

Curriculum Map: Science 6 - Earth Science

Course: SCIENCE 6

Grade(s): None specified

Course Description: This 6th grade science course focuses on the topics associated with Earth and its place in the universe. Its overall objective is to introduce the students to topics related to the natural Earth and how it works. Specifically, topics include ecological biomes, basic meteorology, air pressure, wind, geologic features of the Grand Canyon, and fundamentals of the solar system. The course embeds several projects and inquiry based lab experiments to develop the scientific minds of the students. These skills are further developed using interactive notebooks and various web-based technologies.

Course Textbooks, Workbooks, Materials Citations: Holt, Rhinehart, Winston - Science and Technology: Earth Science copyright 2005.

Science Matters Kit - FOSS Weather and Water

Science Matters Kit - FOSS Earth History

Unit: Unit 1: Biomes and Ecosystems

Unit/Module Big Ideas: [Aquatic, terrestrial and human-made ecosystems consist of diverse living and non-living components that change over time and among geographic areas.](#)

[Living things depend on their habitat to meet their basic needs.](#)

Unit/Module Essential Questions: What factors affect an organism's ability to meet its needs?

How do ecosystems differ and change over time?

This Curriculum Map Unit has no Topics to display

Unit: Unit 2: Weather and Water

Unit/Module Description: The Weather and Water Unit focuses on Earth's atmosphere, weather, and water. Students delve into topics that touch physics and a little chemistry. A good understanding of meteorology as an earth science isn't complete without an introduction to concepts that cross into the realm of physics and chemistry. The importance of water on Earth is a major element of this course.

Unit/Module Big Ideas: [Earth's surface features and atmosphere are a dynamic system operating over different time periods.](#)

[The hydrosphere contains all of the water on Earth.](#)

Unit/Module Essential Questions: What roles do reservoirs and water transfer play in weather, climate variation, and temperature moderation?

In what ways do changes in the atmosphere affect the Earth?

Unit/Module Key Terminology & Definitions: weather - condition of the atmosphere at a given time with respect to heat, pressure, moisture, and motion.
temperature - measure of the amount of heat in a material, such as air.
thermometers - measure objective temperatures for scientific weather research and reporting
air pressure - the force of air pushing down on the Earth resulting from Earth's gravity.
barometer - instrument used to measure air pressure.
wind vanes - instrument used to indicate wind direction.
anemometer - instrument used to measure wind speed.
humidity - amount of water vapor in the air.
hygrometer - instrument used to measure humidity.
dew point - the temperature at which water vapor condenses into liquid water.
rain gauge - instrument used to measure an amount of precipitation.
severe weather - weather conditions containing powerful winds and intense precipitation.
hurricane - cyclonic storm formed in the Atlantic Ocean.
storm surge - huge mountain of water piled up by a storm.
hail - lumps of ice that are normally fairly round and no larger than a centimeter in diameter.

greenhouse effect - energy that is absorbed by the Earth's surface is reradiated as long-wavelength infrared radiation. Infrared is absorbed by carbon dioxide and reradiated back to earth. The amount of heat retained in the atmosphere goes up.

sulfur dioxide - relatively heavy, poisonous gas that occurs naturally in volcanoes and hot springs.

matter - material that makes up the universe.

mass - amount of matter in an object.

energy - the ability to do work.

troposphere - layer of atmosphere at the surface of the Earth.

stratosphere - layer above the troposphere where ozone layer is found.

mesosphere - layer above the stratosphere which is the coldest.

ionosphere - layer of atmosphere above the mesosphere.

exosphere - outermost layer of Earth's atmosphere.

Perihelion - the point at which the Earth is closest to the Sun.

Aphelion - the point at which the Earth is farthest from the Sun.

summer solstice - day when the north pole leans directly toward the Sun.

winter solstice - day when the vertical rays of the Sun hit latitude 23.5 degrees (Tropic of Capricorn).

spring and fall equinox - days when the Sun's rays strike directly on the equator.

heat - kinetic energy.

radiation - energy in the form of waves.

conduction - energy transfer by contact.

temperature - measure of the average level of kinetic energy in a material.

density - ratio of a mass to its volume.

convection - mass movement of warm air upward.

evaporation - process by which liquid water becomes water vapor.

vapor pressure - pressure when the number of water molecules escaping into the atmosphere is exactly equal to the number of water molecules returning to the liquid.

Lesson Topic:

Lesson Topic: What is Weather?

Lesson Topic: Where's the Air?

Lesson Topic: Seasons and the Sun

Lesson Topic: Heat Transfer

Lesson Topic: Convection

Lesson Topic: Water in the Air

Lesson Topic: The Water Planet

Lesson Topic: Air Pressure and Wind

Lesson Topic: Weather and Climate

Unit: Unit 3:Earth History

Unit/Module Description: This unit emphasizes the use of knowledge and evidence to construct explanations about the processes and systems that have operated over geological time. Students investigate sedimentary rocks and fossils from the Grand Canyon to discover clues that reveal Earth's history. They study the processes that create sedimentary, igneous and metamorphic rocks and organize their observations and inferences into the Rock Cycle. Students use the knowledge and data gained from observing rocks to make inferences about organisms, environments, and events that occurred over Earth's history.

Unit/Module Big Ideas: [The Earth is composed of a number of dynamic interacting systems which exchange matter and/or energy.](#)

[The Earth's interior has structure.](#)

[Solid, liquid and gaseous earth materials all circulate in large scale systems at a variety of time scales, giving rise to landscapes, the rock cycle, ocean currents, weather, and climate.](#)

Unit/Module Essential: How are the interactions among earth's systems measured?

Questions: How is the internally structure of the earth organized and classified?
What causes the great variation at Earth's surface?

Lesson Topic: Pushing the Envelope

Lesson Topic: Into the Grand Canyon

Lesson Topic: Grand Canyon

Lesson Topic: Grand Canyon Rocks

Lesson Topic: My Sediments Exactly

Lesson Topic: Limestone

Lesson Topic: It's about Time

Lesson Topic: Fossils and Time

Lesson Topic: One Rock to Another

Unit: Unit 4: Planets of the Solar System

Unit/Module
Big Ideas: [The Earth is part of a solar system.](#)

Unit/Module
Essential How do objects remain in the solar system?
Questions:

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