

Science Grade 5

Grade Band Theme: Interconnections within Systems

This theme focuses on helping students recognize the components of various systems and then investigate dynamic and sustainable relationships within systems using scientific inquiry.

Earth and Space Science (ESS)

Topic: Cycles and Patterns in the Solar System

This topic focuses on the characteristics, cycles and patterns in the solar system and within the universe.

Content Statements

- The solar system includes the sun and all celestial bodies that orbit the sun. Each planet in the solar system has unique characteristics.
 - The distance from the sun, size, composition and movement of each planet are unique. Planets revolve around the sun in elliptical orbits. Some of the planets have moons and/or debris that orbit them. Comets, asteroids and meteoroids orbit the sun.
- The sun is one of many stars that exist in the universe.
 - The sun appears to be the largest star in the sky because it is the closest star to Earth. Some stars are larger than the sun and some stars are smaller than the sun.
- Most of the cycles and patterns of motion between the Earth and sun are predictable.
 - Earth's revolution around the sun takes approximately 365 days. Earth completes one rotation on its axis in a 24-hour period, producing day and night. This rotation makes the sun, stars and moon appear to change position in the sky. Earth's axis is tilted at an angle of 23.5°. This tilt, along with Earth's revolution around the sun, affects the amount of direct sunlight that the Earth receives in a single day and throughout the year. The average daily temperature is related to the amount of direct sunlight received. Changes in average temperature throughout the year are identified as seasons.

Physical Science (PS)

Topic: Light, Sound and Motion

This topic focuses on the forces that affect motion. This includes the relationship between the change in speed of an object, the amount of force applied and the mass of the object. Light and sound are explored as forms of energy that move in predictable ways, depending on the matter through which they move.

Content Statements

Science Grade 5

- The amount of change in movement of an object is based on the mass of the object and the amount of force exerted.
 - Movement can be measured by speed. The speed of an object is calculated by determining the distance (d) traveled in a period of time (t).
 - Earth pulls down on objects with a gravitational force. Weight is a measure of the gravitational force between an object and the Earth.
 - Any change in speed or direction of an object requires a force and is affected by the mass of the object and the amount of force applied.
- Light and sound are forms of energy that behave in predictable ways.
 - Light travels and maintains its direction until it interacts with an object or moves from one medium to another and then it can be reflected, refracted or absorbed.
 - Sound is produced by vibrating objects and requires a medium through which to travel. The rate of vibration is related to the pitch of the sound.

Life Science (LS)

Topic: Interactions within Ecosystems
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This topic focuses on foundational knowledge of the structures and functions of ecosystems.

Content Statements

- Organisms perform a variety of roles in an ecosystem.
 - Populations of organisms can be categorized by how they acquire energy.
 - Food webs can be used to identify the relationships among producers, consumers and decomposers in an ecosystem.
- All of the processes that take place within organisms require energy.
 - For ecosystems, the major source of energy is sunlight.
 - Energy entering ecosystems as sunlight is transferred and transformed by producers into energy that organisms use through the process of photosynthesis. That energy then passes from organism to organism as illustrated in food webs.
 - In most ecosystems, energy derived from the sun is transferred and transformed into energy that organisms use by the process of photosynthesis in plants and other photosynthetic organisms.