

# ASKING QUESTIONS & DEFINING PROBLEMS

**Students make** careful observations of scientific phenomena and authentic problems in the local and global community.

**Students craft** meaningful questions or define problems based upon their observations.

**Students develop** and use models to aid their thinking about phenomena and problems.

# PLANNING & CARRYING OUT SYSTEMATIC INVESTIGATIONS

**Students apply** scientific inquiry methods to investigate scientific phenomena and collect data.

**Students use** mathematical and computational thinking to analyze data and information.

# CONSTRUCTING EXPLANATIONS & DESIGNING SOLUTIONS

**Students construct** explanations by engaging in argument from evidence.

**Students engineer** solutions to practical problems using the engineering design cycle.

**Students communicate** effectively using multiple methods to reach authentic audiences.

## K-12 BALANCED SCIENCE INSTRUCTION

The Cobb Teaching and Learning Standards for Science focus on the systematic study of the physical and natural world. Through questions, observations, experiments, and research, students build understanding as they evaluate and design solutions to problems.

# CROSSCUTTING CONCEPTS

**Patterns:** Students observe patterns in nature that guide organization and prompt questions.

**Cause and Effect:** Students investigate how causal relationships are central to science.

**Scale and Proportion:** Students analyze the importance of scale, proportion, and quantity.

**Systems:** Students define the system(s) under study as a tool for understanding and testing ideas.

**Energy and Matter:** Students track the transfers of matter and energy within systems under study.

**Structure and Function:** Students interpret how the structure of an object or organism relates to its function.

**Stability and Change:** Students evaluate the importance of stability and rates of change in a system.

Science centers on the investigation of our natural and engineered world through careful observation, data collection, and controlled experimentation. Students acquire knowledge of key scientific principles while building systematic inquiry skills such as creating, collecting, and analyzing data. Finally, students demonstrate their understanding by constructing explanations, engaging in argument, and engineering solutions to practical problems.

# SCIENTIFIC FOUNDATIONAL SKILLS