

Course Description:

This course focuses on several scientific topics. The course begins with an introduction to matter and energy. Then it continues with the concept of thermal energy and its influence on matter. Once these topics are understood, next on the agenda is the water cycle, climate, and weather. The course will also cover pollution, global rises in temperature, the impact humans have, and what we can do about it.

Course Objectives:

- Apply scientific processes to conduct investigations.
- Use logical thinking to identify issues, gather data, and draw conclusions.
- Evaluate topics in science including matter and energy, energy transformations, the water cycle, the greenhouse effect, the Earth's relationship with the Sun, weather, climate, and climate change.

Required Materials:

In course.

Schedule of Work:

Unit 1: Matter and Energy

- Direct Instruction
 - What is Matter?
 - What is Energy?
 - Types of Energy
 - The Nature and Phases of Matter
 - Explaining Temperature
- Checkpoints 1, 3, 4, and 5
- Discussion Board
- Vocabulary Review

Unit 2: Energy Transformations

- Direct Instruction
 - Transformations of Energy
 - Thermal Energy Movement
 - Heat
 - Controlling Thermal Energy Flow
- Checkpoints 6, 7, and 9

- Discussion Board
- Project: Plan an Experiment
- Project: Keeping It Cool
- Vocabulary Review

Unit 3: The Cycling of Water

- Direct Instruction
 - The Water Cycle
 - Powering the Water Cycle
 - Pollution
 - Saving Our Environment
 - The Greenhouse Effect
- Checkpoints 11-15
- Discussion Board
- Practice: Events in the Water Cycle
- Project: Solving an Environmental Issue, Research Write Up
- Project: Solving an Environmental Issue, Plan Write Up
- Vocabulary Review
- Units 1-3 Review
- Units 1-3 Exam

Unit 4: The Earth and Sun's Relationship

- Direct Instruction
 - Earth
 - The Effects of the Sun
 - What Makes Fluids Move
 - Air Currents
- Checkpoints 18-20
- Discussion Board
- Project: Solving an Environmental Issue, Gather Data
- Project: Solving an Environmental Issue, Conclusion Write Up
- Vocabulary Review

Unit 5: All About Weather

- Direct Instruction
 - What is Weather?
 - The Coriolis Effect and Hurricanes
 - Land-Water Relationships
 - Human Impact on Habitats
- Checkpoints 21, 23, and 24
- Discussion Board
- Project: Solving an Environmental Issue, Create Presentation
- Project: Solving an Environmental Issue, Submit Presentation
- Vocabulary Review

Unit 6: Climate Change and Human Impact

- Direct Instruction
 - Our Naturally Changing Climate
 - Human Impact on Earth's Climate
 - Understanding Data
 - Rise in Global Temperatures
 - Global Warming
- Checkpoints 25, 26, 27, and 29
- Discussion Board
- Units 4-6 Review
- Units 4-6 Exam