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.
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

**Checkup: 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: 30 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

Checkup: Evolution of Species
Checkup 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.
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

Checkup: The Atmosphere and Hydrosphere
Checkup 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 O$_2$ and CO$_2$
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 O$_2$ and CO$_2$
Take a quiz to assess your understanding of the material.
Duration: 0 hrs 20 mins Scoring: 20 points

Lab: Investigate Cycling of O$_2$ and CO$_2$
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 O$_2$ and CO$_2$
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.

**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

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.

Quiz: Investigate Cycling of Matter and Energy
Take a quiz to assess your understanding of the material.

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.

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.

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.

Quiz: Natural Disturbances and Succession
Take a quiz to assess your understanding of the material.

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.

Quiz: Evolution and Biodiversity
Take a quiz to assess your understanding of the material.

Explore: Biodiversity Hot Spots
Summarize the process of natural selection and its role in biological evolution. Explain the importance of biodiversity in the biosphere.

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