

The Living Earth integrates biology with Earth and space science. Throughout the course, students apply fundamental biological concepts to better understand how living systems and Earth's systems are interrelated and interdependent.

Course topics include structure and function of living organisms, heredity, genetic variation, natural selection, evolution, the biosphere, types of ecosystems and biomes, the ecology of populations and communities, the effects of change on the biosphere and its parts, the relationship of humans with the environment, and explorations of challenges humans face and sustainable solutions for the future health of Earth and its inhabitants.

Students discover new concepts through guided instruction and confirm their understanding in an interactive, feedback-rich environment. Scientific inquiry skills are embedded in the direct instruction, wherein students learn to ask scientific questions, form and test hypotheses, and use logic and evidence to draw conclusions about the concepts.

A variety of activities encourage students to think scientifically. Lab and Project activities reinforce critical thinking, writing, and communication skills and help students develop a deeper understanding of the nature of science and engineering. Virtual Lab activities enable students to engage in investigations that require long periods of observation at remote locations and to explore simulations that allow scientists to test predictions. In Discussions, students compare their lab or project results and exchange ideas about their investigations. Journal, Checkup, and Practice activities provide additional opportunities for students to practice their writing and scientific reasoning skills and apply learned concepts.

This course is built to Next Generation Science Standards. Throughout the course, students are evaluated via a variety of assessments designed to prepare them for the content, form, and depth of state exams.

UNIT 1: INTRODUCTION TO THE LIVING EARTH

LESSON 1: CORE IDEAS OF LIFE SCIENCE

Study: Key Concepts of Life Science

Learn about the concepts that connect all of life science.

Duration: 1 hr Scoring: 0 points

Quiz: Key Concepts of Life Science

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Study: Chemistry of Living Systems

Learn about the chemical composition of living things and key chemical processes that sustain life.

Duration: 1 hr Scoring: 0 points

Quiz: Chemistry of Living Systems

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Practice: Core Ideas of Life Science

Practice problem-solving skills related to concepts in the lesson.

Duration: 0 hrs 40 mins Scoring: 10 points

LESSON 2: STRUCTURE AND FUNCTION: CELLS TO ORGANISMS

Study: Specialized Cells and Tissues

Learn about the major kinds of specialized cells and tissues that multicellular organisms have.

Duration: 1 hr Scoring: 0 points

Quiz: Specialized Cells and Tissues

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Study: Organs and Organ Systems

Learn about the major kinds of specialized organs and organ systems that multicellular organisms have.

Duration: 1 hr Scoring: 0 points

Quiz: Organs and Organ Systems

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Checkup: Structure and Function: Cells to Organisms

Checkup and apply what you have learned.

Duration: 0 hrs 20 mins Scoring: 0 points

LESSON 3: MAINTAINING HOMEOSTASIS

Study: Interactions of Human Body Systems

Learn about human organ systems and how they interact to maintain homeostasis.

Duration: 1 hr Scoring: 0 points

Quiz: Interactions of Human Body Systems

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Study: Responses to Stimuli

Learn how animals and plants respond to stimuli from their environment in order to maintain homeostasis.

Duration: 1 hr Scoring: 0 points

Quiz: Responses to Stimuli

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Lab: Virtual Lab: Thermoregulation in Desert Animals

Use the scientific method to perform an experiment by making observations of a virtual ecosystem outside of the traditional laboratory environment.

Duration: 1 hr Scoring: 50 points

LESSON 4: DOING SCIENCE: INTRODUCTION TO THE LIVING EARTH

Study: Scientific Practices

Learn about the process of scientific inquiry.

Duration: 1 hr Scoring: 0 points

Quiz: Scientific Practices

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Lab: Scientific Method

Use the scientific method to perform a lab experiment

Duration: 1 hr Scoring: 50 points

Discuss: Scientific Method

Discuss the results of your lab.

Duration: 0 hrs 20 mins Scoring: 15 points

Lab: Investigate Living Things

Use the scientific method to perform an experiment outside of the traditional laboratory environment.

Duration: 1 hr Scoring: 50 points

Project: Evidence of a Feedback Mechanism in Homeostasis

Use the scientific method to complete an investigation outside of the traditional laboratory environment and prepare a report that describes the investigation and its findings.

Duration: 3 hrs Scoring: 50 points

LESSON 5: INTRODUCTION TO THE LIVING EARTH: WRAP UP

Review: Unit Review

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

Duration: 0 hrs 30 mins Scoring: 0 points

Test (CS): Computer-Scored Unit Test

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

Duration: 0 hrs 30 mins Scoring: 50 points

UNIT 2: DNA AND HEREDITY

LESSON 1: DNA AND CELL REPRODUCTION

Study: Organization of DNA

Learn about the organization of DNA into alleles, genes, and chromosomes.

Duration: 1 hr Scoring: 0 points

Quiz: Organization of DNA

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Study: Mitosis

Learn about the process of mitosis.

Duration: 1 hr Scoring: 0 points

Quiz: Mitosis

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Practice: DNA and Cell Reproduction

Practice problem-solving skills related to concepts in the lesson.

Duration: 0 hrs 40 mins Scoring: 25 points

Lab: Modeling Mitosis

Use the scientific method to perform an experiment outside of the traditional laboratory environment.

Duration: 1 hr Scoring: 50 points

LESSON 2: HEREDITY

Study: Meiosis

Learn about the process of meiosis.

Duration: 1 hr Scoring: 0 points

Quiz: Meiosis

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Lab: Modeling Meiosis

Use the scientific method to perform an experiment outside of the traditional laboratory environment.

Duration: 1 hr Scoring: 50 points

Study: Principles of Heredity

Learn about the principles of heredity and the importance of genetics to organisms.

Duration: 1 hr Scoring: 0 points

Quiz: Principles of Heredity

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Checkpoint: Heredity

Checkpoint and apply what you have learned.

Duration: 0 hrs 20 mins Scoring: 0 points

LESSON 3: MENDELIAN GENETICS

Study: Basics of Mendelian Genetics

Learn about the history and principles of Mendelian genetics.

Duration: 1 hr Scoring: 0 points

Quiz: Basics of Mendelian Genetics

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Journal: Your Traits

Reflect on the uniqueness of human traits.

Duration: 0 hrs 20 mins Scoring: 20 points

Study: Predicting Genetic Outcomes

Learn how to predict genetic outcomes. Learn how to use Punnett squares.

Duration: 1 hr Scoring: 0 points

Quiz: Predicting Genetic Outcomes

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Practice: Mendelian Genetics

Practice problem-solving skills related to concepts in the lesson.

Duration: 0 hrs 40 mins Scoring: 25 points

LESSON 4: DNA AND HEREDITY WRAP-UP

Review: Unit Review

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

Duration: 0 hrs 30 mins Scoring: 0 points

Test (CS): Computer-Scored Unit Test

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

Duration: 0 hrs 30 mins Scoring: 50 points

UNIT 3: DNA TO PROTEINS

LESSON 1: STRUCTURE OF GENETIC MATERIAL

Study: DNA Replication

Learn about the structure of DNA. Learn about the process of DNA replication.

Duration: 1 hr Scoring: 0 points

Quiz: DNA Replication

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Study: Transcription

Learn about how DNA is read to make mRNA in the process of transcription.

Duration: 1 hr Scoring: 0 points

Quiz: Transcription

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Checkpoint: Structure of Genetic Material

Checkup and apply what you have learned.

Duration: 0 hrs 20 mins Scoring: 0 points

LESSON 2: FROM NUCLEIC ACIDS TO PROTEINS

Study: Translation

Learn about mRNA is used to build molecules of protein.

Duration: 1 hr Scoring: 0 points

Quiz: Translation

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Study: Genetic Mutations

Learn how genetic mutations occur, the effect of mutations, and different types of mutations.

Duration: 1 hr Scoring: 0 points

Quiz: Genetic Mutations

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Practice: From Nucleic Acids to Proteins

Practice problem-solving skills related to concepts in the lesson.

Duration: 0 hrs 40 mins Scoring: 25 points

LESSON 3: DOING SCIENCE: DNA TO PROTEINS

Lab: Modeling DNA Replication

Use the scientific method to perform an experiment outside of the traditional laboratory environment.

Duration: 1 hr Scoring: 50 points

Study: Mutations

Learn about methods to study DNA.

Duration: 1 hr Scoring: 0 points

Quiz: Mutations

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Lab: Mutations

Perform a lab to explore mutations.

Duration: 1 hr Scoring: 50 points

Discuss: Mutations

Discuss the results of your lab.

Duration: 0 hrs 20 mins Scoring: 15 points

LESSON 4: BIOTECHNOLOGY

Study: Viruses and Bacteria

Learn about the structure of viruses and bacteria, how they obtain food and reproduce, and their significance to ecosystems.

Duration: 1 hr Scoring: 0 points

Quiz: Viruses and Bacteria

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Study: DNA Technology

Learn about technologies related to DNA, their significance, and the ethical and societal issues related to them.

Duration: 1 hr Scoring: 0 points

Quiz: DNA Technology

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Practice: Biotechnology

Practice problem-solving skills related to concepts in the lesson.

Duration: 0 hrs 40 mins Scoring: 10 points

LESSON 5: DNA TO PROTEINS WRAP-UP**Review: Unit Review**

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

Duration: 0 hrs 30 mins Scoring: 0 points

Test (CS): Computer-Scored Unit Test

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

Duration: 0 hrs 30 mins Scoring: 50 points

UNIT 4: EVOLUTION**LESSON 1: ADAPTATION AND NATURAL SELECTION****Study: Variation and Adaptation**

Learn how genetic variation enables living things to adapt to their environment by developing adaptations that enable reproductive success.

Duration: 1 hr Scoring: 0 points

Quiz: Variation and Adaptation

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Study: Natural Selection

Learn how and why natural selection occurs, what affects natural selection, and what is and is not natural selection.

Duration: 1 hr Scoring: 0 points

Quiz: Natural Selection

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Practice: Adaptation and Natural Selection

Practice problem-solving skills related to concepts in the lesson.

Duration: 0 hrs 40 mins Scoring: 25 points

LESSON 2: EVOLUTION OF SPECIES**Study: Mechanism for Evolution**

Learn about the process of evolution and the history of the theory of evolution.

Duration: 1 hr Scoring: 0 points

Quiz: Mechanism for Evolution

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Study: Evidence for Evolution

Learn about the fossil record and the implications for evolutionary thought.

Duration: 1 hr Scoring: 0 points

Quiz: Evidence for Evolution

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Journal: Theories and Laws

Reflect on the different of theories, hypotheses and laws.

Duration: 0 hrs 20 mins Scoring: 20 points

Checkpoint: Evolution of Species

Checkpoint and apply what you have learned.

Duration: 0 hrs 20 mins Scoring: 0 points

LESSON 3: DOING SCIENCE: EVOLUTION

Study: Natural Selection

Learn about using simulations models and other experimental techniques.

Duration: 1 hr Scoring: 0 points

Quiz: Natural Selection

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Lab: Natural Selection

Perform a lab to observe how the frequency of traits in a population changes over time.

Duration: 1 hr Scoring: 50 points

Discuss: Natural Selection

Discuss the results of your lab.

Duration: 0 hrs 20 mins Scoring: 15 points

LESSON 4: DIVERSITY OF LIFE

Study: Life on Earth

Learn about microorganisms and fungi.

Duration: 1 hr Scoring: 0 points

Quiz: Life on Earth

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Study: Plants and Animals

Learn about plant and animal structure and function.

Duration: 1 hr Scoring: 0 points

Quiz: Plants and Animals

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Practice: Diversity of Life

Practice problem-solving skills related to concepts in the lesson.

Duration: 0 hrs 40 mins Scoring: 25 points

LESSON 5: EVOLUTION WRAP-UP

Review: Unit Review

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

Duration: 0 hrs 30 mins Scoring: 0 points

Test (CS): Computer-Scored Unit Test

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

Duration: 0 hrs 30 mins Scoring: 50 points

UNIT 5: EARTH'S STRUCTURE AND EVOLUTION

LESSON 1: THE GEOSPHERE

Study: Earth's Structure and Cycles

Learn about the spheres that make up the Earth system and how they interact.

Duration: 1 hr Scoring: 0 points

Quiz: Earth's Structure and Cycles

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Study: Plate Tectonics

Learn about the processes involved in plate tectonics, its effects on Earth's crust, and the evidence that was used in the development of the theories of continental drift and plate tectonics.

Duration: 1 hr Scoring: 0 points

Quiz: Plate Tectonics

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

LESSON 2: THE ATMOSPHERE AND HYDROSPHERE

Study: Earth's Atmosphere and Oceans

Learn about the properties, features, and movements of Earth's atmosphere and oceans, how they interact with one another and other parts of the Earth system, and how energy enters and moves through these spheres.

Duration: 1 hr Scoring: 0 points

Quiz: Earth's Atmosphere and Oceans

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Study: Earth's Freshwater

Learn how much of Earth's water is freshwater and its distribution, as well as the types of bodies of freshwater and habitats they provide living things.

Duration: 1 hr Scoring: 0 points

Quiz: Earth's Freshwater

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Checkpoint: The Atmosphere and Hydrosphere

Checkpoint and apply what you have learned.

Duration: 0 hrs 20 mins Scoring: 0 points

LESSON 3: THE CHANGING BIOSPHERE

Study: Shaping Earth's Surface

Learn how the processes of deformation, weathering, and erosion change the shape of Earth's surface.

Duration: 1 hr Scoring: 0 points

Quiz: Shaping Earth's Surface

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Study: The Geologic Record

Learn what fossils are and how scientists use them to study Earth's history.

Duration: 1 hr Scoring: 0 points

Quiz: The Geologic Record

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Practice: The Changing Biosphere

Practice problem-solving skills related to concepts in the lesson.

Duration: 0 hrs 40 mins Scoring: 10 points

LESSON 4: DOING SCIENCE: EARTH'S STRUCTURE AND EVOLUTION

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: 1 hr Scoring: 0 points

Quiz: Investigate Weathering and Erosion

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 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 Scoring: 50 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: 15 points

LESSON 5: EARTH'S STRUCTURE AND EVOLUTION WRAP-UP

Review: Unit Review

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

Duration: 0 hrs 30 mins Scoring: 0 points

Test (CS): Computer-scored Unit Test

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

Duration: 0 hrs 30 mins Scoring: 50 points

UNIT 6: SEMESTER WRAP-UP

LESSON 1: SEMESTER REVIEW AND EXAM

Review: Semester Review

Prepare for the final exam by reviewing key concepts and skills.

Duration: 0 hrs 30 mins Scoring: 0 points

Exam: Semester 1 Exam

Take a computer-scored exam to demonstrate your mastery of concepts and skills covered in Semester 1.

Duration: 0 hrs 40 mins Scoring: 100 points

UNIT 7: 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 Scoring: 0 points

Quiz: Biotic and Abiotic Factors

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 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 Scoring: 0 points

Quiz: Biogeochemical Cycles

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 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 20 mins Scoring: 10 points

LESSON 2: DOING SCIENCE: THE BIOSPHERE

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

Study: Investigate Cycling of O₂ and CO₂

Investigate the cycling of oxygen gas and carbon dioxide gas. 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: 1 hr Scoring: 0 points

Quiz: Investigate Cycling of O₂ and CO₂

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Lab: Investigate Cycling of O₂ and CO₂

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 Scoring: 50 points

Discuss: Investigate Cycling of O₂ and CO₂

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: 15 points

LESSON 3: 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 Scoring: 0 points

Quiz: Matter and Energy

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 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 Scoring: 0 points

Quiz: The Flow of Matter and Energy

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 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 40 mins Scoring: 25 points

LESSON 4: EARTH'S ECOSYSTEMS AND BIOMES

Study: Terrestrial Biomes

Describe characteristics of land ecosystems.

Duration: 1 hr Scoring: 0 points

Quiz: Terrestrial Biomes

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Study: Aquatic Ecosystems

Describe characteristics of aquatic ecosystems.

Duration: 1 hr Scoring: 0 points

Quiz: Aquatic Ecosystems

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 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 Scoring: 0 points

Quiz: Land Ecosystems

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 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 20 mins Scoring: 0 points

LESSON 5: THE BIOSPHERE: WRAP UP

Review: Unit Review: The Biosphere

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

Duration: 0 hrs 30 mins Scoring: 0 points

Test (CS): Computer-Scored Unit Test

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

Duration: 0 hrs 30 mins Scoring: 50 points

UNIT 8: 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 Scoring: 0 points

Quiz: Characteristics of Populations

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 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 Scoring: 0 points

Quiz: Population Growth

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Lab: Limiting Factors and Carrying Capacity

Use scientific methods and skills to perform a lab experiment.

Duration: 0 hrs 20 mins Scoring: 50 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 20 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 Scoring: 0 points

Quiz: What Is a Biological Community?

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 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 Scoring: 0 points

Quiz: Species Interactions

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 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 Scoring: 0 points

Quiz: Community Structure

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 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 40 mins Scoring: 25 points

LESSON 3: 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: 1 hr Scoring: 0 points

Quiz: Investigate Cycling of Matter and Energy

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 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 Scoring: 50 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: 15 points

LESSON 4: 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 Scoring: 0 points

Quiz: Natural Disturbances and Succession

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 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 Scoring: 0 points

Quiz: Evolution and Biodiversity

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 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 20 mins Scoring: 0 points

LESSON 5: ECOLOGY: WRAP UP

Review: Unit Review

Review what you have learned in this unit.

Duration: 0 hrs 30 mins Scoring: 0 points

Test (CS): Computer-Scored Unit Test

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

Duration: 0 hrs 30 mins Scoring: 50 points

UNIT 9: HUMANS AND THE ENVIRONMENT

LESSON 1: HUMAN ECOLOGY

Study: Human Populations

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

Duration: 1 hr Scoring: 0 points

Quiz: Human Populations

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Study: Human Communities

Identify different kinds of human communities and their purposes. Explain how individuals form groups and work together in communities. Describe ways that humans manage the types and amounts of wastes produced by communities.

Duration: 1 hr Scoring: 0 points

Quiz: Human Communities

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Checkup: Human Ecology

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 20 mins Scoring: 0 points

LESSON 2: NATURAL RESOURCES AND LAND USE

Study: Ecosystem Services

Identify ecosystem services as natural resources that humans depend on to support their lifestyles. Identify ways that humans use biological organisms and processes, land, and water as natural resources.

Duration: 1 hr Scoring: 0 points

Quiz: Ecosystem Services

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

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 Scoring: 0 points

Quiz: Agriculture, Forestry, and Fishing

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 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 Scoring: 0 points

Quiz: Recreation, Conservation, and Urban Development

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Practice: Natural Resources and Land Use

Practice problem-solving skills related to concepts in the lesson.

Duration: 0 hrs 40 mins Scoring: 25 points

LESSON 3: DOING SCIENCE: HUMANS AND THE ENVIRONMENT**Study: Investigate Resource Consumption**

Learn about resource consumption.

Duration: 1 hr Scoring: 0 points

Quiz: Investigate Resource Consumption

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 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 Scoring: 50 points

Discuss: Investigate Resource Consumption

Discuss the results of the resource consumption investigation.

Duration: 0 hrs 20 mins Scoring: 15 points

LESSON 4: POLLUTION AND ITS EFFECTS**Study: Environmental Pollution**

Identify sources of air, land, and water pollution. Describe how pollution affects oceans, freshwater supplies, air, land, and human societies. Evaluate the hazards of pollutants to wildlife and other types of natural resources.

Duration: 1 hr Scoring: 0 points

Quiz: Environmental Pollution

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Study: Climate Change

Describe the effects of air pollution on natural systems that regulate Earth's climate. Analyze historical trends observed in global climate data. Summarize predictions scientists have made about how global climate change could affect the biosphere.

Duration: 1 hr Scoring: 0 points

Quiz: Climate Change

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 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

Practice: Pollution and Its Effects

Practice problem-solving skills related to concepts in the lesson.

Duration: 0 hrs 20 mins Scoring: 10 points

LESSON 5: HUMANS AND THE ENVIRONMENT: WRAP UP

Review: Unit Review

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

Duration: 0 hrs 30 mins Scoring: 0 points

Test (CS): Computer-Scored Unit Test

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

Duration: 0 hrs 30 mins Scoring: 50 points

UNIT 10: SUSTAINABILITY FOR THE FUTURE

LESSON 1: GLOBAL CHALLENGES

Study: Human Cultures and Societies

Summarize the nature and purpose of human cultures and societies. Identify examples of different types of human cultures and societies.

Duration: 1 hr Scoring: 0 points

Quiz: Human Cultures and Societies

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Study: The Global Commons

Recognize what a "common" is and identify several types of commons. Describe the overuse of commons and the resulting degradation of natural resources humans obtain from commons. Describe ways that humans try to ensure the availability and quality of important resources through the conservation and preservation of the global commons.

Duration: 1 hr Scoring: 0 points

Quiz: The Global Commons

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Study: The Global Economy

Recognize the definition and examples of a "common." Describe how the overuse and degradation of natural resources affects the biosphere and human societies.

Duration: 1 hr Scoring: 0 points

Quiz: The Global Economy

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Practice: Global Challenges

Practice problem-solving skills related to concepts in the lesson.

Duration: 0 hrs 40 mins Scoring: 25 points

LESSON 2: DOING SCIENCE, PART I: SUSTAINABILITY FOR THE FUTURE

Study: Investigate Your Ecological Footprint

Learn about ecological footprints.

Duration: 1 hr Scoring: 0 points

Quiz: Investigate Your Ecological Footprint

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Lab: Investigate Your Ecological Footprint

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 Scoring: 50 points

Discuss: Investigate Your Ecological Footprint

Discuss the results of the investigation.

Duration: 0 hrs 20 mins Scoring: 15 points

Project: Explore Sustainability for Your Local Environment

Identify your state and local legislation designed to protect the environment and natural resources. Evaluate the effects of national, state, and local environmental and resource protection laws on your local environment. Identify sustainable practices that have been adopted in your local environment. Recommend practices that might contribute to the sustainability of your local environment.

Duration: 3 hrs Scoring: 50 points

LESSON 3: SUSTAINABLE PRACTICES

Study: Sustainable Resource Management

Explain the goal of using sustainable practices in food production, resource management, and human societal development. Describe sustainable methods of food production, resource management, and human societal development. Compare traditional practices used in food production, resource management, and human societal development with sustainable practices. Identify advantages and disadvantages of using "green" and sustainable practices in food production, resource management, and human societal development.

Duration: 1 hr Scoring: 0 points

Quiz: Sustainable Resource Management

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Study: Sustainable Food Production

Explain the goal of using sustainable practices in food production, resource management, and human societal development. Describe sustainable methods of food production, resource management, and human societal development. Compare traditional practices used in food production, resource management, and human societal development with sustainable practices. Identify advantages and disadvantages of using "green" and sustainable practices in food production, resource management, and human societal development.

Duration: 1 hr Scoring: 0 points

Quiz: Sustainable Food Production

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Study: Sustainable Societal Development

Explain the goal of using sustainable practices in food production, resource management, and human societal development. Describe sustainable methods of food production, resource management, and human societal development. Compare traditional practices used in food production, resource management, and human societal development with sustainable practices. Identify advantages and disadvantages of using "green" and sustainable practices in food production, resource management, and human societal development.

Duration: 1 hr Scoring: 0 points

Quiz: Sustainable Societal Development

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Checkup: Sustainable Practices

Explain the goal of using sustainable practices in food production, resource management, and human societal development. Describe sustainable methods of food production, resource management, and human societal development. Compare traditional practices used in food production, resource management, and human societal development with sustainable practices. Identify advantages and disadvantages of using "green" and sustainable practices in food production, resource management, and human societal development. Summarize the process of carbon dioxide sequestration and technologies that achieve it. Discuss the validity and impact of scientific research on environmental issues related to human activities.

Duration: 0 hrs 20 mins Scoring: 0 points

LESSON 4: DOING SCIENCE, PART II: SUSTAINABILITY FOR THE FUTURE

Study: Investigate Food Security

Learn about sustainable gardening.

Duration: 1 hr Scoring: 0 points

Quiz: Investigate Food Security

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 20 mins Scoring: 20 points

Lab: Investigate Food Security

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 Scoring: 50 points

Discuss: Investigate Food Security

Discuss the results of the investigation.

Duration: 0 hrs 20 mins Scoring: 15 points

LESSON 5: SUSTAINABILITY FOR THE FUTURE: WRAP-UP

Review: Unit Review

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

Duration: 0 hrs 30 mins Scoring: 0 points

Test (CS): Computer-Scored Unit Test

Take a computer-scored exam to demonstrate your mastery of concepts and skills covered in Semester 2.

Duration: 0 hrs 30 mins Scoring: 50 points

UNIT 11: SEMESTER WRAP-UP

LESSON 1: SEMESTER REVIEW AND EXAM

Review: Semester Review

Prepare for the final exam by reviewing key concepts and skills.

Duration: 0 hrs 30 mins Scoring: 0 points

Exam: Semester 2 Exam

Take a computer-scored exam to demonstrate your mastery of concepts and skills covered in Semester 2.

Duration: 0 hrs 40 mins Scoring: 100 points