



Grade 6 Science Learning Targets

Here is an overview of what your student will be learning this year in 6th Grade Science.

Light and Matter

- Investigate how light interacts with different materials, including reflection, refraction, absorption, and transmission.
- Construct and use models to demonstrate and predict the behavior of light as it encounters various materials.
- Learn about the electromagnetic spectrum and the different types of electromagnetic waves, including visible light.
- Design and conduct experiments to observe and measure the behavior of light and its interactions with matter.
- Develop and communicate scientific explanations and arguments about light and matter interactions using evidence from investigations.

Thermal Energy

- Differentiate between heat (thermal energy transfer) and temperature (measure of kinetic energy of particles).
- Investigate and understand the three methods of heat transfer: conduction, convection, and radiation.
- Explore how different materials conduct heat at different rates and understand the concept of thermal conductivity.
- Construct and use models to represent and explain the transfer of thermal energy through various materials and systems.
- Design and conduct experiments to measure and observe the transfer of thermal energy.

Variables

- Define a design problem that can be solved through the development of an object, tool, process or system.
- Analyze and interpret data to determine similarities and differences in findings.
- Explain why multiple trials are necessary for an experiment.
- Explain the reasoning behind a quality controlled experiment.

Cells and Systems

- Recognize that cells are the basic building blocks of all living organisms.
- Compare and contrast plant and animal cells, identifying key similarities and differences.
- Explore how cells carry out essential life processes, including energy production, waste removal, and reproduction.
- Understand the role of cellular respiration and photosynthesis in providing energy for cells.
- Explain how cells are organized into tissues, organs, and systems within an organism.
- Conduct investigations to observe cellular processes and model the flow of energy and matter within and between cells.

Matter Cycling and Photosynthesis

- Explain how matter cycles between the air, soil, and living organisms in an ecosystem
- Describe the process of photosynthesis, including the inputs (carbon dioxide, water,

and sunlight) and outputs (oxygen and glucose).

- Explain how energy from the sun is captured by plants during photosynthesis and how this energy is transferred through food webs.
- Conduct experiments to observe the process of photosynthesis, such as measuring the production of oxygen in plants.

Ecosystem Dynamics and Biodiversity

- Investigate factors that affect the population sizes of organisms within an ecosystem.
- Discuss strategies for conservation and sustainable use of natural resources to protect ecosystems and biodiversity.
- Analyze models to predict how changes in one part of an ecosystem might affect the whole system.
- Conduct investigations to observe and measure ecosystem dynamics, such as changes in population sizes or the effects of environmental changes.

Earth's Resources and Human Impact

- Identify and classify Earth's natural resources.
- Understand the resource sustainability and the importance of managing resources.
- Explore strategies for reducing human impact on the environment, such as conservation, recycling, and the use of renewable energy sources.