

# GRADE 6 SCIENCE

## Key Features

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### Focus Areas

- energy and waves,
- structure and function of living organisms,
- history of Earth, and
- Earth and the atmosphere.

### By the end of Grade 6, students can

- Explain how temperature is a measure of the average kinetic energy of particles of matter. Identify that the relationship between the temperature and the total energy of a system depends on the types, states, and amounts of matter present.
- Explain how “heat” refers both to thermal energy (the motion of atoms or molecules within a substance) and energy transfers by convection, conduction, and radiation.
- Describe that waves are reflected, absorbed, or transmitted through various materials.
- Provide evidence that living things are made of cells; either one cell or many different numbers and types of cells. Describe the function of a cell as a whole and ways the parts of cells contribute to the function and that the body is a system of interacting subsystems composed of groups of cells.
- Explain using evidence from rock strata how the geologic time scale is used to organize Earth’s 4.6-billion-year-old history, including analyzing and interpreting data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.
- Describe the cycling of water through Earth’s systems driven by energy from the sun and the force of gravity.
- Describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates, including the motion and complex interactions of air masses.

## Home to School Connections

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### Questions you can ask your learner could include:

- If a liquid is heated and turns into a gas, do the molecules move around more or less?
- What cups in our house are best for keeping liquids cool? Warm?
- What are some examples of unicellular (single cell) organisms?
- Can you name the systems of the body and explain how they interact together?
- What natural hazards affect us here in South Carolina?

### Questions you can ask your learner’s teacher could include:

- What labs will students be conducting in class to support the science concepts?
- What human body systems are discussed in class?
- How is the learning in this course connected to learning opportunities available in high school and beyond?

### Activities and learning you can do outside of the classroom to support your learner could include:

- Boiling water shows that adding thermal energy (heat) increases the kinetic energy of particles until a change of state occurs. Liquid water turns into steam (a gas) when water reaches its boiling point.
- It is best to inflate tires in cooler weather to avoid overinflation due to increased molecule movement in warmer temperatures.
- Create a solar cooker from materials found at home: cardboard, plastic wrap and aluminum foil. This represents a way to maximize heat transfer to material inside the cooker.
- The freezer must be set at a certain temperature in order for ice to form and remain frozen. If the temperature goes below a certain threshold, the ice will melt.
- Use a prism or any object that bends light (for example: glass, water) to show how visible light can be refracted into the colors of the rainbow.

- Observe objects around your community and identify them as living or nonliving. Emphasize that living organisms are made of at least one cell, and most of the living items we see are multicellular.
- Identify complex organisms that have organs and tissues such as humans. Talk about the functions of the structures identified that help the organism to survive.
- We use our senses in our daily tasks. Keep track of how you use your senses (sight, hearing, touch, taste, smell) over the course of one day. Discuss adjustments and accommodations that are made if one or more of the senses are not working.
- Observe a local river or stream. Look for evidence of weathering, deformation or particles settling on the bottom (sedimentation).
- View local and national weather maps online or in the news. Observe the movement of weather from West to East and locate low- and high-pressure systems. Air masses flow from regions of high pressure to low pressure, causing weather (temperature, pressure, humidity, precipitation, and wind) to change over time.
- Set up a local weather station. Components could include a thermometer, barometer, rain gauge, and/or wind vane.
- Research local, national, and global natural hazards. Examples of natural hazards include earthquakes, volcanic eruptions, tsunamis, hurricanes, tornadoes, droughts, and floods. Collect data including locations, magnitudes, and frequencies of the natural hazards. Identify technologies used to provide information on the natural hazards: satellite systems and planes to monitor hurricanes or forest fires; building basements in tornado-prone regions; reservoirs to mitigate droughts. Discuss ways your family has been impacted by natural hazards and precautions that can be taken in the event of one happening locally.
- Physics4Kids (<http://physics4kids.com/>)
- SC Department of Natural Resources (<https://www.dnr.sc.gov/>)
- The Weather Channel (<https://weather.com/>)

## Resources

- Biology4Kids (<http://biology4kids.com/>)
- Chem4Kids (<http://www.chem4kids.com>)
- CK-12 Foundation (<https://www.ck12.org/student/>)
- Discus (<https://www.scdiscus.org/>)
- Geography4Kids (<http://www.geography4kids.com/>)
- Khan Academy (<https://www.khanacademy.org/>)
- PBS LearningMedia (<https://scetv.pbslearningmedia.org/>)