

## 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 4<sup>th</sup> 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



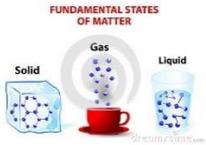
### 3. Understand that living things are adapted for survival and that living and nonliving parts impact each other

- 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



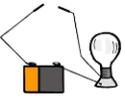
#### 4. Understand the water moves in a cycle that influences weather

- 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



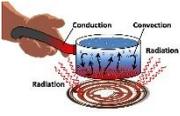
#### 5. Understand matter can undergo both physical and chemical changes

- 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)