Science - 5th Grade

Content Overview:

Science in grades Kindergarten through 8th grade is focused on a central theme. The science theme in the grade 3-5 grade band is *Interconnections within Systems*. This theme focuses on helping students explore the components of various systems and then investigate dynamic and sustainable relationships within systems using scientific inquiry. In the elementary years, all students work to become proficient in the use of the scientific processes to construct their knowledge and understanding in all science content areas. Fifth grade students will be studying Cycles on Earth and the Solar System, Light/Sound and Forces/Motion and Organisms in an Ecosystem. Students will be engaged in various investigations to further explore the concepts within those topics.

Textbooks:

Science: A Closer Look Grade 5

Assessments:

- Formative and Summative Classroom Assessments
- 5th grade Science Ohio State Test

Standards/Learning Goals

Ohio's Learning Standards in Science are composed of 3 strands: Earth and Space Science, Life Science, and Physical Science. The content statements listed below state what students should learn and understand in each discipline.

Science Inquiry and Cycles within the Universe

Scientific Inquiry and Application:

Scientific Inquiry is taught and practiced at the beginning of the year and then applied throughout the year. This topic focuses on the scientific method and science inquiry skills.

- Students are expected to apply the following scientific processes to construct their knowledge and understanding.
    - Scientific method
    - Design and conduct a scientific investigation
    - Use tools and scientific inquiry to gather data and information
    - Analyze and interpret data
    - Develop descriptions, models, explanations and predictions

Cycles Within the Universe:

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

- Students will learn 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.

Cycles and Patterns in the Solar System and Ecosystems

Cycles and Patterns in the Solar System:

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

- Students will learn 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.
- Students will learn 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.

Interaction within the Ecosystems:

This topic focuses on the characteristics, cycles and patterns in ecosystems.

- Students will learn 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

Ecosystems and Forces and Motion

Interaction within the Ecosystems (continued):

This topic focuses on the characteristics, cycles and patterns in ecosystems.

- Students will learn 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 is used or stored by the producer and can be passed from organism to organism as illustrated in food webs.

Forces and Motion:

This topic focuses on the characteristics, cycles and patterns in physical systems.

- Students will learn 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).
    - 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.
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Light, Sound, Forces and Motion

Standards/Learning Goals:

Light and Sound:

This topic focuses on the observable behavior of light and sound. Light and sound are explored as forms of energy that move in predictable ways, depending on the matter through which they move.

- Students will learn 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.