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)
- 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

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