

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

S3E1. Obtain, evaluate, and communicate information about the physical attributes of rocks and soils.

- a. Ask questions and analyze data to classify rocks by their physical attributes (color, texture, luster, and hardness) using simple tests.
(Clarification statement: Mohs scale should be studied at this level. Cleavage, streak and the classification of rocks as sedimentary, igneous, and metamorphic are studied in sixth grade.)
- b. Plan and carry out investigations to describe properties (color, texture, capacity to retain water, and ability to support growth of plants) of soils and soil types (sand, clay, loam).
- c. Make observations of the local environment to construct an explanation of how water and/or wind have made changes to soil and/or rocks over time.
(Clarification statement: Examples could include ripples in dirt on a playground and a hole formed under gutters.)

S3E2. Obtain, evaluate, and communicate information on how fossils provide evidence of past organisms.

- a. Construct an argument from observations of fossils (authentic or reproductions) to communicate how they serve as evidence of past organisms and the environments in which they lived.
- b. Develop a model to describe the sequence and conditions required for an organism to become fossilized.
(Clarification statement: Types of fossils (cast, mold, trace, and true) are not addressed in this standard.)

Physical Science

S3P1. Obtain, evaluate, and communicate information about the ways heat energy is transferred and measured.

- a. Ask questions to identify sources of heat energy.
(Clarification statement: Examples could include sunlight, friction, and burning.)
- b. Plan and carry out an investigation to gather data using thermometers to produce tables and charts that illustrate the effect of sunlight on various objects.
(Clarification statement: The use of both Fahrenheit and Celsius temperature scales is expected.)
- c. Use tools and every day materials to design and construct a device/structure that will increase/decrease the warming effects of sunlight on various materials.
(Clarification statement: Conduction, convection, and radiation are taught in upper grades.)

Life Science

S3L1. Obtain, evaluate, and communicate information about the similarities and differences between plants, animals, and habitats found within geographic regions (Blue Ridge Mountains, Piedmont, Coastal Plains, Valley and Ridge, and Appalachian Plateau) of Georgia.

- a. [Ask questions](#) to differentiate between plants, animals, and habitats found within Georgia's geographic regions.
- b. [Construct an explanation](#) of how external features and adaptations (camouflage, hibernation, migration, mimicry) of animals allow them to survive in their habitat.
- c. [Use evidence to construct an explanation](#) of why some organisms can thrive in one habitat and not in another.

S3L2. Obtain, evaluate, and communicate information about the effects of pollution (air, land, and water) and humans on the environment.

- a. [Ask questions to collect information](#) and create records of sources and effects of pollution on the plants and animals.
- b. [Explore, research, and communicate solutions](#), such as conservation of resources and recycling of materials, to protect plants and animals.