

Syllabus

Course Name: Earth-Space Science

Prerequisites: None

Estimated Completion Time: 2 segments / 32-36 weeks

Description:

Be captivated by the wonders and beauty of the third planet from our Sun, Earth. Be amazed by what awaits your discovery within our solar system and beyond. It is your turn to explore the universe.

Earth/Space Science is a laboratory course focusing on the study of space, geologic structures and forces, the waters on our planet, and the atmospheric forces that shape our world. Through experimentation and investigation, students will explore the earth cycles including the geosphere, hydrosphere, cryosphere, atmosphere, and the carbon cycle. Students will learn about scientific inquiry, geologic time, space exploration, the solar system, and the universe. Students will use web 2.0 tools, interactive experiences, higher-order thinking, collaborative projects, and real-world application through labs and a variety of assessments. Upon completion of the course, students will have a clear understanding of the dynamic forces at work in the world around them, becoming better caretakers of our planet, Earth.

Major Topics and Concepts:

Segment I:

Beginning with Science

- 00.00: Introduction
- 00.01: Welcome to Earth Space Science
- 00.02: Scientific Investigation
- 00.03: Theories and Laws
- 00.04: Measurement
- 00.04: Measurement (Honors)
- 00.05: Atomic Structure and Forces
- 00.06: Matter and Energy
- 00.07: Discussion-Based Assessment
- 00.07: Module Exam
- 00.07: Module Exam (Honors)

Climate and Meteorology

- 01.00: Introduction
- 01.01: Water Cycle
- 01.02: The Atmosphere
- 01.03: Weather vs. Climate
- 01.04: Meteorology
- 01.05: Severe Weather
- 01.05: Severe Weather (Honors)
- 01.06: Global Climate Change
- 01.07: Collaboration Option

- 01.08: Discussion-Based Assessment
- 01.08: Module Exam
- 01.08: Module Exam (Honors)

Freshwater

- 02.00: Introduction
- 02.01: Surface Water
- 02.02: Groundwater
- 02.03: Water Quality
- 02.04: Water Conservation
- 02.04: Water Conservation (Honors)
- 02.05: Collaboration Option
- 02.06: Discussion-Based Assessment
- 02.06: Module Exam
- 02.06: Module Exam (Honors)

Our Universe

- 03.00: Introduction
- 03.01: Light and the Universe
- 03.02: Exploring the Universe
- 03.02: Exploring the Universe (Honors)
- 03.03: Life Cycle of a Star
- 03.04: Origin and Expansion of the Universe
- 03.05: Collaboration Option
- 03.06: Discussion-Based Assessment
- 03.06: Module Exam
- 03.06: Module Exam (Honors)

Rocks and Minerals

- 04.00: Introduction
- 04.01: Minerals
- 04.02: Rocks and the Rock Cycle
- 04.03: Rocks and Minerals as Resources
- 04.03: Rocks and Minerals as Resources (Honors)
- 04.04: Soil and Soil Formation
- 04.05: Collaboration Option
- 04.06: Discussion-Based Assessment
- 04.06: Module Exam
- 04.06: Module Exam (Honors)

Segment II:

Geologic Time

- 05.00: Introduction
- 05.01: Geologic Time Scale
- 05.02: Relative and Absolute Time
- 05.02: Relative and Absolute Time (Honors)

- 05.03: Origin and Evolution of Life
- 05.04: Collaboration Option
- 05.05: Discussion-Based Assessment
- 05.05: Module Exam
- 05.05: Module Exam (Honors)

Oceans

- 06.00: Introduction
- 06.01: Characteristics of the Ocean
- 06.02: Ocean Circulation
- 06.03: Waves
- 06.04: Tides and Water Power
- 06.04: Tides and Water Power (Honors)
- 06.05: Ocean Interactions
- 06.06: Collaboration Option
- 06.07: Discussion-Based Assessment
- 06.07: Module Exam
- 06.07: Module Exam (Honors)

Our Solar System

- 07.00: Introduction
- 07.01: Formation of our Solar System
- 07.02: Forces in our Solar System
- 07.03: Physical Properties of our Sun
- 07.04: Objects in our Solar System
- 07.04: Objects in our Solar System (Honors)
- 07.05: The Earth in Space
- 07.06: The Earth-Sun-Moon System
- 07.07: Collaboration Option
- 07.08: Discussion-Based Assessment
- 07.08: Module Exam
- 07.08: Module Exam (Honors)

The Geosphere

- 08.00: Introduction
- 08.01: Structure of the Earth
- 08.02: The Carbon Cycle
- 08.03: Mechanisms of Movement
- 08.04: Structural Geology
- 08.05: Geologic Events
- 08.05: Geologic Events (Honors)
- 08.06: Collaboration Option
- 08.07: Discussion-Based Assessment
- 08.07: Module Exam
- 08.07: Module Exam (Honors)

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