



Southmoreland School District

Fifth Grade Science Curriculum Overview

Fifth Grade Science Overview:

The fifth grade science curriculum is divided into three modules: (1) Life Science, (2) Physical Science, and (3) Earth and Space Science. Fifth grade students develop and practice classifying, analyzing, observing, categorizing, and record keeping skills to demonstrate grade-appropriate proficiency in planning and carrying out investigations and developing and using models. They experience science through the active construction of ideas while developing inquiry skills that are central to helping them think as scientists. Students investigate the world around them by asking questions that help develop scientific concepts, facts, and expand their vocabulary. In addition, students formulate predictions based on observed cause and effect relationships and structure and function as organizing concepts for these disciplinary core ideas. The students demonstrate scientific reasoning and logic by participating in scientific activities, using scientific language and tools, and representing data in tables and graphical displays. They dive into more complex studies and develop deeper understandings of scientific concepts from previous years as they actively investigate and conduct scientific inquiry to solve problems. Students continue to develop an understanding of the purpose of the engineering design process and how some failed designs are turned into successful technology. Finally, students extend their scientific knowledge and communicate their learning as they describe and summarize scientific processes, both orally and in writing, as a result of the inquiry process. The Pennsylvania Integrated Standards for Science, Environment, Ecology, Technology and Engineering (Grades K-5) guide the elementary level study of the natural and human made world through inquiry, problem-solving, critical thinking, and authentic exploration. The integration of these disciplines in the elementary standards highlights the interconnectedness of scientific study, the integral relationship between humans and the environment, and the importance of integrating the teaching and learning of science with other disciplines.

Module Titles:

Module 1: Life Science

Module 2: Physical Science

Module 3: Earth and Space Science

Module Overviews:

Module 1: Life Science

The goal of this module is for students to explore the structures and processes that transform molecules into organisms. Fifth grade students support an argument that plants get the materials they need for growth chiefly from air and water. They analyze



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and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago. Students use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. In addition, students construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. The students make a claim about a solution to a problem caused when the environment changes and the types of plants and animals that live there may change. Finally, students develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

Module 2: Physical Science

The goal of this module is for students to construct an explanation of the relationship between matter and its interactions. Fifth grade students develop a model to describe that matter is made of particles too small to be seen. They measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved. Students make observations and measurements to identify materials based on their properties. In addition, students conduct an investigation to determine whether the mixing of two or more substances results in new substances. The students interpret and analyze data and observations to make decisions about how to utilize materials based on their properties. They support an argument that the gravitational force exerted by Earth on objects is directed down. Finally, students use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.

Module 3: Earth and Space Science

The goal of this module is for students to identify Earth, its systems, and its place within the universe. Fifth grade students support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from the Earth. They represent data in graphical displays 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. Students develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. In addition, students describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. The students combine information about ways individual communities use science ideas to protect the Earth's resources and environment. Finally, students generate and design possible solutions to a current environmental issue, threat, or concern.