

Color-coded Georgia Standards of Excellence

Each standard in K-12 science courses begin with “Obtain, evaluate, and communicate...” The common language was intended by writers to provide consistency throughout courses, highlight the science practices, and incorporate scientific literacy. Simply put, it is what scientists do.

Science and engineering practices:

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

The color-coded standards are a visual of how the specific elements of science standards engage *students* in obtaining, evaluating, and communicating information.

	Obtain	• Obtain Information • Ask Questions/Define Problems • Plan & Carry Out Investigations • Use Models to Gather Data • Use Mathematics and Computational Thinking
	Evaluate	• Evaluate Information • Analyze Data • Use Mathematics and Computational Thinking • Construct Explanations/Solve Problems • Developing Arguments from Evidence • Use Models to Predict & Develop Evidence
	Communicate	• Communicate Information • Using Argue from Evidence (written/oral) • Use Models to Communicate

Various practices require students to obtain, evaluate, and communicate information simultaneously; see the following example of 7th grade life science:

S7L4c. Analyze and interpret data to provide evidence for how resource availability, disease, climate, and human activity affect individual organisms, populations, communities, and ecosystems.

The first part of the science practice involves *evaluating* information as students analyze and interpret data; in addition, since they are providing evidence, this practice also requires students to *communicate* their findings and analysis.

Earth and Space Science

S2E1. Obtain, evaluate, and communicate information about stars having different sizes and brightness.

- Ask questions to describe the physical attributes (size and brightness) of stars.
- Construct an argument** to support the claim that although the sun appears to be the brightest and largest star, it is actually medium in size and brightness.

S2E2. Obtain, evaluate, and communicate information to develop an understanding of the patterns of the sun and the moon and the sun's effect on Earth.

- Plan and carry out an investigation to determine the effect of the position of the sun in relation to a fixed object on Earth at various times of the day.
- Design and build a structure that demonstrates how shadows change throughout the day.
- Represent data** in tables and/or graphs of the length of the day and night to recognize the change in seasons.
- Use data from personal observations** to describe, illustrate, and predict how the appearance of the moon changes over time in a pattern.

(Clarification statement: Students are not required to know the names of the phases of the moon or understand the tilt of the Earth.)

S2E3. Obtain, evaluate, and communicate information about how weather, plants, animals, and humans cause changes to the environment.

(Clarification statement: Changes should be easily observable and could be seen on school grounds or at home.)

- Ask questions to obtain information about major changes to the environment in your community.
- Construct an explanation** of the causes and effects of a change to the environment in your community.

Physical Science

S2P1. Obtain, evaluate, and communicate information about the properties of matter and changes that occur in objects.

- Ask questions to describe and classify different objects according to their physical properties.
(Clarification statement: Examples of physical properties could include color, mass, length, texture, hardness, strength, absorbency, and flexibility.)
- Construct an explanation** for how structures made from small pieces (linking cubes, building blocks) can be disassembled and then rearranged to make new and different structures.
- Provide evidence from observations to construct an explanation that some changes in matter caused by heating or cooling can be reversed and some changes are irreversible.
(Clarification statement: Changes in matter could include heating or freezing of water, baking a cake, boiling an egg.)

S2P2. Obtain, evaluate, and communicate information to explain the effect of a force (a push or a pull) in the movement of an object (changes in speed and direction).

- a. [Plan and carry out an investigation](#) to demonstrate how pushing and pulling on an object affects the motion of the object.
- b. [Design a device](#) to change the speed or direction of an object.
- c. [Record and analyze data](#) to decide if a design solution works as intended to change the speed or direction of an object with a force (a push or a pull).

Life Science

S2L1. Obtain, evaluate, and communicate information about the life cycles of different living organisms.

- a. [Ask questions](#) to determine the sequence of the life cycle of common animals in your area: a mammal such as a cat, dog or classroom pet, a bird such as a chicken, an amphibian such as a frog, and an insect such as a butterfly.
- b. [Plan and carry out an investigation](#) of the life cycle of a plant by growing a plant from a seed and by recording changes over a period of time.
- c. [Construct an explanation](#) of an animal's role in dispersing seeds or in the pollination of plants.
- d. [Develop models](#) to illustrate the unique and diverse life cycles of organisms other than humans.