

Grade 4 Science

Instruction in Grade 4 Science is centered on three areas of science: Life Science, Earth Science, and Physical Science. An introductory unit, Studying Science begins the year of instruction.

By the end of 4th grade, students will...



1. Understand scientists answer questions about the world around us by carrying out investigations

- Understand what scientists do
- Learn the parts of the scientific method by doing an investigation using Skittles
- Use the scientific method to investigate what changes affect how a pendulum swings
- Understand how to draw conclusion from evidence
- Use tools (measuring tapes, hand lenses, pan balances, timers, thermometers)
- Record and share data
- Understand why we use models and the difference between 2D, 3D, and computer models



2. Understand structures and functions of plants and how plants reproduce for survival

- Understand the differences between vascular and nonvascular plants
- Identify and explain the functions of roots, stems, and leaves
- Explain the process of photosynthesis
- Describe chlorophyll
- Create and understand the life cycle of a plant
- Explain and identify the parts of a flowering plant (petal, pistil, stamen, sepal, ovary)
- Understand pollination, fertilization and reproduction of flowering plants
- Explain how seeds can be dispersed.
- Understand that spores and seeds are different ways plants reproduce



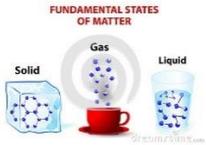
3. Understand that living things are adapted for survival and that living and nonliving parts impact each other

- Understand what an environment is
- Explain and identify the differences between physical and behavioral adaptations
- Identify instincts
- Do an investigation on how the shape of bird beaks help identify the type of food a bird eats
- Explain populations, habitats, and niches
- Draw, explain, and identify parts of a food chain
- Identify natural resources
- Explain how people impact ecosystems



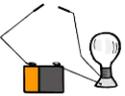
4. Understand the water moves in a cycle that influences weather

- Identify and explain the parts of the water cycles
- Identify the tools that are used to predict weather (barometer, wind vane, anemometer, rain gauge, and thermometer)
- Identify conditions that cause changes weather (humidity, air pressure, winds, clouds, fronts, air masses)
- The difference between high pressure and low pressure systems
- Explain the difference between land breezes and sea breezes
- Identify cirrus, cumulus, and stratus clouds
- Identify the types of precipitation (rain, snow, sleet, hail)
- Explain how weather is predicted
- Identify types of severe weather



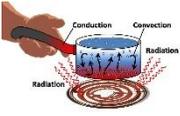
5. Understand matter can undergo both physical and chemical changes

- Identify and describe physical properties of matter
- Understand volume, density, and mass
- Explain how matter changes states using water
- Understand physical changes
- Describe the difference between a solution and a mixture
- Understand chemical changes
- Do investigations of chemical changes
- Identify signs of chemical changes



6. Understand that electric currents and magnets can be used for many purposes

- Use magnets to understand attract and repel
- Identify the parts of an atom and their charges
- Understand opposite charges attract, like charges repel
- Explain how electrons can move between atoms to change its charge
- Explain what static electricity is
- Understand that lightning is an electrostatic discharge
- Understand electric current and how it flows through a wire
- Build circuits to light a bulb
- Understand the difference between insulators and conductors and give examples of each
- Build an electromagnet and know how they are used
- Understand electrical safety



7. Understand that heat is a form of energy that can be transferred between objects

- Understand what energy is
- Identify and explain different types of energy (kinetic, potential, mechanical, light, sound, electrical, chemical, and heat)
- Understand that energy can change from one form to another
- Understand heat and how it is measured
- Explain and review insulators and conductors
- Understand three ways heat can move between objects (conduction, convection, and radiation)