

A quick guide for observing classroom content and practice

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 in to 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.

Connections to Theory and/ or Research

Domain 1	Classroom Environment, Student Engagement and Commitment to Learning
<p style="text-align: center;">What is the teacher doing?</p> <ul style="list-style-type: none"> • 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 	<p style="text-align: center;">What are the students doing?</p> <ul style="list-style-type: none"> • 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
<p style="text-align: center;">What is the teacher doing?</p> <ul style="list-style-type: none"> • 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 	<p style="text-align: center;">What are the students doing?</p> <ul style="list-style-type: none"> • 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
<p style="text-align: center;">What is the teacher doing?</p> <ul style="list-style-type: none"> • 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) 	<p style="text-align: center;">What are the students doing?</p> <ul style="list-style-type: none"> • 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.