

## **K-5 GSE (Georgia Standards of Excellence) for Science Instruction 2017 – 2018**

Under each grade level heading are the following:

1. An Overview of the science learning expectation for each grade level.
2. The science domains covered at the grade level.
3. The URL for a complete list of required science studies at each grade level.

### **KINDERGARTEN SCIENCE**

OVERVIEW:

The Kindergarten Georgia Standards of Excellence for science engage students in raising questions about the world around them. Though not developmentally ready for in-depth explanations, kindergarten students wonder why things move and note the various patterns in their movement (e.g., the sun and the moon appear and disappear in the sky). Students learn to use whole numbers to describe scientific data and how to identify parts of things (i.e. tools and toys). Kindergarteners use their senses (sight, smell, taste, touch, and sound) to group objects and to make observations about the physical world by describing, comparing, and sorting items according to physical attributes (i.e. number, shape, texture, size, weight, color, and motion).

They learn to follow rules to stay safe.

- Earth and Space Science
- Physical Science
- Life Science
- <https://www.georgiastandards.org/Georgia-Standards/Documents/Science-Kindergarten-Georgia-Standards.pdf>

### **FIRST GRADE SCIENCE**

OVERVIEW:

The First Grade Georgia Standards of Excellence for science engage students in raising questions about the world around them and seeking answers by making observations. First graders use whole numbers to analyze scientific data. They identify how magnets pull on all things made of iron and either attract or repel other magnets. First graders create drawings that correctly depict something being described. The students are asked to plan and carry out simple investigations to understand patterns (shadows, sound, weather, and daily needs of plants and animals) observed

in the world around them and make predictions based on these investigations. They follow safety rules.

- Earth and Space Science
- Physical Science
- Life Science
- <https://www.georgiastandards.org/Georgia-Standards/Documents/Science-First-Grade-Georgia-Standards.pdf>

## **SECOND GRADE SCIENCE**

Overview:

The Second Grade Georgia Standards of Excellence for science engage students in raising questions and seeking answers about the world around them by making observations and exploring phenomena. At the appropriate times, students will ask, “How do you know?” and will attempt to answer the question. They will use whole numbers as well as basic fractions (such as one-half and one-fourth) to identify and analyze scientific data. Second graders will find sums and differences of single digit numbers and then justify the answer. They will give rough estimates to problems and estimate lengths, weights, and time intervals. They will explain to others how to solve numerical problems related to a science activity.

Second grade students push, pull, and manipulate things to see what will happen. They study the changing patterns of the moon and the sun and its effects on Earth. Second graders conduct simple investigations to understand that no matter how parts of an object are assembled their overall weight is the same as the total weight of the parts. They understand that heating and cooling cause changes in the properties of the materials. They observe changes caused by weather, plants, animals, and humans to the environment and study the life cycle of different organisms.

- Earth and Space Science
- Physical Science
- Life Science
- <https://www.georgiastandards.org/Georgia-Standards/Documents/Science-Second-Grade-Georgia-Standards.pdf>

### **THIRD GRADE SCIENCE**

Overview:

The Third Grade Georgia Standards of Excellence for science engage students in making observations and using information they obtained to answer questions. Their communication skills allow them to record findings, analyze data, and recognize the importance of keeping records of observations without making alterations. Third graders add and subtract whole numbers mentally, on paper, and with a calculator. They observe, construct, and measure objects using ordinary hand tools. They observe things with many parts and describe the ways in which the parts influence or interact with one another. They represent objects in the real world with geometric figures, number sequences, graphs, diagrams, maps, and stories. The students will use this information to explain physical attributes of rocks and soils, understand how fossils provide evidence of organisms that lived long ago, describe ways in which heat energy is transferred and measured, identify features of plants and animals within the geographical regions of Georgia, and recognize the effects of pollution on the environment.

- Earth and Space Science
- Physical Science
- Life Science
- <https://www.georgiastandards.org/Georgia-Standards/Documents/Science-Third-Grade-Georgia-Standards.pdf>

### **FOURTH GRADE SCIENCE**

Overview:

The Fourth Grade Georgia Standards of Excellence for science engage students in constructing meaningful models that allow them to gain understanding of the natural world. They speculate about observations they make. They add, subtract, multiply and divide whole numbers on paper, mentally, and with calculators. They list common materials for making simple mechanical constructions and for repairing things. Fourth graders gather and interpret data and use records, tables, or graphs to identify patterns of change. They write instructions and make sketches that allow others to carry out a scientific investigation. They determine whether or not a comparison

is fair if conditions are different for each thing being compared. They question claims or statements made by people outside their field of expertise. The students will use these skills to compare and contrast the physical attributes of stars and planets, model the effects of the relative motion of the Earth and moon around the sun, use weather charts/maps to predict weather events, conduct investigations about the water cycle and understand their relationship with heat energy, communicate information about the nature of light and sound, study the effects of balanced and unbalanced forces on an object, and describe the flow of energy in an ecosystem and the roles organisms play in a community.

- Earth and Space Science
- Physical Science
- Life Science
- <https://www.georgiastandards.org/Georgia-Standards/Documents/Science-Fourth-Grade-Georgia-Standards.pdf>

## **FIFTH GRADE SCIENCE**

Overview:

The Fifth Grade Georgia Standards of Excellence for science engage students in investigations of scientific concepts. Students are active learners and use hands-on activities to discover and explain phenomena. They understand that science is a process for gaining knowledge about the natural world and are able to conduct experiments and report their findings in the form of written reports, charts, and various other presentations including multi-media projects. Their scientific explanations emphasize evidence and begin to use scientific principles, models, and theories. Fifth graders keep records of investigations and observations and understand why they should not alter records. They use numerical data to describe and compare objects, convert the fractions to decimals in scientific calculations, and identify the largest and smallest possible value of something. They use reference books, magazines or newspapers, and computer databases to locate scientific information.

Students at this grade level are able to identify the causes of some of Earth's surface features, explain the difference between a physical and a chemical change, investigate electricity and

magnetism and the relationship between them, use scientific procedures to classify organisms, understand the difference between behaviors and traits, contrast the parts of animal and plant cells, and argue from evidence on how microorganisms can be beneficial or harmful to other organisms.

- Earth and Space Science
- Physical Science
- Life Science
- <https://www.georgiastandards.org/Georgia-Standards/Documents/Science-Fifth-Grade-Georgia-Standards.pdf>