

Science: Quarterly Pacing Guide

Quarter 1: Ecosystems

- 5.8** Defend the position that plants obtain materials needed for growth primarily from air and water.
- 5.9** Construct an illustration to explain how plants use light energy to convert carbon dioxide and water into a storable fuel, carbohydrates, and a waste product, oxygen, during the process of photosynthesis.
- 5.10** Construct and interpret models (e.g., diagrams, flow charts) to explain that energy in animals' food is used for body repair, growth, motion, and maintenance of body warmth and was once energy from the sun.
- 5.11** Create a model to illustrate the transfer of matter among producers; consumers, including scavengers and decomposers; and the environment.

Quarter 2: Earth's Systems

- 5.14** Use a model to represent how any two systems, specifically the atmosphere, biosphere, geosphere, and/or hydrosphere, interact and support life (e.g., influence of the ocean on ecosystems, landform shape, and climate; influence of the atmosphere on landforms and ecosystems through weather and climate; influence of mountain ranges on winds and clouds in the atmosphere).
- 5.15** Identify the distribution of freshwater and salt water on Earth (e.g., oceans, lakes, rivers, glaciers, ground water, polar ice caps) and construct a graphical representation depicting the amounts and percentages found in different reservoirs.
- 5.16** Collect and organize scientific ideas that individuals and communities can use to protect Earth's natural resources and its environment (e.g., terracing land to prevent soil erosion, utilizing no-till farming to improve soil fertility, regulating emissions from factories and automobiles to reduce air pollution, recycling to reduce overuse of landfill areas).
- 5.17** Design solutions, test, and revise a process for cleaning a polluted environment (e.g., simulating an oil spill in the ocean or a flood in a city and creating a solution for containment and/or cleanup).*

Quarter 3: Earth's Place in the Universe

5.6 Construct an explanation from evidence to illustrate that the gravitational force exerted by Earth on objects is directed downward towards the center of Earth.

5.7 Design and conduct a test to modify the speed of a falling object due to gravity (e.g., constructing a parachute to keep an attached object from breaking).*

5.12 Defend the claim that one factor determining the apparent brightness of the sun compared to other stars is the relative distance from Earth.

5.13 Analyze data and represent with graphs to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky (e.g., shadows and the position and motion of Earth with respect to the sun, visibility of select stars only in particular months).

Quarter 4: Matter and Interactions

5.1 Plan and carry out investigations (e.g., adding air to expand a basketball, compressing air in a syringe, dissolving sugar in water, evaporating salt water) to provide evidence that matter is made of particles too small to be seen.

5.2 Investigate matter to provide mathematical evidence, including graphs, to show that regardless of the type of reaction (e.g., new substance forming due to dissolving or mixing) or change (e.g., phase change) that occurs when heating, cooling, or mixing substances, the total weight of the matter is conserved.

5.3 Examine matter through observations and measurements to identify materials (e.g., powders, metals, minerals, liquids) based on their properties (e.g., color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, solubility, density).

5.4 Investigate whether the mixing of two or more substances results in new substances (e.g., mixing of baking soda and vinegar resulting in the formation of a new substance, gas; mixing of sand and water resulting in no new substance being formed).

5.5 Construct explanations from observations to determine how the density of an object affects whether the object sinks or floats when placed in a liquid.