

The background features a light teal color with abstract, overlapping geometric shapes. On the right side, there is a large, stylized diamond or arrow shape pointing downwards, composed of several teal segments separated by white lines. The overall design is clean and modern.

# The Consortium for Achievement in Mathematics and Science (CAMS)

## **CAMS Peer Teacher Workshops**

# The CAMS Context

- Middle school science grades 6 – 8
- Four NJ school districts
- District partners adopted inquiry-based science modules that address the state standards

# Our Teachers...

Vary in their preparedness to teach science:

- Generalist certification
- New to teaching
- New to teaching science
- New to teaching science at a particular grade level

- Teachers' implementation of modules often focused on the mechanics of implementing the materials, but the key science content sometimes got lost

# We believe that...

Teachers need to have:

- An understanding of the content in the instructional materials, how the concepts relate to each other, and to the big ideas in science
- An understand of how the activities in the materials develop those concepts
- An understanding of how students think about and learn the concepts in the materials.
- The skills to effectively use the activities in the materials (e.g., questioning, diagnosing student thinking).

# We believe that...

- Teachers have different learning needs before and after they use a module for the first time.

# Peer Teacher Workshops

- Curriculum-based professional development experiences (e.g., FOSS, STC)
- Facilitated by Instructional Teams typically consisting of teachers experienced with the instructional materials and a content expert.

# Peer Teacher Workshops

- Tier One:
  - teachers using the modules for the first time
  - primary focus is on using the materials
- Tier Two:
  - teachers more experienced with using the module
  - focus on the content, how the content is developed in the materials



Experiences for teachers were intended to develop teachers’:

- understanding of the content in the instructional materials, how the concepts relate to each other, and to the big ideas in science
- understand of how the activities in the materials develop those concepts
- understanding of how students think about and learn the concepts in the materials.
- skills to effectively use the activities in the materials (e.g., questioning, diagnosing student thinking).

- Over the course of the 4-day workshop, teachers engaged in activities from the modules as learners:
  - Instructional Teams selected investigations that addressed content that would likely be challenging for teachers and students
  - Teachers were provided with content explanations from content experts as questions surfaced.

- After a series of investigations were completed, teachers discussed how concepts were developed across those lessons, e.g., in which activities is the concept developed, mastered, reinforced.

- Instructional Teams modeled effective instructional strategies
  - Use of talk and argument
  - Making thinking visible
  - Reliance on evidence to support claims
  - Questioning strategies that promote sense-making

- Participants explicitly explored effective instructional strategies in the context of the instructional materials

- Tools/strategies were provided to support a focus on content in instruction

- Curriculum Topic Study
  - Resources that provide information on students' naïve conceptions and to identify big ideas in the specific science content in the instructional materials.

- **Module Content Framework**
  - Identifies the science ideas students are expected to learn in the materials and how those ideas relate to big ideas in science
- **Content Storyline Matrix**
  - Describes how each of the student ideas is developed through the module lessons
  - Includes information about in which lessons students develop, master, and reinforce a concept