

Course Description

7th Grade Science

COURSE DESCRIPTION: This course will provide students with enlightenment and instruction on the nature of science, using a discovery process to teach the scientific method, and the use of metric measurements in scientific investigations. It covers the study of the Universe, stars, constellations, and objects in the Solar System. Movement and pathways of the Earth and Moon are investigated, with natural paths uncovered as students discover just how large the universe really is. Next, students will discover how Earth materials are formed and what they can teach us about Mother Earth's past as they investigate the natural processes that shape its ecosystem, the landscape and the creation of different environments on Earth. The course then covers basic concepts of force, motion and equilibrium. Concepts of human biology are also uncovered, with emphasis on body systems and those amazing functions that contribute to our wellness. Agricultural science and its impact on biotechnology is introduced, along with its affect on human interaction with the earth. Finally, the basics of environmental science are covered, and through the use of stunning photography and lively animation, students will interact with endangered species, learn about natural resource use, environmental health, pollution, and biodiversity.

COURSE OBJECTIVES: After completing the course, students will be able to:

1. Describe the scientific method and explain the value of observation and measurement in scientific investigations.
2. Describe the general nature of the Solar System, the Earth and Moon and their movements.
3. Explain how various Earth materials are formed and how the Earth changes over time through storms and other natural events such as volcanic eruptions.
4. Explain the concepts of force and motion and describe simple machines.
5. Know the systems of the human body and their functions.
6. Explain how living things respond to their environment and change over time.
7. Understand concepts of ecology, and define terms such as habitat, ecosystem, producer and consumer.
8. Know resources that we obtain from the Earth and the affects of human population on those resources.
9. Explain how air and water become polluted.
10. Describe what biodiversity is and why it is important to Earth.

PRE-REQUISITES: None

COURSE LENGTH: One Year

REQUIRED TEXT: None

COURSE OUTLINE:

Unit I: Nature of Science – Topics include: Observation Skills and Scientific Tools; Designing Investigations and Communicating Results; Lab Safety, Ethics, the Role of Science in making societal decisions; Systems analysis and models

Unit II: The Universe – Topics include: The Solar System; Movements of the Earth and Moon

Unit III: Earth Science – Topics include: Fossils and Earth Materials; Weathering, and Erosion, shaping the landscape; Atmosphere and Climate, Meteorology, Storms, and Weather Patterns; The Water Cycle

Unit IV: Physical Science – Topics include: Forces and Motion; Simple Machines; the Periodic Table, trends within the periodic table; Chemical Reactions, identifying products and reactants

Unit V: Living Things – Topics include: Systems of the Human Body; Living Things change over Time; Effect of Environment, Survival and Reproduction, inherited traits; Ecology; Producers and Consumers, Habitat, Niche, Ecosystems

Unit VI: Environmental Science – Topics include: Natural Resources and Human Use of Resources; Biodiversity; Energy, Pollution, and Approaches to Conservation; Agriculture and Human Societies; Environmental Health