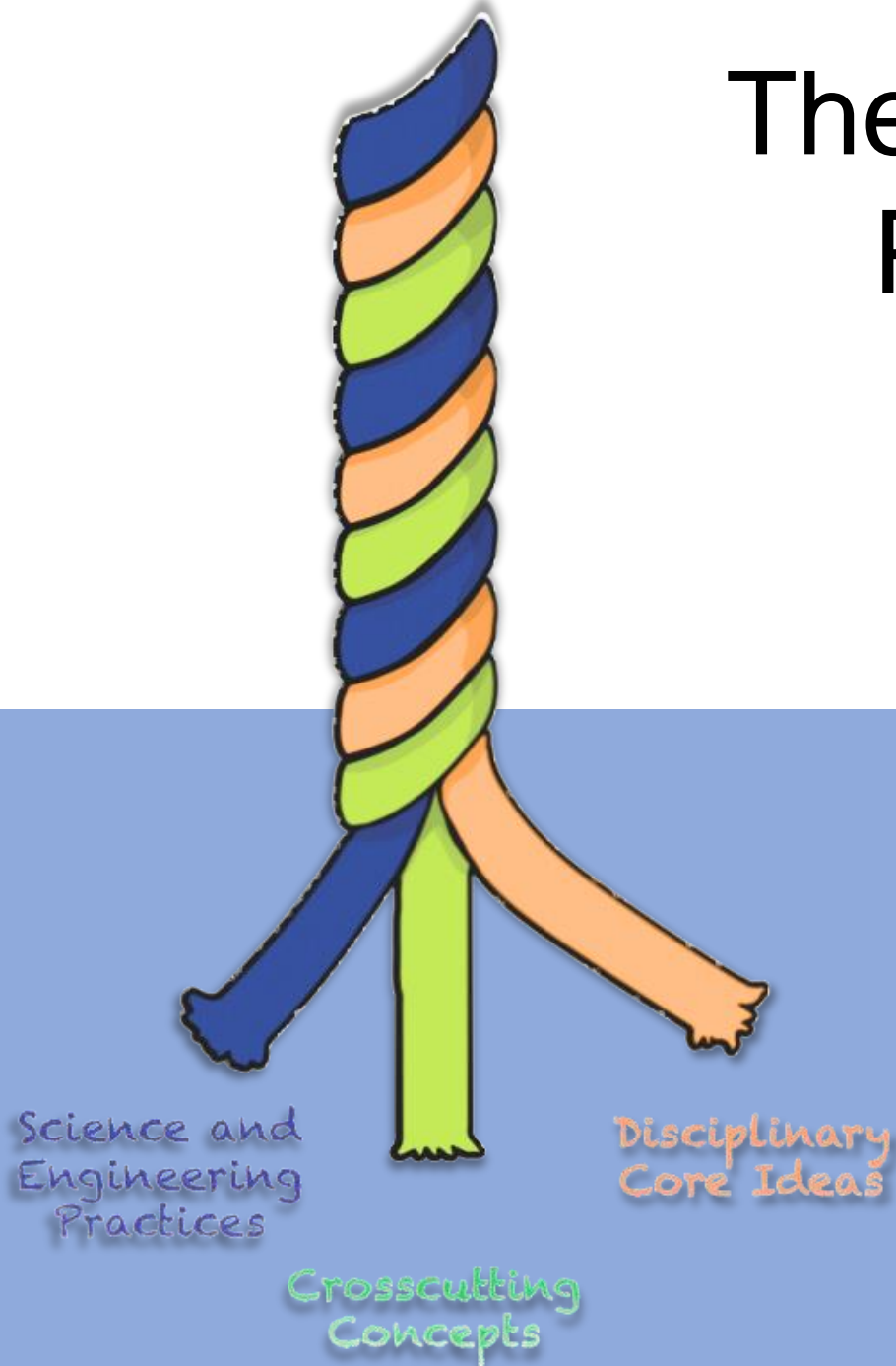
Science and
Engineering
Practices

Disciplinary
Core Ideas

Crosscutting
Concepts

Develop and use a model of the Earth-Sun-Moon system to describe the cyclic patterns of lunar phases, eclipses of the Sun and Moon, and seasons.

The Three-Dimensionality of our Performance Expectations

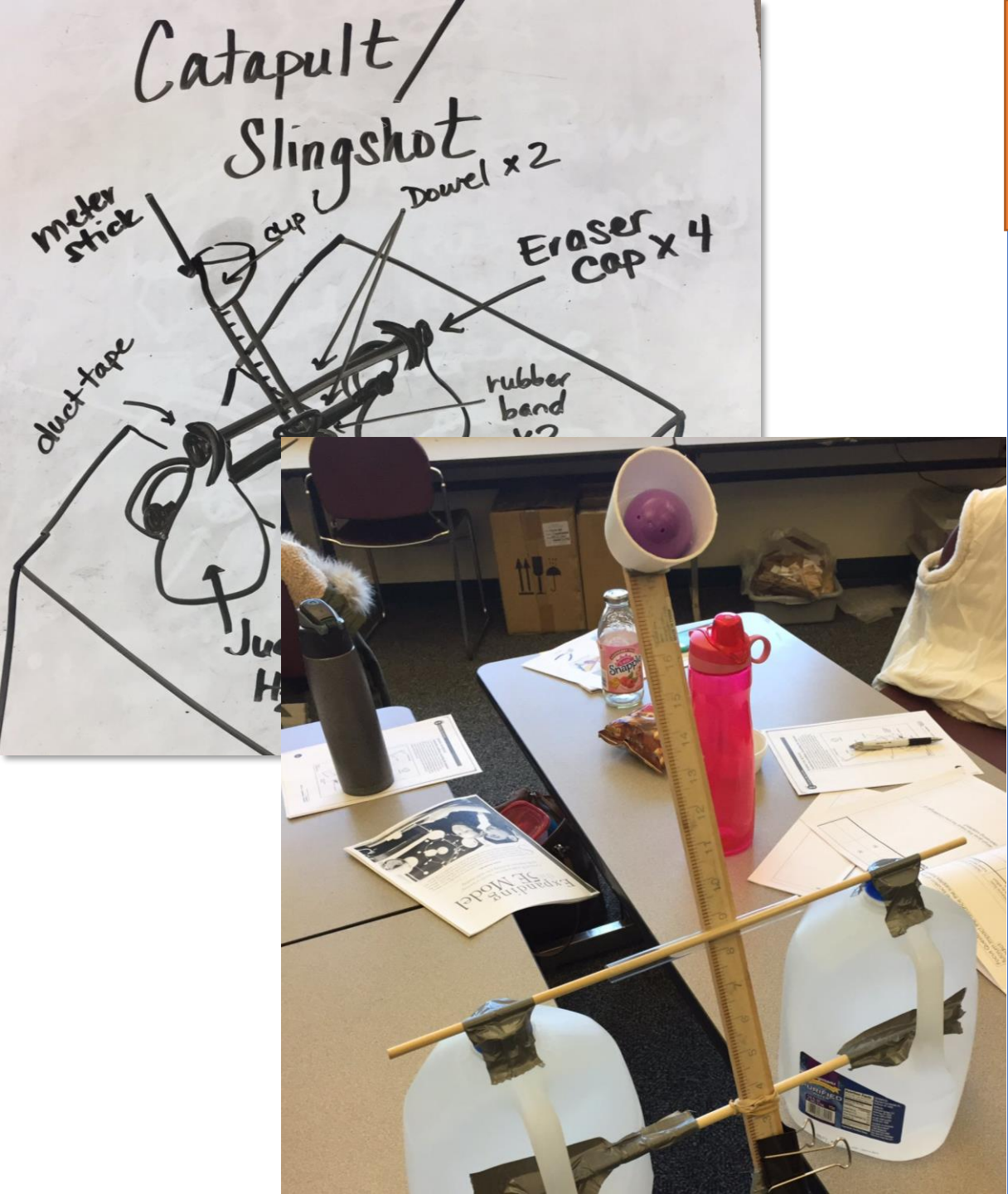


Develop and use a model of the Earth-Sun-Moon system to describe the cyclic patterns of lunar phases, eclipses of the Sun and Moon, and seasons.

Phenomena-Based Instruction

- Question-Driven Inquiry
- Hands-On Investigations
- Interdisciplinary Approach
- Collaborative Learning
- Field Trips and Outdoor Learning

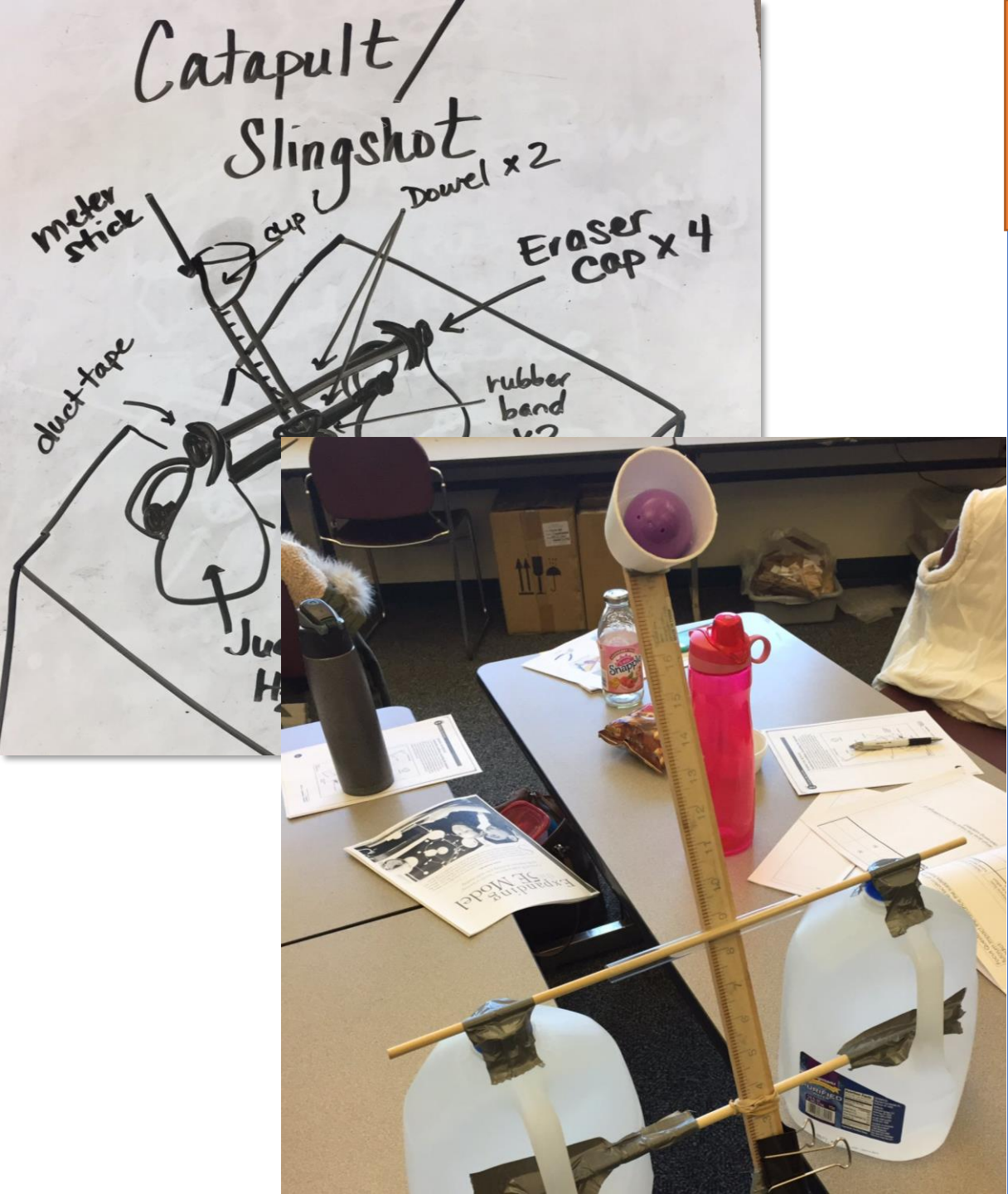




Supporting the Shift

PUTTING A PLAN INTO PRACTICE

- NYSED
- SCDN Science Framework Group
- BOCES and Big 5
- School Districts
- Teachers
- Student Scientists



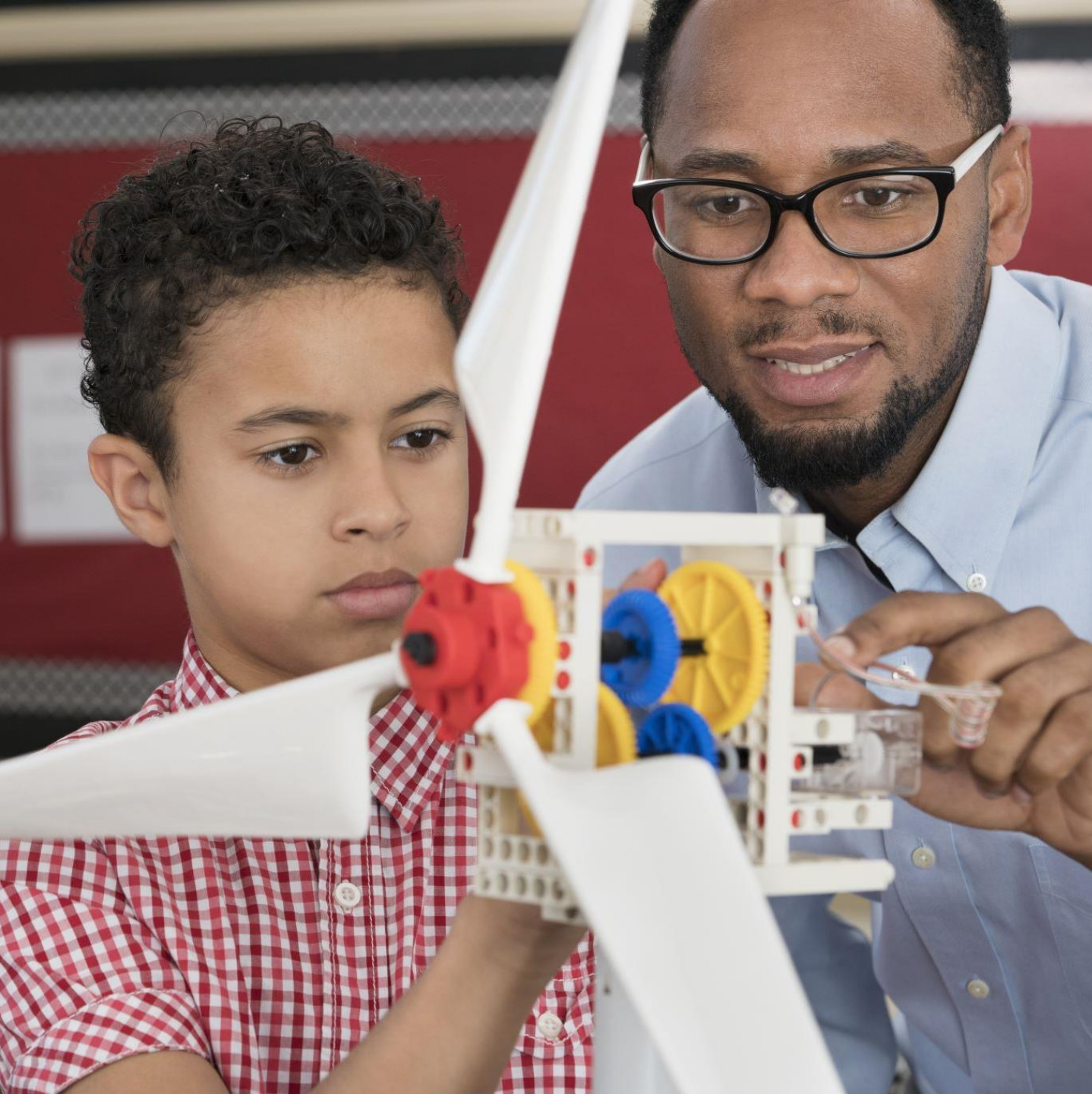
Supporting the Shift

PUTTING A PLAN INTO PRACTICE

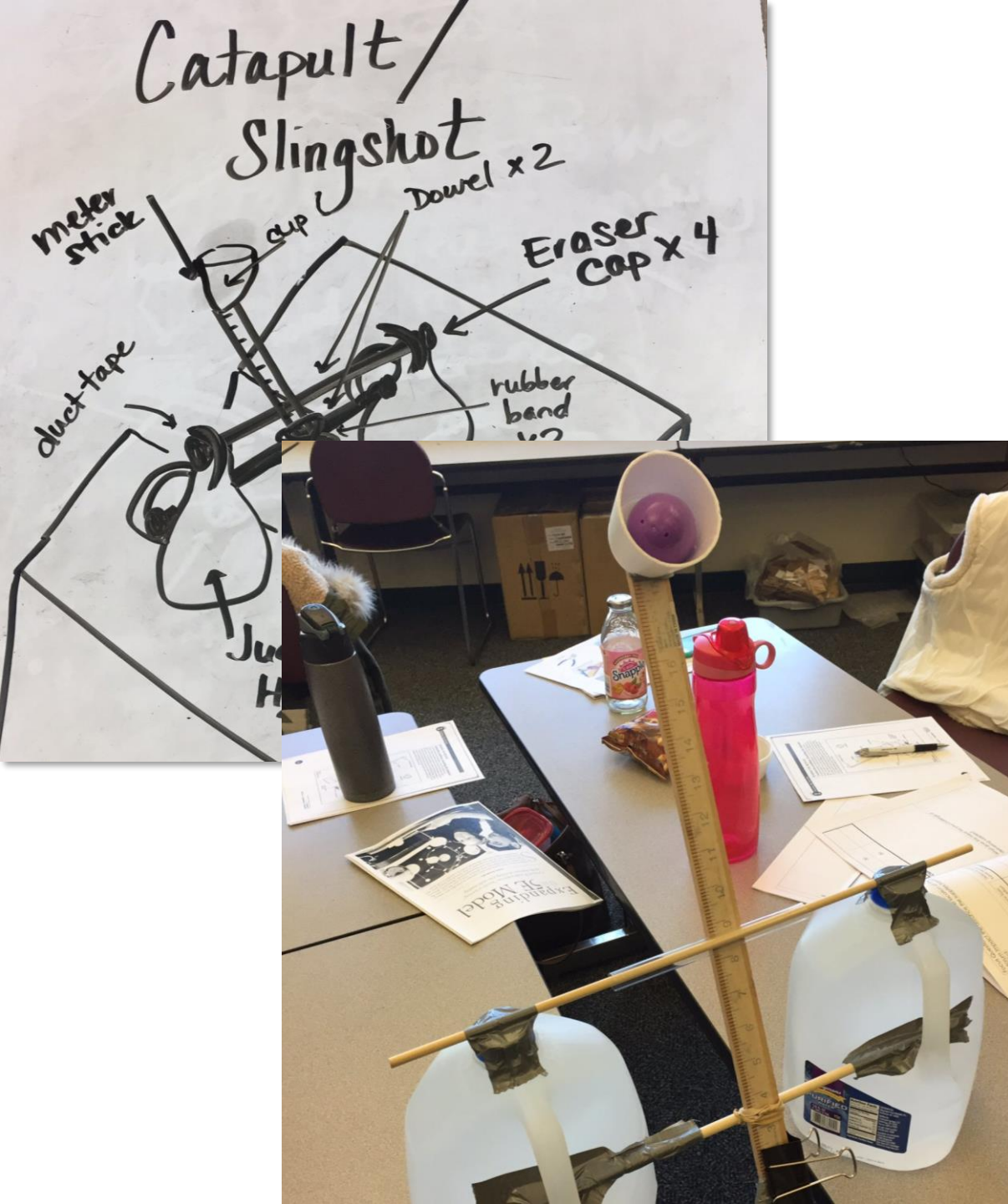
- Student Scientists
- Teachers
- School Districts
- BOCES and Big 5
- SCDN Science Framework Group
- NYSED



GROWING SCIENTISTS



SCIENCE IS A VERB



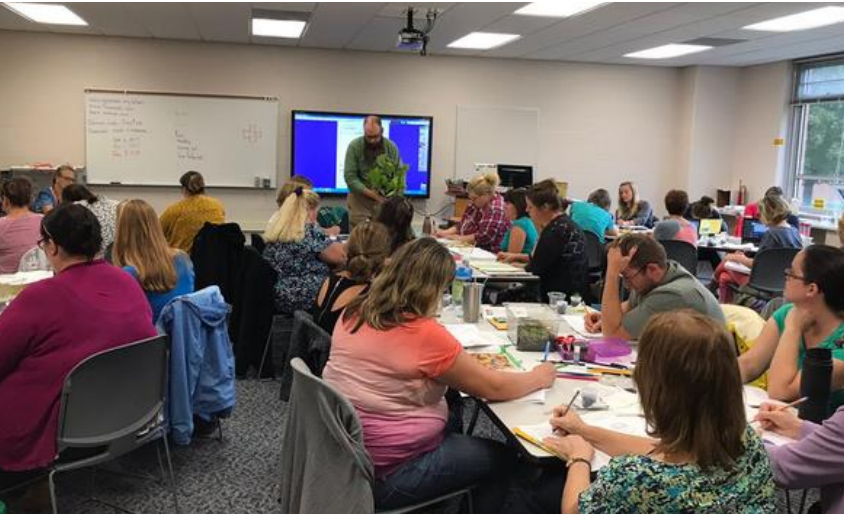
Supporting the Shift

PUTTING A PLAN INTO PRACTICE

- **NYSED**
 - Performance Expectations
 - Performance Level Descriptions
 - Required Investigations
- **SCDN Science Framework Group, BOCES, and Big 5**
 - Professional Learning
 - Embedded Support

Supporting the Shift

PUTTING A PLAN INTO PRACTICE



Embedded Support

- Co-Teaching
- Modeling



Trainings

- Curricular
- Pedagogical
- Required Investigations



Materials Support

Assessment Shifts

Question Clusters & Storylines



Questions on the new assessments will be presented in small batches called clusters.



Clusters are questions that are linked together to assess related content and allow for a primary stimulus to drive the development of multiple items that follow a theme or storyline.



Storylines provide a coherent path toward assessing the three dimensions - disciplinary core ideas, crosscutting concepts, and science engineering practices - attached to a phenomenon.



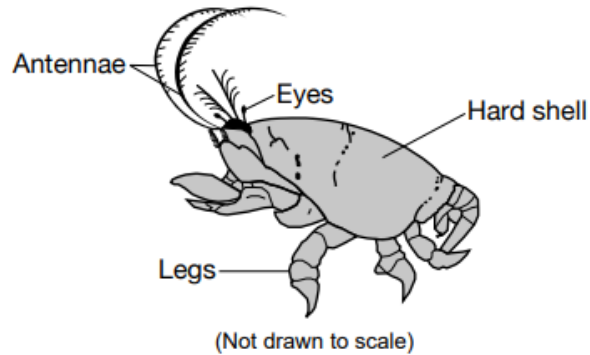
Assessment Shifts in Practice: Sample Questions

- Sample question clusters, including translated versions, are available on the [Office of State Assessment's webpage](#).
- Sample question clusters are also available in the [CBT practice tests](#) so that students and teachers can interact with them using the computer-based platform.
- The [Elementary-level Science Sample Questions](#) illustrate the assessment shifts.



MST Grade 4 Question

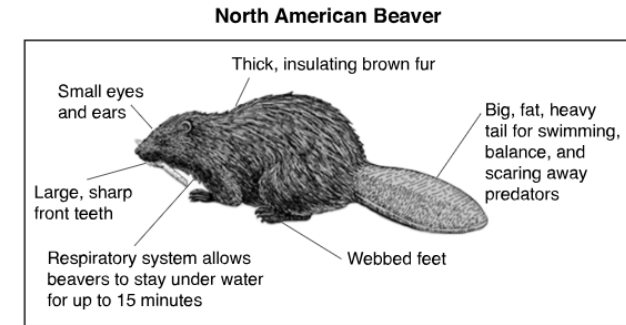
The common sand crab lives within the breaking waves of sandy beaches. To feed, it quickly burrows backwards into the sand with its powerful legs, and leaves only its feather-like antennae sticking out to remove small food particles from the water of the waves.



Explain how the antennae could help the sand crab survive in its environment. [1]

NYSSLS Grade 5 Sample Question

Base your answers to questions 1 through 6 on the information below and on your knowledge of science.



Identify **one** external structure that functions to support the behavior of the beaver in its habitat. Explain how this structure supports the behavior of the beaver. [1]

External Structure:

Explanation:

← → + - x ÷ = < > ☰ ☱



NYSSLS Grade 5 Sample Cluster – Question #1

4-LS1-1.

Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

Engaging in Argument from Evidence

Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s).

- Construct an argument with evidence, data, and/or a model. (4-LS1-1)

LS1.A: Structure and Function

- Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1)

Systems and System Models

- A system can be described in terms of its components and their interactions. (4-LS1-1), (LS1-2)

MST Grade 4 Question

When the food supply in an area ***decreases***, many of the deer living there will

- A move to a new habitat
- B change their color
- C hibernate
- D reproduce

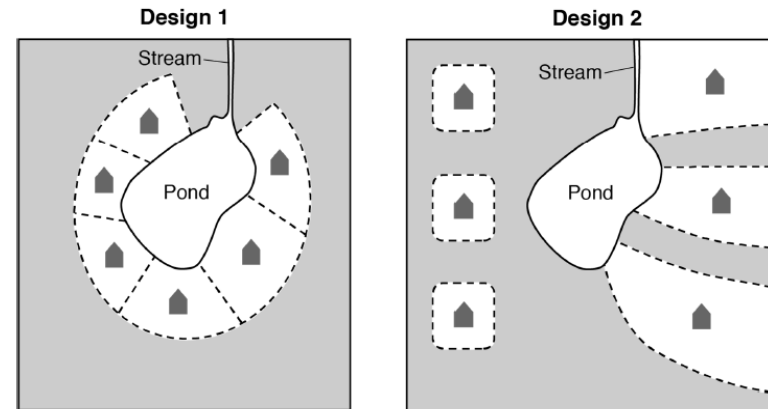
NYSSLS Grade 5 Sample Question

A company wants to clear some forested areas around the pond and stream inhabited by beavers to build six houses.

The criteria for the project is listed below:

- Clear six forest sites to build houses
- Have a view of the pond from some houses
- Maintain a forest area between each house for privacy
- Maintain the beaver habitat and population

The models below show the two designs for the project.



Which statement best explains why one of the designs is more appropriate for maintaining the beaver population around the pond?

- A Design 1 is more appropriate because it provides easy access to the food in the forested areas.
- B Design 1 is more appropriate because it provides a view of the pond from all the houses.
- C Design 2 is more appropriate because it provides easy access to the food in the forested areas.
- D Design 2 is more appropriate because it provides a view of the pond from all of the houses.

NYSSLS Grade 5 Sample Cluster – Question #5

3-5-ETS1-2.
Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

Constructing Explanations and Designing Solutions

Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems.

- Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design problem.

ETS1.B: Developing Possible Solutions

- Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions.
- At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs.

Influence of Science, Engineering, and Technology on Society and the Natural World

- Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands.

Thank You

Questions?

