

Elementary & Middle MindBugs-in-Science[®] Course Overview

Unit 1, Science from a historical perspective:

Like the arts, science is an important part of our cultural heritage. Myths and stories have evolved to explain the universe since the earliest times of man. The era of science began when scholars started to replace those myths with rational explanations about how things work; as early as 600 BC. In this unit, participants will gain understanding of how science developed, how science and culture are related and how technological advances often enable scientific advances.

Unit 2, Physical Sciences:

Much of what we know about science came out of early attempts to understand the motions of objects in the sky. It was not always understood that the same forces that governed motion on earth applied to the Earth, moon and planetary motions as well. This physical science unit provides an understanding of those interactions within the solar system and here on Earth; waves and vibrations in the forms of sound, light, heat, electricity and magnetism; and the four natural forces that wire the universe together. Physical science concepts form the basis for studies of other scientific disciplines.

Unit 3, Earth Sciences:

A major goal of this unit is to develop an understanding of Earth and other bodies orbiting the Sun as a closely coupled system. The idea of systems provides a framework in which participants will investigate the four major interacting components of the earth system--geosphere (crust, mantle, and core), hydro-sphere (water), atmosphere (air), and the biosphere (the realm of all living things). In this holistic approach to studying the planet, participants will be introduced to the cycles of the planet. These cycles include physical, chemical, and biological processes that act over a long span of time to continuously change the crust, oceans, atmosphere, and living organisms.

Unit 4, Life Sciences:

Examine life from a different perspective. This unit investigates the biosphere with a focus on scale and relationships. For example, understand that nature imposes limits on body systems. The size of an animal or cell is limited by the ratio of surface area to volume because this ratio dictates the movement of heat, energy and even nutrients at both the micro level (cells) and at the macro level (bodies). Respiratory and Circulatory Systems as well as muscular and skeletal systems are affected by such physical and chemical laws of nature. Only in understanding center of gravity, weight and acceleration can one explain why an elephant has big stubby legs and cannot jump.

Unit 5, Connections:

Science and technology are said to be reciprocal. Science drives technology as the frontiers of knowledge demand more sophisticated instruments. Technology is essential to science, because it provides tools for investigations, inquiry, and analysis; however, technological solutions have both intended benefits and unintended consequences. Some consequences can be predicted but others cannot. This unit examines modern technology with a focus on how it is affecting our lives, the earth and our biological and physical limits.



877-math2go
info@ten80education.com
www.ten80education.com



26F Congress Street #338,
Saratoga Springs, NY 12866