Earth/Environmental Science explores the biological and physical principles related to the environment in which organisms live on Earth—the Earth's environment in space and its composition, structure, and processes. Course topics include and exploration of the natural systems on Earth; biogeochemical cycles; the nature of matter and energy; the flow of matter and energy through living and geological systems; natural resources; biodiversity; and environmental stewardship.

The course provides students with opportunities to learn and practice scientific skills within the context of relevant scientific questions. Scientific inquiry skills are embedded in the direct instruction, wherein students learn to ask scientific questions, deconstruct claims, form and test hypotheses, and use logic and evidence to draw conclusions about the concepts. Lab and project activities reinforce critical thinking, writing, and communication skills and help students develop a deeper understanding of the nature of science.

This course is built to North Carolina state standards.

Length: Two Semesters

UNIT 1: WHERE IS EARTH?

LESSON 1: THE UNIVERSE

Study: The Big Bang Theory
Discover the Big Bang theory and learn about what evidence is used to support it.
Duration: 1 hr

Study: Galaxies
The Milky Way is only one of many galaxies. Learn about the different types of galaxies in the universe.
Duration: 0 hrs 30 mins

Study: Star Life Cycles
Live like a star. Explore the life cycle of stars. Learn about why the size of a star influences how it dies.
Duration: 1 hr

Quiz: Matter Formation
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 15 mins Scoring: 20 points

LESSON 2: SOLAR SYSTEM FORMATION

Study: Planet Formation
Discover how gravity influences the universe.
Duration: 0 hrs 30 mins

Study: Comets and Asteroid Belts
Learn about comets and asteroids and how they are formed.
Duration: 0 hrs 30 mins

Quiz: How Did Planets Form?
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 15 mins Scoring: 20 points

LESSON 3: OUR NEIGHBORHOOD

Study: Here Comes the Sun
How hot is hot? Examine the structure of the sun and learn about its energy.
Duration: 0 hrs 30 mins

Project: Modeling the Sun

Complete a project to model energy transfer though the layers of the sun and to Earth and to model how sun changes during its life span.

Duration: 1 hr 30 mins Scoring: 50 points

Study: The Inner, Rocky Planets

Analyze similarities and differences among Mercury, Venus, Mars, and Earth.

Duration: 1 hr

Quiz: The Solar System So Far

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Study: The Gas Giants and Pluto

Analyze similarities and differences among Jupiter, Saturn, Neptune, Uranus, and Pluto.

Duration: 1 hr

Quiz: The Rest of the Solar System

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

LESSON 4: PLANET EARTH

Study: The Moving Earth

Around and around we go. Discover how Earth's movements affect conditions on the planet.

Duration: 1 hr

Practice: Stopping the Revolution

Determine how well you understand Earth's movement in space.

Duration: 0 hrs 30 mins Scoring: 10 points

Study: The Living Planet

Discover why life is able to survive on Earth.

Duration: 0 hrs 30 mins

Study: The Moon

Discover how the moon came into being and how it influences the Earth.

Duration: 1 hr

Quiz: The Earth and Moon System

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Discuss: Are We Alone?

Discuss the possible existence of aliens and whether you think space travel and planet colonization might be possible in the future.

Duration: 0 hrs 20 mins Scoring: 10 points

LESSON 5: WHERE IS EARTH? WRAP-UP

Review: Where Is Earth?

Prepare for the unit test by reviewing key concepts and skills.

Duration: 1 hr 30 mins

Test (CS): Where Is Earth?

Take a computer-scored test to assess what you have learned in this unit.

Duration: 0 hrs 15 mins Scoring: 30 points

Test (TS): Where Is Earth?

Take a teacher-scored test to assess what you have learned in this unit.

Duration: 0 hrs 45 mins Scoring: 70 points

UNIT 2: EARTH'S PHYSICAL SYSTEMS

LESSON 1: THE HYDROSPHERE

Study: The Oceans

Describe the reasons that liquid water can exist on Earth. Describe the formation of and characteristics of the major types of bodies of water. Identify reasons for fluctuations in sea level.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: The Oceans

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Study: Bodies of Freshwater

Identify the characteristics of the major types of bodies of water. Describe the formation of and characteristics of the major types of bodies of water.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Bodies of Freshwater

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Study: Movements of the Hydrosphere

Relate solar energy to ocean currents and the distribution of heat around the globe. Describe the causes and effects of ocean waves and tides. Trace the path of groundwater from soil to the ocean.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Movements of the Hydrosphere

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Practice: The Hydrosphere

Describe the reasons that liquid water can exist on Earth. Describe the formation of and characteristics of the major types of bodies of water. Relate solar energy to ocean currents and the distribution of heat around the globe. Identify reasons for fluctuations in sea level. Describe the causes and effects of ocean waves and tides. Trace the path of groundwater from soil to the ocean.

Duration: 0 hrs 30 mins Scoring: 10 points

LESSON 2: THE LITHOSPHERE

Study: Earth's Crust and Landforms

Relate the surface features of Earth's crust to the theory of plate tectonics. Distinguish erosional features and depositional features of Earth's crust.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Earth's Crust and Landforms

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Study: Soil Composition and Structure

Identify the types of weathering and the agents of each type of weathering. Describe the types of soil and the processes of soil formation.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Soil Composition and Structure

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Study: Movements of Land and Soil

Identify the types of erosion and their effects on Earth's crust. Relate the different types of faults to the different types of tectonic plate boundaries.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Movements of Land and Soil

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Explore: Earthquake Prediction and Readiness

Recognize areas on Earth where earthquakes are likely to occur. Distinguish the three types of earthquake waves. Describe how geologists rate the destructive force of an earthquake. Identify ways that human communities in earthquake zones can prepare for and limit damages caused by strong earthquakes.

Duration: 1 hr 30 mins Scoring: 30 points

Checkup: The Lithosphere

Relate the surface features of Earth's crust to the theory of plate tectonics. Distinguish erosional features and depositional features of Earth's crust. Identify the types of weathering and the agents of each type of weathering. Describe the types of soil and the processes of soil formation. Identify the types of erosion and their effects on Earth's crust. Relate the different types of faults to the different types of tectonic plate boundaries. Discuss the validity and impact of scientific research on environmental issues related to human activities.

Duration: 0 hrs 15 mins Scoring: 0 points

LESSON 3: THE ATMOSPHERE

Study: Structure and Movements of the Atmosphere

Describe the structure, composition, and temperature of Earth's atmosphere. Identify the processes of wind generation and relate them to different types of local and global wind systems.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Structure and Movements of the Atmosphere

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Study: Weather and Climate

Describe the major climate zones and their characteristics. Explain how ocean currents, wind patterns, and topography affect climate. Explain how Earth's orbit, tilt, and wobble affect the planet's climate. Describe the effects of El Niño and La Niña on global weather patterns.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Weather and Climate

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Practice: The Atmosphere

Describe the structure, composition, and temperature of Earth's atmosphere. Identify the processes of wind generation and relate them to different types of local and global wind systems. Describe the major climate zones and their characteristics. Explain how ocean currents, wind patterns, and topography affect climate. Explain how Earth's orbit, tilt, and wobble affect the planet's climate. Describe the effects of El Niño and La Niña on global weather patterns. Discuss the validity and impact of scientific research on environmental issues related to human activities.

Duration: 0 hrs 30 mins Scoring: 10 points

LESSON 4: DOING SCIENCE: EARTH'S PHYSICAL SYSTEMS

Study: Investigate Weathering and Erosion

Formulate a hypothesis and design a controlled experiment to test it. Describe common laboratory tools and techniques used to conduct the experiment you designed.

Duration: 0 hrs 45 mins Scoring: 0 points

Quiz: Investigate Weathering and Erosion

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 10 points

Lab: Investigate Weathering and Erosion

Conduct a scientific investigation, using a scientific process and demonstrating the proper and safe use of laboratory equipment. Analyze data by using data tables, calculating the range and average of a set of measurements, and identifying sources of error.

Duration: 1 hr 30 mins Scoring: 40 points

Discuss: Investigate Weathering and Erosion

Analyze data by using data tables, calculating the range and average of a set of measurements, and identifying sources of error. Evaluate lab procedures and results in a discussion with your peers.

Duration: 0 hrs 20 mins Scoring: 10 points

LESSON 5: EARTH'S PHYSICAL SYSTEMS WRAP-UP

Review: Earth's Physical Systems

Review what you have learned in this unit.

Duration: 1 hr Scoring: 0 points

Test (CS): Earth's Physical Systems

Take a computer-scored test to assess what you have learned in this unit.

Duration: 0 hrs 30 mins Scoring: 50 points

Test (TS): Earth's Physical Systems

Take a teacher-scored test to assess what you have learned in this unit.

Duration: 0 hrs 30 mins Scoring: 50 points

UNIT 3: EARTH'S WATER

LESSON 1: THE BLUE PLANET

Study: Water, Water, Everywhere

Get your feet wet. Discover why water exists on Earth, the three states of water, and the processes of the water cycle.

Duration: 0 hrs 30 mins

Practice: Water World

Answer questions to test your understanding of the states and movement of water.

Duration: 0 hrs 30 mins Scoring: 10 points

Quiz: What Do You Know about Water?

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

LESSON 2: GETTING FRESH

Study: Fresh Water

Jump into lakes, swim down rivers, and prowl through wetlands as you explore freshwater on Earth.

Duration: 1 hr

Study: You're Grounded

Learn what groundwater is and how it influences systems above ground.

Duration: 0 hrs 30 mins

Quiz: Different Bodies of Water

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Discuss: Make a Big Splash

Discuss the necessity of clean water and what you can do to protect this valuable resource.

Duration: 0 hrs 20 mins Scoring: 10 points

LESSON 3: THE OCEANS

Study: An Oceanographic Voyage

Travel on a research vessel to learn how oceanographers study the ocean and its inhabitants.

Duration: 1 hr

Study: The Ocean in Motion
Learn about waves, tides, and currents and how they influence the environment.
Duration: 1 hr

Study: Wild World Weather
Assess the effects of El Niño and La Niña on global weather patterns.
Duration: 0 hrs 30 mins

Quiz: Earth's Oceans
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 15 mins Scoring: 20 points

LESSON 4: EARTH'S WATER WRAP-UP

Review: Earth's Water
Prepare for the unit test by reviewing key concepts and skills.
Duration: 1 hr 30 mins

Test (CS): Earth's Water
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hrs 15 mins Scoring: 30 points

Test (TS): Earth's Water
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hrs 45 mins Scoring: 70 points

UNIT 4: EARTH'S ATMOSPHERE

LESSON 1: THE SKY'S THE LIMIT

Study: Layers of the Atmosphere
Float through the atmosphere on layers upon layers of air as an amateur meteorologist.
Duration: 1 hr

Quiz: Know Your Layers
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 15 mins Scoring: 20 points

Discuss: What about This Ozone?
Discuss strategies for reducing our impact on the ozone layer.
Duration: 0 hrs 20 mins Scoring: 10 points

Practice: Up, Up, and Away
Create a diagram to help you remember the layers of the atmosphere.
Duration: 0 hrs 30 mins Scoring: 13 points

LESSON 2: CYCLES IN THE ATMOSPHERE

Study: Carbon and Nitrogen
What goes around comes around — especially when it comes to carbon and nitrogen.
Duration: 1 hr

Lab: Investigate Cycling of O_2 and CO_2
Complete a lab to model the carbon cycle by observing how plants and yeast exchange gases with their surroundings.
Duration: 1 hr 30 mins Scoring: 50 points

Study: Taking the Heat
Compare conduction, convection, and radiation. Learn how these methods of heat transfer drive atmospheric processes.
Duration: 1 hr

Quiz: Air Head
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 15 mins Scoring: 20 points

LESSON 3: THE WINDY PLANET

Study: Why the Wind Blows
Discover how Earth's rotation and revolution, atmospheric gases, and differences in land, ice, and water conspire to create wind.
Duration: 1 hr

Study: Which Way the Wind Blows
Learn about global patterns of air circulation and find out what drives and gets driven by them.
Duration: 1 hr

Quiz: Do You Know about Currents?
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 15 mins Scoring: 20 points

LESSON 4: EARTH'S ATMOSPHERE WRAP-UP

Review: Earth's Atmosphere
Prepare for the unit test by reviewing key concepts and skills.
Duration: 1 hr 30 mins

Test (CS): Earth's Atmosphere
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hrs 15 mins Scoring: 30 points

Test (TS): Earth's Atmosphere
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hrs 45 mins Scoring: 70 points

UNIT 5: THE BIOSPHERE

LESSON 1: NATURE OF THE BIOSPHERE

Study: Biotic and Abiotic Factors
Recognize the major types of biotic factors in an ecosystem and their roles in the biosphere. Distinguish biological species, populations, and communities. Identify the abiotic factors in an ecosystem. Explain how biotic factors interact with the abiotic factors of an ecosystem.
Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Biotic and Abiotic Factors
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 15 mins Scoring: 20 points

Study: Biogeochemical Cycles
Trace the movement of water in the water cycle from one part of the environment to another. Trace the movement of carbon in the carbon cycle from one part of the environment to another. Trace the movement of nitrogen and phosphorus from one part of the environment to another.
Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Biogeochemical Cycles
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 15 mins Scoring: 20 points

Practice: Nature of the Biosphere
Recognize the major types of biotic factors in an ecosystem and their roles in the biosphere. Distinguish biological species, populations, and communities. Identify the abiotic factors in an ecosystem and their importance to living organisms. Explain how biotic factors interact with the abiotic factors of an ecosystem. Trace the movement of water in the water cycle from one part of the environment to another. Trace the movement of carbon in the carbon cycle from

one part of the environment to another. Trace the movement of nitrogen and phosphorus from one part of the environment to another.

Duration: 0 hrs 30 mins Scoring: 10 points

Project: Explore Your Local Ecosystem

Recognize the major types of biotic factors in an ecosystem and their roles in the biosphere. Distinguish biological species, populations, and communities. Identify the abiotic factors in an ecosystem and their importance to living organisms. Explain how biotic factors interact with the abiotic factors of an ecosystem.

Duration: 3 hrs Scoring: 50 points

LESSON 2: MATTER AND ENERGY IN THE BIOSPHERE

Study: Matter and Energy

Recognize the major types of matter that make up the biosphere. Recognize the forms of energy that enter and flow through the geosphere. Identify the processes that transform energy as it moves through the geosphere. Compare the characteristics of different surfaces on Earth, including albedo and heat capacity. Differentiate among scavengers, decomposers, and detritivores. Trace the flow of matter and energy through a food chain and a food web.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Matter and Energy

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Study: The Flow of Matter and Energy

Differentiate among scavengers, decomposers, and detritivores. Trace the flow of matter and energy through a food chain and a food web.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: The Flow of Matter and Energy

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Practice: Matter and Energy in the Biosphere

Recognize the major types of matter that make up the biosphere. Recognize the forms of energy that enter and flow through the geosphere. Identify the processes that transform energy as it moves through the geosphere. Compare the characteristics of different surfaces on Earth, including albedo and heat capacity. Differentiate among scavengers, decomposers, and detritivores. Trace the flow of matter and energy through a food chain and a food web.

Duration: 0 hrs 30 mins Scoring: 10 points

LESSON 3: ECOSYSTEMS AND BIOMES

Study: Terrestrial Biomes

Describe characteristics of land ecosystems.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Terrestrial Biomes

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Study: Aquatic Ecosystems

Describe characteristics of aquatic ecosystems.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Aquatic Ecosystems

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Study: Land Ecosystems

Identify the major land and aquatic biomes. Describe the distinguishing biotic and abiotic features of a given biome. Compare the plants and animals of your local biome with those of the other major biomes found in North America.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Land Ecosystems
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 15 mins Scoring: 20 points

Explore: The Importance of Coral Reefs
Describe characteristics of aquatic ecosystems. Evaluate the importance of individual ecosystems to the health of biomes and the biosphere.
Duration: 1 hr 30 mins Scoring: 30 points

Checkup: Ecosystems and Biomes
Describe characteristics of land ecosystems. Describe characteristics of aquatic ecosystems. Identify the major land and aquatic biomes. Describe the distinguishing biotic and abiotic features of a given biome. Compare the plants and animals of your local biome with those of the other major biomes found in North America. Evaluate the importance of individual ecosystems to the health of biomes and the biosphere. Discuss the validity and impact of scientific research on environmental issues related to human activities.
Duration: 0 hrs 15 mins Scoring: 0 points

LESSON 4: DOING SCIENCE: THE BIOSPHERE

Study: Investigate Using a Dichotomous Key
Describe the use of dichotomous keys in the identification of plants and animals. Formulate a hypothesis and design a controlled experiment to test it. Describe common laboratory tools and techniques used to conduct the experiment you designed.
Duration: 0 hrs 45 mins Scoring: 0 points

Quiz: Investigate Using a Dichotomous Key
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 15 mins Scoring: 10 points

Lab: Investigate Using a Dichotomous Key
Conduct a scientific investigation, using a scientific process and demonstrating the proper and safe use of laboratory equipment. Analyze data by using data tables, calculating the range and average of a set of measurements, and identifying sources of error
Duration: 1 hr 30 mins Scoring: 40 points

Discuss: Investigate Using a Dichotomous Key
Analyze data by using data tables, calculating the range and average of a set of measurements, and identifying sources of error. Evaluate lab procedures and results in a discussion with your peers.
Duration: 0 hrs 20 mins Scoring: 10 points

LESSON 5: THE BIOSPHERE WRAP-UP

Review: The Biosphere
Review what you have learned in this unit.
Duration: 1 hr Scoring: 0 points

Test (CS): The Biosphere
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hrs 30 mins Scoring: 50 points

Test (TS): The Biosphere
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hrs 30 mins Scoring: 50 points

UNIT 6: SEMESTER 1 WRAP-UP

LESSON 1: SEMESTER 1 WRAP-UP

Review: Semester 1 Review
Review what you have learned in this semester.

Duration: 1 hr Scoring: 0 points

Exam: Semester 1 Computer-Scored Exam

Take a computer-scored exam to demonstrate your mastery of concepts and skills covered in this semester.

Duration: 1 hr Scoring: 92 points

Final Exam: Semester 1 Teacher-Scored Exam

Take a teacher-scored exam to demonstrate your mastery of concepts and skills covered in this semester.

Duration: 1 hr Scoring: 128 points

UNIT 7: ECOLOGY

LESSON 1: POPULATIONS

Study: Characteristics of Populations

Identify characteristics used to describe populations. Identify limiting factors that affect populations and their characteristics. Describe a population's carrying capacity and the factors that determine the carrying capacity. Explain how populations change in size.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Characteristics of Populations

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Study: Population Growth

Describe the factors that produce both positive and negative population growth. Compare exponential and logistic patterns of population growth. Explain the significance of studying populations over time.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Population Growth

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Practice: Populations

Identify characteristics used to describe populations. Identify limiting factors that affect populations and their characteristics. Describe a population's carrying capacity and the factors that determine the carrying capacity. Explain how populations change in size. Describe the factors that produce both positive and negative population growth. Compare exponential and logistic patterns of population growth. Explain the significance of studying populations over time.

Duration: 0 hrs 30 mins Scoring: 10 points

LESSON 2: COMMUNITIES

Study: What Is a Biological Community?

Distinguish biological communities from populations and ecosystems. Identify major types of biological communities.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: What Is a Biological Community?

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Study: Species Interactions

Describe the types of interactions that occur among the species in biological communities. Analyze food chains and food webs that describe the interactions of species in a biological community. Explain the nature and importance of ecological niches.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Species Interactions

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Study: Community Structure

Model the makeup of communities using ecological pyramids. Understand the factors that affect community stability and biodiversity.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Community Structure

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Practice: Communities

Distinguish biological communities from populations and ecosystems. Identify major types of biological communities. Describe the types of interactions that occur among the species in biological communities. Analyze food chains and food webs that describe the interactions of species in a biological community. Explain the nature and importance of an ecological niche. Model the makeup of communities using ecological pyramids. Understand the factors that affect community stability and biodiversity

Duration: 0 hrs 30 mins Scoring: 10 points

LESSON 3: CHANGES IN ECOSYSTEMS

Study: Natural Disturbances and Succession

Describe how destructive natural events in the geosphere can affect ecosystems. Predict the effects of the removal of species from biological communities. Predict the effects of the introduction of nonnative species on communities.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Natural Disturbances and Succession

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Study: Evolution and Biodiversity

Identify the sources and importance of genetic diversity in natural populations, ecosystems, and the biosphere. Summarize the process of natural selection and its role in biological evolution. Predict changes that may occur in an ecosystem when its amount of biodiversity changes.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Evolution and Biodiversity

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Explore: Biodiversity Hot Spots

Summarize the process of natural selection and its role in biological evolution. Explain the importance of biodiversity in the biosphere.

Duration: 1 hr 30 mins Scoring: 30 points

Checkup: Changes in Ecosystems

Describe how destructive natural events in the geosphere can affect ecosystems. Predict the effects of the removal of species from biological communities. Predict the effects of the introduction of nonnative species on communities. Recognize the sources and importance of genetic diversity in natural populations, ecosystems, and the biosphere. Summarize the process of natural selection and its role in biological evolution. Predict changes that may occur in an ecosystem when its amount of biodiversity changes. Discuss the validity and impact of scientific research on environmental issues related to human activities.

Duration: 0 hrs 15 mins Scoring: 0 points

LESSON 4: DOING SCIENCE: ECOLOGY

Study: Investigate Cycling of Matter and Energy

Formulate a hypothesis and design a controlled experiment to test it. Describe common laboratory tools and techniques used to conduct the experiment you designed.

Duration: 0 hrs 45 mins Scoring: 0 points

Quiz: Investigate Cycling of Matter and Energy

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 10 points

Lab: Investigate Cycling of Matter and Energy

Conduct a scientific investigation, using a scientific process and demonstrating the proper and safe use of laboratory equipment. Analyze data by using data tables, calculating the range and average of a set of measurements, and identifying sources of error.

Duration: 1 hr 30 mins Scoring: 40 points

Discuss: Investigate Cycling of Matter and Energy

Analyze data by using data tables, calculating the range and average of a set of measurements, and identifying sources of error. Evaluate lab procedures and results in a discussion with your peers.

Duration: 0 hrs 20 mins Scoring: 10 points

LESSON 5: ECOLOGY WRAP-UP

Review: Ecology

Review what you have learned in this unit.

Duration: 1 hr Scoring: 0 points

Test (CS): Ecology

Take a computer-scored test to assess what you have learned in this unit.

Duration: 0 hrs 30 mins Scoring: 50 points

Test (TS): Ecology

Take a teacher-scored test to assess what you have learned in this unit.

Duration: 0 hrs 30 mins Scoring: 50 points

UNIT 8: LAYING THE GROUNDWORK

LESSON 1: EARTH'S LAYERS

Study: The Door to the Core

Get to the center of everything. (Just because it is out of sight doesn't mean it is out of mind.)

Duration: 1 hr

Study: The Mantle and Crust

Envision the layers of Earth's mantle and discover the composition and characteristics of the Earth's crust.

Duration: 0 hrs 45 mins

Lab: Modeling Convection in Earth's Interior

Complete a lab to build a model using warm and cold water to represent the cycling of matter inside Earth.

Duration: 1 hr 30 mins Scoring: 50 points

Discuss: Journey to the Center of Earth

Discuss whether you think existing data supports current theories about Earth's interior. What additional research would be beneficial?

Duration: 0 hrs 30 mins Scoring: 10 points

Quiz: Earth's Layers

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

LESSON 2: EARTH'S MAGNETISM

Study: A Magnetic Personality

Why does a magnet stick to the fridge? Learn about magnetism and the magnetic field that surrounds the Earth.

Duration: 1 hr

Quiz: Magnetic Fields

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

LESSON 3: IT IS DEEPLY MOVING

Study: Plate Tectonics
Consider how plate tectonics literally rock the world.
Duration: 1 hr

Practice: Chronic Tectonics
Check to see if you understand the theory of plate tectonics.
Duration: 0 hrs 30 mins Scoring: 12 points

Study: Whose Fault Is It, Anyway?
Examine fault lines and discover why they form.
Duration: 0 hrs 45 mins

Quiz: Fault Assault
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 15 mins Scoring: 20 points

LESSON 4: LAYING THE GROUNDWORK WRAP-UP

Review: Laying the Groundwork
Prepare for the unit test by reviewing key concepts and skills.
Duration: 2 hrs

Test (CS): Laying the Groundwork
Take a computer-scored test to assess what you have learned in this unit.
Duration: 0 hrs 15 mins Scoring: 30 points

Test (TS): Laying the Groundwork
Take a teacher-scored test to assess what you have learned in this unit.
Duration: 0 hrs 45 mins Scoring: 70 points

UNIT 9: THE MOVERS AND SHAKERS

LESSON 1: MOUNTAINS TO TRENCHES

Study: Ocean Commotion
Examine features of ocean ridges and trenches to learn how Earth's crust gets recycled.
Duration: 1 hr

Study: Ain't No Mountain High Enough
Learn how mountains grow and change around the globe.
Duration: 1 hr

Quiz: Feature Creep
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 15 mins Scoring: 20 points

LESSON 2: CREAKS AND HAZARDS

Study: In a Volcanic Panic
Feel the heat, taste the ashes. Get up close and personal with some sleeping and waking volcanoes.
Duration: 1 hr

Practice: The Yellowstone Supervolcano
Practice your volcano smarts with a case-study look at Yellowstone National Park's supervolcano.
Duration: 0 hrs 30 mins Scoring: 10 points

Study: Brake for Quakes
Try to stay on your feet while you learn what happens when tectonic plates shift suddenly.
Duration: 1 hr

Quiz: Cracking Up

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

LESSON 3: SCULPTING EARTH

Study: Down and Dirty

Discover what happens when wind, water, and gravity do their dirty work.

Duration: 0 hrs 45 mins

Lab: Investigating How Water Affects Earth's Rock

Complete a lab to investigate how water's ability to dissolve various minerals contributes to the weathering and erosion of rocks.

Duration: 1 hr 30 mins Scoring: 50 points

Study: Karst Topography

Consider how chemical weathering can cause the formation of caves and caverns.

Duration: 1 hr

Study: At a Glacial Pace

When mighty glaciers come your way, you'd better run! Examine how glaciers shape the Earth and discover what they leave behind.

Duration: 1 hr

Project: Modeling the Formation of Earth's Features

Complete a project to research the processes that formed two of Earth's features so that you can build a model of them.

Duration: 1 hr 30 mins Scoring: 50 points

Quiz: Wasting Away

Test your understanding of weathering and erosion, karst topography, and glaciers.

Duration: 0 hrs 15 mins Scoring: 20 points

LESSON 4: THE MOVERS AND SHAKERS WRAP-UP

Review: The Movers and Shakers

Prepare for the unit test by reviewing key concepts and skills.

Duration: 1 hr 30 mins

Test (CS): The Movers and Shakers

Take a computer-scored test to assess what you have learned in this unit.

Duration: 0 hrs 15 mins Scoring: 30 points

Test (TS): The Movers and Shakers

Take a teacher-scored test to assess what you have learned in this unit.

Duration: 0 hrs 45 mins Scoring: 70 points

UNIT 10: MINERALS AND ROCKS

LESSON 1: MINERALS

Study: Mining for Minerals

Explore the structure and general characteristics of minerals.

Duration: 1 hr

Study: Identifying Minerals

Explore the unique chemical and physical properties of minerals. Discover tests that geologists use to identify minerals.

Duration: 0 hrs 30 mins

Quiz: Mineral Logic

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

LESSON 2: IGNEOUS ROCKS

Study: Cool, Magma
Discover how igneous rocks form.
Duration: 1 hr

Study: Fire Up Your Skill
Get fired up about classifying igneous rocks.
Duration: 0 hrs 30 mins

Quiz: Igneous Success
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 15 mins Scoring: 20 points

LESSON 3: SEDIMENTARY ROCKS

Study: From Particles to Rock
Describe the formation of clastic, biogenic, and chemical sedimentary rocks and discover some fossils.
Duration: 1 hr

Study: An Assortment of Sediments
Learn how to classify types of sedimentary rocks.
Duration: 0 hrs 30 mins

Quiz: Sedimentary? It's Elementary!
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 15 mins Scoring: 20 points

LESSON 4: METAMORPHIC ROCKS

Study: Ch-Ch-Changes
Consider how heat and pressure can change the structure of a rock.
Duration: 1 hr

Study: Arranging Changes
Learn how to classify metamorphic rocks.
Duration: 0 hrs 30 mins

Quiz: Metamorphism
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 15 mins Scoring: 20 points

LESSON 5: THE ROCK CYCLE

Study: Rocky Road
Learn about the rock cycle and the forces that drive it.
Duration: 0 hrs 30 mins

Discuss: Rock the Rock Cycle
Discuss the rock cycle.
Duration: 0 hrs 30 mins Scoring: 10 points

Practice: Rock Steady
Practice what you have learned about the rock cycle.
Duration: 0 hrs 30 mins Scoring: 12 points

Quiz: Rock It
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 15 mins Scoring: 20 points

LESSON 6: MINERALS AND ROCKS WRAP-UP

Review: Minerals and Rocks

Prepare for the unit test by reviewing key concepts and skills.

Duration: 1 hr 30 mins

Test (CS): Minerals and Rocks

Take a computer-scored test to assess what you have learned in this unit.

Duration: 0 hrs 15 mins Scoring: 30 points

Test (TS): Minerals and Rocks

Take a teacher-scored test to assess what you have learned in this unit.

Duration: 0 hrs 45 mins Scoring: 70 points

UNIT 11: HUMANS AND THE ENVIRONMENT

LESSON 1: HUMAN SOCIETIES

Study: Human Populations

Describe historical trends in human population growth and distribution. Identify characteristics of human populations.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Human Populations

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Study: Human Communities

Describe the purposes of human communities. Identify different kinds of human communities. Explain how individuals work together in groups. Explain how individuals and groups work together in communities.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Human Communities

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Checkup: Human Societies

Describe historical trends in human population growth and distribution. Identify characteristics of human populations. Describe the purposes of human communities. Identify different kinds of human communities. Explain how individuals work together in groups. Explain how individuals and groups work together in communities.

Duration: 0 hrs 15 mins Scoring: 0 points

Explore: Public Health Policies

Research objectives and accomplishments of public health policies.

Duration: 1 hr 30 mins Scoring: 30 points

LESSON 2: EARTH'S NATURAL RESOURCES

Study: Land and Water Resources

Identify natural resources obtained from Earth's land and water and used to support the lifestyles of humans. Recognize the interdependence of natural resources. Evaluate the economic significance of natural resources.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Land and Water Resources

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Study: Mineral and Energy Resources

Identify types and sources of mineral resources used to produce goods and energy that support human lifestyles. Recognize the interdependence of natural resources.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Mineral and Energy Resources

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Study: Biological Resources

Identify types and sources of biological resources used to produce food and goods that support human lifestyles. Evaluate the economic significance of natural resources. Recognize the interdependence of natural resources.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Biological Resources

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Practice: Earth's Natural Resources

Identify the types of Earth's land and water used to support the lifestyles of humans. Identify types and sources of mineral resources used to produce goods and energy that support human lifestyles. Recognize the interdependence of natural resources. Identify types and sources of biological resources used to produce food and goods that support human lifestyles.

Duration: 0 hrs 30 mins Scoring: 10 points

LESSON 3: LAND USE AND ITS EFFECTS

Study: Agriculture, Forestry, and Fishing

Evaluate the economic significance of natural resources. Summarize the effects and cost-benefit trade-offs of practices used in commercial agriculture, forestry, and fishing. Evaluate the hazards and risks involved in obtaining natural resources.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Agriculture, Forestry, and Fishing

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Study: Mining and Drilling

Evaluate the economic significance of natural resources. Evaluate the hazards and risks to human health and well-being involved in obtaining and managing natural resources. Summarize the advantages and disadvantages of using different energy resources.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Mining and Drilling

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Study: Recreation, Conservation, and Urban Development

Summarize the effects on natural ecosystems of human activities such as recreation, urbanization, conservation, preservation, restoration, and resource gathering and management.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Recreation, Conservation, and Urban Development

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Practice: Land Use and Its Effects

Evaluate the economic significance of natural resources. Summarize the effects and cost-benefit trade-offs of practices used in commercial agriculture, forestry, and fishing. Evaluate the hazards and risks involved in obtaining natural resources. Evaluate the hazards and risks to human health and well-being involved in obtaining and managing natural resources. Summarize the advantages and disadvantages of using different energy resources. Summarize the effects on natural ecosystems of human activities such as recreation, urbanization, conservation, preservation, restoration, and resource gathering and management. Discuss the validity and impact of scientific research on environmental issues related to human activities.

Duration: 0 hrs 30 mins Scoring: 10 points

LESSON 4: DOING SCIENCE: HUMANS AND THE ENVIRONMENT

Study: Investigate Resource Consumption

Learn about resource consumption.

Duration: 0 hrs 45 mins Scoring: 0 points

Quiz: Investigate Resource Consumption

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 10 points

Lab: Investigate Resource Consumption

Conduct a scientific investigation, using a scientific process and demonstrating the proper and safe use of laboratory equipment. Analyze data by using data tables, calculating the range and average of a set of measurements, and identifying sources of error.

Duration: 1 hr 30 mins Scoring: 40 points

Discuss: Investigate Resource Consumption

Discuss the results of the resource consumption investigation.

Duration: 0 hrs 20 mins Scoring: 10 points

LESSON 5: HUMANS AND THE ENVIRONMENT WRAP-UP

Review: Humans and the Environment

Review what you have learned in this unit.

Duration: 1 hr Scoring: 0 points

Test (CS): Humans and the Environment

Take a computer-scored test to assess what you have learned in this unit.

Duration: 0 hrs 30 mins Scoring: 50 points

Test (TS): Humans and the Environment

Take a teacher-scored test to assess what you have learned in this unit.

Duration: 0 hrs 30 mins Scoring: 50 points

UNIT 12: ENVIRONMENTAL CHALLENGES

LESSON 1: RESOURCE AVAILABILITY

Study: Renewable Resources

Identify renewable resources on which humans depend. Differentiate between renewable and nonrenewable resources. Evaluate the cost-benefit trade-offs of using renewable resources instead of nonrenewable resources.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Renewable Resources

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Study: Nonrenewable Resources

Identify nonrenewable resources on which humans depend. Differentiate between renewable and nonrenewable resources. Describe how the use of natural resources will affect future generations of humans.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Nonrenewable Resources

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Study: Alternative Energy Resources

Describe how the use of natural resources will affect future generations of humans. Describe alternative forms of energy production.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Alternative Energy Resources

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Practice: Resource Availability

Identify renewable resources on which humans depend. Identify nonrenewable resources on which humans depend. Differentiate between renewable and nonrenewable resources. Evaluate the cost-benefit trade-offs of using renewable resources instead of nonrenewable resources. Describe how the use of natural resources will affect future generations of humans. Describe alternative forms of energy production.

Duration: 0 hrs 30 mins Scoring: 10 points

LESSON 2: POLLUTION AND WASTE MANAGEMENT

Study: Water, Air, and Land Pollution

Identify point sources and nonpoint sources of air, land, and water pollution. Describe the effects of pollution on oceans, freshwater supplies, air, and land. Recognize the consequences of air, land, and water pollution on human health and societies. Evaluate the hazards pollutants pose to wildlife and other types of natural resources.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Water, Air, and Land Pollution

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Study: Waste Management

Describe methods of waste management, including burial in a landfill, dumping, incineration, composting, recycling, and reuse. Evaluate the impact of waste management and reduction strategies on resource availability.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Waste Management

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Practice: Pollution and Waste Management

Identify point sources and nonpoint sources of air, land, and water pollution. Describe the effects of pollution on oceans, freshwater supplies, air, and land. Recognize the consequences of air, land, and water pollution on human health and societies. Evaluate the hazards pollutants pose to wildlife and other types of natural resources. Describe methods of waste management, including burial in a landfill, dumping, incineration, composting, recycling, and reuse. Evaluate the impact of waste management and reduction strategies on resource availability.

Duration: 0 hrs 30 mins Scoring: 10 points

LESSON 3: ENVIRONMENTAL CHANGE

Study: Climate Change

Describe effects of air pollution on the natural systems that regulate Earth's climate. Analyze the historical trends observed in global climate data. Relate human activities to observed changes in global climate. Evaluate differing views on global warming and climate change.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Climate Change

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Study: Effects of Climate Change

Summarize scientists' predictions about the effects of global climate change on the biosphere. Evaluate differing views on global warming and climate change.

Duration: 1 hr 30 mins Scoring: 0 points

Quiz: Effects of Climate Change

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 20 points

Explore: Effects of Climate Change

Explore scientists' predictions about the effects of global climate change on the biosphere.

Duration: 1 hr 30 mins Scoring: 30 points

Checkup: Environmental Change

Describe effects of air pollution on the natural systems that regulate Earth's climate. Analyze the historical trends observed in global climate data. Relate human activities to observed changes in global climate. Evaluate differing views on global warming and climate change. Summarize scientists' predictions about the effects of global climate change on the biosphere. Discuss the validity and impact of scientific research on environmental issues related to human activities.

Duration: 0 hrs 15 mins Scoring: 0 points

LESSON 4: DOING SCIENCE: ENVIRONMENTAL CHALLENGES

Study: Investigate How Pollutants Affect Plants

Learn about how pollutants affect plant life.

Duration: 0 hrs 45 mins Scoring: 0 points

Quiz: Investigate How Pollutants Affect Plants

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 15 mins Scoring: 10 points

Lab: Investigate How Pollutants Affect Plants

Conduct a scientific investigation, using a scientific process and demonstrating the proper and safe use of laboratory equipment. Analyze data by using data tables, calculating the range and average of a set of measurements, and identifying sources of error.

Duration: 1 hr 30 mins Scoring: 40 points

Discuss: Investigate How Pollutants Affect Plants

Discuss the results of the investigation.

Duration: 0 hrs 20 mins Scoring: 10 points

LESSON 5: ENVIRONMENTAL CHALLENGES WRAP-UP

Review: Environmental Challenges

Review what you have learned in this unit.

Duration: 1 hr Scoring: 0 points

Test (CS): Environmental Challenges

Take a computer-scored test to assess what you have learned in this unit.

Duration: 0 hrs 30 mins Scoring: 50 points

Test (TS): Environmental Challenges

Take a teacher-scored test to assess what you have learned in this unit.

Duration: 0 hrs 30 mins Scoring: 50 points

UNIT 13: SEMESTER 2 WRAP-UP

LESSON 1: SEMESTER 2 WRAP-UP

Review: Semester 2 Review

Review what you have learned in this unit.

Duration: 1 hr Scoring: 0 points

Exam: Semester 2 Computer-Scored Exam

Take a computer-scored exam to demonstrate your mastery of concepts and skills covered in this semester.

Duration: 1 hr Scoring: 108 points

Final Exam: Semester 2 Teacher-Scored Exam

Take a teacher-scored exam to demonstrate your mastery of concepts and skills covered in this semester.

Duration: 1 hr Scoring: 109 points