In grade 2, instructional time should focus on six core ideas:

**ESS**
2. Earth’s Systems

**LS**
2. Ecosystems: Interactions, Energy, and Dynamics
4. Biological Evolution: Unity and Diversity

**PS**
1. Matter and Its Interactions
3. Energy

**ETS**
1. Engineering Design

In a 2nd 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)
- Investigating and comparing multiple solutions to prevent changes in the land
- Mapping types and shapes of landforms and bodies of water
- Using information to explain where water is found on earth and that it may be liquid or solid
- Observing how wind and water can change the shape of a landform

#### Life Science (LS2, LS4)
- Developing models of what animals and plants need to meet their needs
- Using texts and media to compare living things in an area and in different types of geographic areas

#### Physical Science (PS1, PS3)
- Describing and classifying materials by observable properties
- Testing materials to determine which are best suited for a certain purpose
- Understanding that when a chunk of material is broken into smaller pieces it is still the same material
- Constructing an argument that some changes to materials can be reversed and some cannot
- Experimenting to show the effects of friction on the temperature and speed of objects that rub against each other

#### Technology/Engineering (ETS1)
- Analyzing data to compare two designs for the same 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 2nd-grade science classroom.

**Domain 1**

**Classroom Environment, Student Engagement and Commitment to Learning**

**What is the teacher doing?**
- Communicating the learning objectives for the lesson orally and visually in student-friendly terms
- Focusing attention on newly learned scientific language (e.g. linguistic complexity, conventions, and vocabulary)
- Supporting inquiry about what evidence is relevant to a scientific question

**What are the students doing?**
- Persisting when engaging with meaningful scientific tasks.
- Using information from observations to construct an evidence-based account for natural phenomena
- Identifying common features and differences between a model and the real object

**Domain 2**

**Planning for Active Learning**

**What is the teacher doing?**
- Designing lessons that support successful cooperation in culturally sensitive ways
- Providing opportunities for students to communicate their scientific ideas and thinking with each other
- Providing resources that support the collection and recording of results

**What are the students doing?**
- Asking questions that can be answered by observations
- Discussing scientific ideas with other students
- Using counting and numbers to identify and describe patterns

**Domain 3**

**Instruction for Active Learning**

**What is the teacher doing?**
- 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
- Providing exemplars of work (e.g. historical examples, student work)

**What are the students doing?**
- Responding to teacher feedback to improve their work
- Engaging in challenging learning tasks regardless of learning needs (e.g., linguistic background, disability, academic gifts)
- With guidance, planning and conducting an investigation collaboratively with peers

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