Central Connectcicut State Universirsity

SCIENCE

3

WHAT TO LOOK FOR

A quick guide for observing classroom content and practice

In **grade 3**, instructional time should focus on seven core ideas:

ESS
2. Earth's Systems
3. Earth and Human Activity

LS
1. From Molecules to Organisms: Structures and Processes
3. Heredity: Inheritance and Variation of Traits
4. Biological Evolution: Unity and Diversity

PS
2. Motion and Stability: Forces and Interactions

ETS
1. Engineering Design

In a **3rd grade science** class you should observe students engaged with at least one science concept and practice:

Science and Engineering Practices

- Asking questions and defining problems
- Developing and using models
- Planning and carrying out investigations
- Analyzing and interpreting data
- Using mathematics and computational thinking
- Constructing explanations and designing solutions
- Engaging in argument from evidence
- Obtaining, evaluating, and communicating information

Science Concepts

Earth & Space Science (ESS2, ESS3)

- Using graphs to describe and predict local weather during a season
- Obtaining information about different climates to illustrate variations in weather by region
- Evaluating a design that reduces the impact of a weather-related hazard

Life Science (LS1, LS3, LS4)

- Using graphic representations to show the unique life cycles of organisms
- Providing evidence to explain traits are inherited from parents and can vary within a group of organisms
- Distinguishing between inherited characteristics and ones influenced by the environment
- Using fossils to compare environments and organisms from today and the past
- Explaining how variations in individual characteristics may provide advantages for survival

Life Science (LS1, LS3, LS4) continued

- Constructing an argument that some organisms can survive better in certain environments
- Using data to describe how environmental changes can affect some organisms' ability to survive and reproduce
- Providing evidence that survival of a population depends on reproduction

Physical Science (PS2)

- Explaining the effect of various forces on an object
- Investigating forces between magnets
- Defining a design problem that can be solved using interactions between magnets

Technology/Engineering (ETS1)

- Defining a design problem that reflects a need or want
- Generating and comparing several solutions to a design problem
- Presenting representations of various solutions to a design problem

NOTES

Comments on the Science and Engineering Practices:

- For a list of specific skills, see the *Science and Engineering Practices Progression Matrix* (www.doe.mass.edu/stem/review.html).
- Practices are skills **students** are expected to learn and do; standards focus on some but not all skills associated with a practice.

STE What to Look For The example below features three Indicators from the CT Common Core of Teaching.These Indicators are just a sampling from the full set of Standards and were chosen because they create a sequence: the educator plans a lesson that sets clear and high **expectations**, the educator then delivers high quality **instruction**, and finally the educator uses a variety of **assessments** to see if students understand the material or if re-teaching is necessary. This example highlights teacher and student behaviors aligned to the three Indicators that you can expect to see in a rigorous 3rd-grade science classroom.

Domain 1 — Classroom Environment, Student Engagement and Commitment to Learning

What is the teacher doing?

- Asking students to apply scientific knowledge and ideas to everyday situations
- focusing attention on scientific language (e.g., linguistic complexity, conventions, and vocabulary)
- Providing structures for students to explain relationships among things they observe

What are the students doing?

- Understanding what they will learn in a lesson and how it connects to prior learning
- Persisting when engaging with meaningful scientific tasks
- Comparing and refining arguments based on an evaluation of evidence
- Identifying limitations of a model

Domain 2 — Planning for Active Learning

What is the teacher doing?

- Providing opportunities for students to communicate ideas, ask questions, and make their thinking visible in writing and speaking
- Highlighting when students draw explicitly upon class content during discussions with peers
- Providing resources that support the collection and recording of results

What are the students doing?

- Asking scientific (testable) questions that can be answered by investigation
- Using computation and mathematical analysis to find patterns
- Carefully collecting and recording results

Domain 3 — Instruction for Active Learning

What is the teacher doing?

- Providing concrete strategies to respond to feedback (e.g., emphasizing importance of recorded observations)
- Using multiple formative approaches to assess student learning (e.g., classroom conversation, completion of investigation)
- Conducting frequent checks for student understanding and adjusting instruction accordingly

What are the students doing?

- Purposefully incorporating feedback from teacher and peers into actions
- Engaging in challenging learning tasks regardless of learning needs (e.g., linguistic background, disability, academic gifts)
- Using exemplars to inform their work
- Conducting investigations with a controlled variable

Connections to Theory and/ or Research

*This document is based on the CT Core Standards Classroom "Look Fors" and the MA Curriculum Observation Guide.