

Wyoming Department of Education Required Virtual Education Course Syllabus

Niobrara County School District # 1

Program Name	Wyoming Virtual Academy	Content Area	SC
Course ID	D-SCI-114BV2-K	Grade Level	9-12
Course Name	Summit Honors Earth Science - Semester 2	# of Credits	0.5
SCED Code	03001H0.5022	Curriculum Type	K12 Inc

COURSE DESCRIPTION

This course is an advanced course that provides students with a solid earth science curriculum, focusing on geology, oceanography, astronomy, weather, and climate. The program consists of online lessons, an associated reference book, collaborative activities, virtual laboratories, and hands-on laboratories students can conduct at home. The course provides a base for further studies in geology, meteorology, oceanography, and astronomy, and gives practical experience in implementing scientific methods. This course works at an accelerated pace. There two honors projects throughout the course of the semester.

WYOMING CONTENT AND PERFORMANCE STANDARDS

STANDARD#	BENCHMARK (Standard/Indicator) Use the Standards and Benchmarks as Spreadsheets
HS-ESS1-1	Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun's core to release energy that eventually reaches Earth in the form of radiation.
HS-ESS1-2	Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe.
HS-ESS1-3	Communicate scientific ideas about the way stars, over their life cycle, produce elements.
HS-ESS1-4	Use mathematical or computational representations to predict the motion of orbiting objects in the solar system.
HS-ESS2-2	Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.
HS-ESS2-4	Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.
HS-ESS2-5	Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.
HS-ESS2-6	Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.
HS-ESS2-7	Construct an argument based on evidence about the simultaneous coevolution of Earth's systems and life on Earth.
HS-ESS3-1	Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.
HS-ESS3-2	Evaluate competing design solutions for developing, managing, and using energy and mineral resources based on cost -benefit ratios.
HS-ESS3-3	Use computational tools to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.

HS-ESS3-4	Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.
HS-ESS3-5	Analyze data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.
HS-ESS3-6	Use the results of a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.
HS-PS1-6	Evaluate the design of a chemical system by changing conditions to produce increased amounts of products at equilibrium, and refine the design, as needed.
HS-PS1-8	Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.
HS-ETS1-4	Use a computer simulation to model the impact of proposed solutions to a complex real-world problem with numerous criteria and constraints on interactions within and between systems relevant to the problem.
HS-ETS1-5	Evaluate the validity and reliability of claims in a variety of materials.

SCOPE AND SEQUENCE

UNIT OUTLINE	STANDARD#	OUTCOMES OBJECTIVES/STUDENT CENTERED GOALS
Unit 1: Weather 2 Lesson 1: Semester Introduction		Explore and explain the concepts discussed in this semester of Earth Science.
Unit 1: Weather 2 Lesson 2: Weather vs. Climate		Define climate as the average atmospheric conditions of a region, as described by weather observations made over time. Define climate and apply it to a familiar region. Explain how weather and climate involve energy transfer in the atmosphere and give examples.
Unit 1: Weather 2 Lesson 3: What Influences the Weather		Discuss how weather is influenced by both natural and artificial earth features.
Unit 1: Weather 2 Lesson 4: Comparing the Weather		Describe the weather conditions at two different locations and compare the data. Explain how differences in local weather conditions are dependent on oceans, latitude, and elevation.
Unit 1: Weather 2 Lesson 5: Climatic Zones		Describe the influence of latitude, elevation, topography, oceans, and ocean currents on climate. Use a map to explain the relationships between latitude, elevation, topography, oceans, and ocean currents and climatic zones. Explain the relationship between climatic zones and the vegetation that grows in these zones.

Unit 1: Weather 2 Lesson 6: Laboratory: Cloud Formation		Explain the differences in air temperature, amount of moisture, condensation nuclei, and pressure using data about geographic and topographic locations.
Unit 1: Weather 2 Lesson 7: Laboratory: Relative Humidity		Determine the relationship between relative humidity and dew point.
Unit 1: Weather 2 Lesson 8: Biomes on Earth		Locate and identify major biomes on a map of the earth. Explain the relationship between climatic zones and the biomes that have formed in these zones. Locate and identify major biomes on a map of the world. Describe examples of survival adaptations that characterize specific plants and animals in different biomes and assess their effectiveness.
Unit 1: Weather 2 Lesson 9: The Greenhouse Effect		Explain that climate, weather, and currents are the result of uneven distribution of solar energy over earth's surface. Explain the atmospheric conditions that lead to the greenhouse effect. Interpret a diagram that illustrates how and why the greenhouse effect occurs.
Unit 1: Weather 2 Lesson 10: Greenhouse Effect Analyses		Explain the atmospheric conditions that lead to the greenhouse effect. Give examples of advances in earth science. Describe methods and technologies that scientists employ to gather data about the greenhouse effect on earth.
Unit 1: Weather 2 Lesson 11: Climate Change		Explain that climate, weather, and currents are the result of uneven distribution of solar energy over earth's surface. Define the term climate change and discuss examples of conditions that may contribute to patterns of climate change over time.
Unit 1: Weather 2 Lesson 12: Patterns of Climate Change		Describe the causes of the El Nino Southern Oscillation (ENSO) on air and water temperatures in the Pacific area and the effects of ENSO on climate.
Unit 1: Weather 2 Lesson 13: Laboratory: Temperature of Water and Soil 1	HS-ESS2-2, HS-ESS2-4	Explain that climate, weather, and currents are the result of uneven distribution of solar energy over earth's surface. Make a hypothesis. Make observations. Draw conclusions about the relationship between heat and land surface.

<p>Unit 1: Weather 2 Lesson 14: Laboratory: Temperature of Water and Soil 2</p>	<p>HS-ESS2-2, HS-ESS2-4</p>	<p>Explain that climate, weather, and currents are the result of uneven distribution of solar energy over earth's surface. Make a hypothesis. Make observations. Draw conclusions about the relationship between heat and land surface.</p>
<p>Unit 1: Weather 2 Lesson 15: Your Choice</p>		
<p>Unit 1: Weather 2 Lesson 16: Unit Test</p>	<p>HS-ESS2-2, HS-ESS2-4, HS-ESS3-5, HS-PS1-6</p>	
<p>Unit 2: Oceans Lesson 1: Oceans of the World</p>		<p>Describe the physical and chemical properties of ocean water (for example, temperature and salinity), and explain how these data are applied to analyze the layers in the oceans. Recognize that the physical and chemical properties of ocean water influence the formation of currents and the distribution of marine life. Understand the makeup of seawater and its chemical composition, including properties of water, specific dissolved salts, salinity, and dissolved gases. Analyze ocean temperature data. Understand the temperature, density, thermoclines, and visibility of seawater. Associate differences in temperature with the geographic distribution of marine life in the earth's oceans. Relate data on salinity levels of ocean water to marine life found in different areas of the world.</p>
<p>Unit 2: Oceans Lesson 2: Chemistry of the Oceans</p>		<p>Understand the makeup of seawater and its chemical composition, including properties of water, specific dissolved salts, salinity, and dissolved gases. Analyze ocean temperature data. Describe erosion and deposition.</p>
<p>Unit 2: Oceans Lesson 3: Physical Properties of Seawater</p>		<p>Describe the physical and chemical properties of ocean water (for example, temperature and salinity), and explain how these data are applied to analyze the layers in the oceans. Recognize that the physical and chemical properties of ocean water influence the formation of currents and the distribution of marine life. Understand the makeup of seawater and its chemical composition, including properties of water, specific dissolved salts, salinity, and dissolved gases.</p>

		<p>Analyze ocean temperature data. Understand the temperature, density, thermoclines, and visibility of seawater. Describe the physical properties of ocean water. Explain how data is applied to analyze the layers in the oceans.</p>
<p>Unit 2: Oceans Lesson 4: Ocean Dynamics</p>		<p>Describe upwelling. Explain the definitions of shore, coast, and beach. Demonstrate how waves are moving energy that are initiated by the wind. Describe erosion and deposition. Describe and explain tides, tidal patterns, and tidal currents. Define shore, shoreline, coastline, and beach. Demonstrate how waves are energy in motion and initiated by the wind. Explain the causes of surface and deepwater ocean currents.</p>
<p>Unit 2: Oceans Lesson 5: Laboratory: Ocean Water Density 1</p>	<p>HS-ESS2-2, HS-ESS2-4</p>	<p>Describe the physical and chemical properties of ocean water (for example, temperature and salinity), and explain how these data are applied to analyze the layers in the oceans. Analyze ocean temperature data. Describe the physical and chemical properties of ocean water (e.g., temperature and salinity). Explain how temperature and salinity are applied to analyze the layers in the oceans.</p>
<p>Unit 2: Oceans Lesson 6: Laboratory: Ocean Water Density 2</p>	<p>HS-ESS2-2, HS-ESS2-4</p>	<p>Describe the physical and chemical properties of ocean water (for example, temperature and salinity), and explain how these data are applied to analyze the layers in the oceans. Analyze ocean temperature data. Describe the physical and chemical properties of ocean water (e.g., temperature and salinity). Explain how temperature and salinity are applied to analyze the layers in the oceans.</p>
<p>Unit 2: Oceans Lesson 7: Ocean Currents</p>		<p>Recognize that the physical and chemical properties of ocean water influence the formation of currents and the distribution of marine life. Describe upwelling. Explain the causes of horizontal and vertical ocean circulation patterns.</p>

		Describe the effects of ocean currents on weather and climate on the land.
Unit 2: Oceans Lesson 8: Mid-Unit Test	HS-ESS2-2, HS-ESS2-4	
Unit 2: Oceans Lesson 9: Ocean Floor		Describe the physical characteristics of the ocean floor. Describe methods for exploring the ocean floor. Describe submarine canyons, continental margins, the ocean basin floor, atolls, and mid-ocean ridges.
Unit 2: Oceans Lesson 10: Ocean Conditions and Life		Understand the temperature, density, thermoclines, and visibility of seawater. Associate differences in temperature with the geographic distribution of marine life in the earth's oceans. Identify specific marine organisms associated with different layers in ocean water. Relate data on salinity levels of ocean water to marine life found in different areas of the world.
Unit 2: Oceans Lesson 11: Marine Life Zones		Discuss how light penetration influences layers in ocean water and the marine life found in these layers. Interpret diagrams that illustrate life zones near the shore and in the open ocean.
Unit 2: Oceans Lesson 12: Laboratory: Ocean Floor Sediments 1	HS-ESS2-2, HS-ESS2-4	Understand the broad categories of seafloor sediments. Analyze seafloor sediments.
Unit 2: Oceans Lesson 13: Laboratory: Ocean Floor Sediments 2	HS-ESS2-2, HS-ESS2-4	Understand the broad categories of seafloor sediments. Analyze seafloor sediments.
Unit 2: Oceans Lesson 14: Marine Organisms		Recognize that the physical and chemical properties of ocean water influence the formation of currents and the distribution of marine life. Associate differences in temperature with the geographic distribution of marine life in the earth's oceans. Identify specific marine organisms associated with different layers in ocean water. Relate data on salinity levels of ocean water to marine life found in different areas of the world. Give examples of plant and animal adaptations for survival in different layers of ocean water and near the shoreline.

<p>Unit 2: Oceans Lesson 15: Marine Resources</p>		<p>Give examples of economic resources from the world's oceans. Discuss how technology has improved our ability to find and use ocean resources.</p>
<p>Unit 2: Oceans Lesson 16: Your Choice</p>		
<p>Unit 2: Oceans Lesson 17: Unit Test</p>	<p>HS-ESS2-2, HS-ESS2-4</p>	
<p>Unit 3: Cycles on Earth Lesson 1: Biogeochemical Cycles</p>		<p>Define a biogeochemical cycle and give examples. Explain how earth's internal and external sources of energy drive biogeochemical cycles.</p>
<p>Unit 3: Cycles on Earth Lesson 2: Nitrogen Cycle</p>		<p>Interpret a diagram of the nitrogen cycle. Describe the effects of the nitrogen cycle on living organisms. Describe the effects of the nitrogen cycle on living things. Interpret a diagram of the nitrogen cycle.</p>
<p>Unit 3: Cycles on Earth Lesson 3: Carbon Cycle</p>		<p>Interpret a diagram of the carbon cycle. Describe the relationship of the carbon cycle with earth's atmosphere and hydrosphere. Describe the influence of the carbon cycle on the earth's organisms. Interpret a diagram of the carbon cycle.</p>
<p>Unit 3: Cycles on Earth Lesson 4: Life and the Carbon Cycle</p>		<p>Describe the relationship of the carbon cycle with earth's atmosphere and hydrosphere. Describe the influence of the carbon cycle on the earth's organisms. Describe the influence of the carbon cycle on earth's organisms.</p>
<p>Unit 3: Cycles on Earth Lesson 5: Laboratory: Dissolved Oxygen 1</p>	<p>HS-ESS2-2, HS-ESS2-4, HS-ESS2-5, HS-ESS2-6, HS-ESS2-7</p>	<p>Compare the growth of organisms to the levels of yeast (microorganisms) present in the water. Infer how excessive nutrients can make the water unlivable for other aquatic life. Observe the impact that elevated levels of biodegradable waste can have on an aquatic environment.</p>
<p>Unit 3: Cycles on Earth Lesson 6: Laboratory: Dissolved Oxygen 2</p>	<p>HS-ESS2-2, HS-ESS2-4, HS-ESS2-5, HS-ESS2-6, HS-ESS2-7</p>	<p>Compare the growth of organisms to the levels of yeast (microorganisms) present in the water. Infer how excessive nutrients can make the water unlivable for other aquatic life. Observe the impact that elevated levels of biodegradable waste can have on an aquatic environment.</p>
<p>Unit 3: Cycles on Earth Lesson 7: Water Cycle</p>		<p>Interpret a diagram of the water cycle and explain the interacting processes.</p>

		Discuss the physical changes and events that occur in the water cycle.
Unit 3: Cycles on Earth Lesson 8: How Humans Alter Cycles		Give examples of human activity causing changes in biogeochemical cycles. Discuss the positive and negative effects of human-induced changes in naturally occurring biogeochemical cycles. Give examples of ways that human activity may cause changes in biogeochemical cycles.
Unit 3: Cycles on Earth Lesson 9: Your Choice		
Unit 3: Cycles on Earth Lesson 10: Unit Test	HS-ESS2-2, HS-ESS2-4, HS-ESS2-5, HS-ESS2-6, HS-ESS2-7	
Unit 4: Astronomy Lesson 1: The Sun		Recognize that the sun is a star. Describe the sun's nuclear reactions and explain how helium forms from the fusion of hydrogen atoms. Describe solar radiation and its effects on the earth. Relate the location and movement patterns of planets, comets, and asteroids to gravitational forces in the solar system. Describe the sun's nuclear reactions, and explain how helium forms from the fusion of hydrogen atoms.
Unit 4: Astronomy Lesson 2: Solar Phenomena		Give examples of solar phenomena such as solar flares and sunspots, and explain the impact of these events on the earth.
Unit 4: Astronomy Lesson 3: The Earth–Moon–Sun System		Describe the relative position and interaction of the sun, earth, and moon. Interpret a diagram and explain the sequence and causes of lunar phases. Describe the effects of lunar phases on earth. Describe the relative positions and interactions of the sun, earth, and moon. Interpret a diagram, and explain the sequence and causes of lunar phases.
Unit 4: Astronomy Lesson 4: Laboratory: Solar Energy	HS-ESS1-1, HS-ESS1-2, HS-ESS1-3, HS-ESS1-4	Describe solar radiation and its effects on the earth.

<p>Unit 4: Astronomy Lesson 5: Solar and Lunar Eclipses</p>		<p>Describe the sequence of events that lead to a solar eclipse. Describe the sequence of events that lead to a lunar eclipse, and contrast a lunar eclipse with a solar eclipse. Provide an explanation of why a lunar eclipse does not occur every month. Describe the sequence of events that leads to a solar eclipse. Describe the sequence of events that leads to a lunar eclipse, and contrast a lunar eclipse with a solar eclipse. Explain why a lunar eclipse does not occur every month.</p>
<p>Unit 4: Astronomy Lesson 6: The Moon's Influence</p>		<p>Interpret a diagram and explain the sequence and causes of lunar phases. Describe the effects of lunar phases on earth. Describe the relative position of the moon. Interpret a diagram, and explain the sequence and causes of lunar phases.</p>
<p>Unit 4: Astronomy Lesson 7: Earth Movement and Seasons</p>		<p>Interpret a diagram that shows the earth's changing position as it orbits the sun. Explain how the tilt of earth's axis of rotation causes the annual cycle of seasonal change.</p>
<p>Unit 4: Astronomy Lesson 8: Laboratory: Observing Earth's Rotation</p>	<p>HS-ESS1-1, HS-ESS1-2, HS-ESS1-3, HS-ESS1-4</p>	<p>Describe the relative positions and interactions of the sun, earth, and moon.</p>
<p>Unit 4: Astronomy Lesson 9: Laboratory: Sunrise and Sunset</p>	<p>HS-ESS1-1, HS-ESS1-2, HS-ESS1-3, HS-ESS1-4</p>	<p>Describe variations in the sun's path across the sky by season and with latitude. Connect variations in the sun's path with sunrise, sunset, and length of day.</p>
<p>Unit 4: Astronomy Lesson 10: Your Choice</p>		
<p>Unit 4: Astronomy Lesson 11: Mid-Unit Test</p>	<p>HS-ESS1-1, HS-ESS1-2, HS-ESS1-3, HS-ESS1-4, HS-PS1-8</p>	
<p>Unit 4: Astronomy Lesson 12: Origin of the Solar System</p>		<p>Explain the origin and development of the solar system. Interpret a diagram of the solar system and apply knowledge of gravitational forces to explain how the sun and the planets are part of a system. Interpret a diagram of the solar system. Apply knowledge of the force of gravity to explain how the sun and the planets are part of a system.</p>
<p>Unit 4: Astronomy Lesson 13: Gravitational Forces in the Solar System</p>		<p>Relate the location and movement patterns of planets, comets, and asteroids to gravitational forces in the solar system.</p>

<p>Unit 4: Astronomy Lesson 14: Features of the Solar System</p>		<p>Distinguish differences among objects in the solar system, including the sun, moon, planets, comets, asteroids, meteors, and satellites. Contrast objects in the solar system with objects outside the solar system.</p> <p>Distinguish differences among objects in the solar system, including the sun, moons, planets, comets, asteroids, meteors, and satellites.</p>
<p>Unit 4: Astronomy Lesson 15: The Planets</p>		<p>Compare terrestrial and gas planets and describe their similarities and differences.</p>
<p>Unit 4: Astronomy Lesson 16: Planetary Impacts</p>		<p>Describe evidence supporting asteroid impacts on earth and their effects on planetary and lunar surfaces.</p> <p>Consider a scenario that describes the impact of an asteroid or comet, and explain the possible consequences on earth.</p> <p>Consider a scenario that describes the impact of an asteroid or comet and explain the possible consequences on earth.</p>
<p>Unit 4: Astronomy Lesson 17: Electromagnetic Spectrum</p>		<p>Interpret a diagram that shows the electromagnetic spectrum.</p> <p>Discuss different parts of the electromagnetic spectrum (for example, X-rays, visible light, and radio waves).</p> <p>Discuss different parts of the electromagnetic spectrum.</p>
<p>Unit 4: Astronomy Lesson 18: Light: A Tool for Astronomy</p>		<p>Explain how electromagnetic radiation is used as a tool in astronomy.</p> <p>Explain the sequential process of light moving through a telescope.</p>
<p>Unit 4: Astronomy Lesson 19: Distances in Space</p>		<p>Explain the evidence suggesting that the distance from earth to other stars is greater than the distance to other planets.</p> <p>Explain the evidence that the distance from earth to other stars is greater than the distance to other planets.</p>
<p>Unit 4: Astronomy Lesson 20: Life Cycle of a Star</p>		<p>Describe the life cycle of a star.</p> <p>Explain how different kinds of telescopes gather information about stars.</p> <p>Give examples and analyze the differences between various stars.</p> <p>Explain how different types of telescopes gather information about stars.</p>
<p>Unit 4: Astronomy Lesson 21: Color and Brightness of Stars</p>		<p>Describe the evidence indicating that there are differences in the color and brightness of stars.</p> <p>Interpret a Hertzsprung-Russell (HR) diagram to explain how different stars have evolved.</p>

<p>Unit 4: Astronomy Lesson 22: Data about Stars</p>		<p>Explain the evidence that nuclear fusion in stars gave birth to most elements. Describe how accelerators work, and explain how scientists make use of these tools to simulate conditions in stars and the universe.</p>
<p>Unit 4: Astronomy Lesson 23: What's a Galaxy?</p>		<p>Define and describe the size and shape of the Milky Way galaxy. Recognize that galaxies are made of billions of stars and compose most of the visible mass of the universe. Describe the evolution and life cycle of galaxies. Describe relationships between a solar system, a galaxy, and the universe. Recognize that galaxies are made of billions of stars and comprise most of the visible mass of the universe.</p>
<p>Unit 4: Astronomy Lesson 24: Searching for Objects in Space</p>		<p>Describe other objects in space identified from spectral analysis (for example, galaxies, nebulae, black holes, and comets). Discuss the search for other stars and planets in the universe. Describe unseen objects in space that can be detected by spectral analysis: galaxies, nebulae, black holes, and comets. Discuss the search for stars and planets in the universe.</p>
<p>Unit 4: Astronomy Lesson 25: The Big Bang Theory</p>		<p>Define and explain the big bang theory. Explain evidence for the age and expansion of the universe.</p>
<p>Unit 4: Astronomy Lesson 26: Your Choice</p>		
<p>Unit 4: Astronomy Lesson 27: Unit Test</p>	<p>HS-ESS1-1, HS-ESS1-2, HS-ESS1-3, HS-ESS1-4, HS-PS1-8</p>	
<p>Unit 5: Earth's Resources Lesson 1: Earth's Natural Resources</p>		<p>Identify natural resources on the earth. Define and give examples of nonrenewable resources on earth. Define and give examples of renewable resources on earth. Identify natural resources on earth.</p>
<p>Unit 5: Earth's Resources Lesson 2: Renewable vs. Nonrenewable Resources</p>		<p>Compare and contrast the availability and use of nonrenewable versus renewable resources. Discuss how the use of renewable and nonrenewable resources affects the quality of human life. Compare and contrast the availability and use of nonrenewable vs. renewable resources.</p>
<p>Unit 5: Earth's Resources Lesson 3: Mineral Resources</p>		<p>Identify strategic minerals, explain their importance, and locate where they are found.</p>

		Discuss the pros and cons of extracting earth's mineral resources.
Unit 5: Earth's Resources Lesson 4: Locating Resources		Explain how resources are found and modified for human use. Explain how resources are found and modified for human use (for example, exploration and refinement). Explain how resources are found and modified for human use (e.g., exploration and refinement).
Unit 5: Earth's Resources Lesson 5: Managing Resources		Identify methods employed to manage natural resources (for example, fire ecology, wildlife reintroduction) and evaluate the relative effectiveness of these methods. Identify and evaluate the effectiveness of methods that are used to manage natural resources.
Unit 5: Earth's Resources Lesson 6: Using Resources Wisely		Discuss the related costs, benefits, and consequences of natural resource exploration, development, and consumption. Explain the term sustainability and draw conclusions about the sustainable use of earth's natural resources.
Unit 5: Earth's Resources Lesson 7: Mid-Unit Test	HS-ESS2-7, HS-ESS3-1-6	
Unit 5: Earth's Resources Lesson 8: Environmental Issues		Discuss the following situations that involve natural resources: development of alternative forms of energy, storage of nuclear waste, abandoned mines, greenhouse gases in the atmosphere, and disposal of hazardous waste. Discuss these situations that involve natural resources: development of alternative forms of energy, storage of nuclear waste, abandoned mines, greenhouse gases in the atmosphere, and disposal of hazardous waste.
Unit 5: Earth's Resources Lesson 9: Laboratory: Air Pollution Watch	HS-ESS2-7, HS-ESS3-1-6	Design an experiment that tests the level of air pollution.
Unit 5: Earth's Resources Lesson 10: Water Resources		Explain the importance of water for human survival and society. Evaluate the impact of natural and man-made influences on the availability of clean water. Discuss specific methods that address water pollution problems.
Unit 5: Earth's Resources Lesson 11: Humans and the Environment		Describe biotic (living) and abiotic (nonliving) factors that have effects on humans. Explain the impact of smoke, volcanic dust, and urban development on the quality of our environment.

		Describe living and nonliving factors in the environment that affect humans.
Unit 5: Earth's Resources Lesson 12: Conservation		Given a scenario, determine the effectiveness of specific conservation practices on the quality of the environment.
Unit 5: Earth's Resources Lesson 13: Population Growth		Describe environmental events (for example, flooding, drought, earthquakes, fires, pollution, and severe weather) and their effects on the growth and health of human population. Explain social factors that limit the growth of human population. Describe environmental events (e.g., flooding, drought, earthquakes, fires, pollution, and severe weather) and their effects on the growth and health of human population.
Unit 5: Earth's Resources Lesson 14: Population Changes		Calculate the effect of various natural and human-made factors on population changes and predict the results.
Unit 5: Earth's Resources Lesson 15: Your Choice		
Unit 5: Earth's Resources Lesson 16: Unit Test	HS-ESS2-7, HS-ESS3-1-6, HS-ESS3-1, HS-ESS3-2, HS-ESS3-3, HS-ESS3-4, HS-ESS3-6, HS-ETS1-4, HS-ETS1-5	
Unit 6: Semester Review and Test Lesson 1: Semester Review		
Unit 6: Semester Review and Test Lesson 2: Your Choice		
Unit 6: Semester Review and Test Lesson 3: Your Choice		
Unit 6: Semester Review and Test Lesson 4: Semester Test		
Unit 7: Honors Project 1: Weather Website Lesson 1: Weather Website	HS-ETS1-5	Analyze weather data for a given city. Develop a three-day forecast based on data and the properties of air, heat, and moisture. Create a website to communicate a weather forecast. Predict an average temperature for a three-day period within three degrees. Explain how temperature and air pressure affect the weather. Explain and predict how temperature affects humidity. Identify fronts and their effects on the prevailing weather.

		<p>Predict precipitation for three days based on the properties of air pressure, temperature, and humidity.</p>
<p>Unit 8: Honors Project 2: Issues in Science Debate Lesson 1: Debates: A Different Way to Argue</p>		<p>Explore controversial, complex issues in earth science. Explain the difference between a debate and a verbal dispute.</p> <p>Explain why people debate.</p> <p>Describe the three types of debate propositions: fact, value, and policy.</p> <p>Describe the traditional debate format.</p> <p>Explore controversial issues in earth science. Improve critical thinking and communication skills through debate.</p>
<p>Unit 8: Honors Project 2: Issues in Science Debate Lesson 2: Gathering Evidence</p>		<p>Analyze and evaluate evidence regarding a controversial scientific issue.</p> <p>Evaluate research sources.</p> <p>Describe best practices for debate research such as researching both sides of the issue, keeping track of sources, and examining sources for credibility.</p>
<p>Unit 8: Honors Project 2: Issues in Science Debate Lesson 3: Building a Case</p>		<p>Develop and practice skills in formulating and writing well-articulated arguments.</p> <p>Describe the traditional debate format.</p> <p>Explain the components of a well-constructed argument.</p>
<p>Unit 8: Honors Project 2: Issues in Science Debate Lesson 4 :Reasoning and Refutation</p>		<p>Describe six logical fallacies common to debates.</p> <p>Define three ways to refute an argument.</p> <p>Apply a four-tiered structure to the construction of rebuttal arguments.</p>

<p>Unit 8: Honors Project 2: Issues in Science Debate Lesson 5: Effective Debating Strategies</p>		<p>Develop tolerance of peers' ideas.</p> <p>Explain the skills required of good debaters.</p> <p>Develop tolerance of the ideas of peers and professionals.</p>
<p>Unit 8: Honors Project 2: Issues in Science Debate Lesson 6: Debate: Constructive Argument</p>		<p>Develop and practice skills in formulating and writing well-articulated arguments.</p> <p>Develop tolerance of the ideas of peers and professionals.</p> <p>Explore controversial issues in earth science. Develop tolerance of peers' ideas.</p>
<p>Unit 8: Honors Project 2: Issues in Science Debate Lesson 7: Debate: First Rebuttal</p>		<p>Develop and practice skills in formulating and writing well-articulated arguments.</p> <p>Develop tolerance of the ideas of peers and professionals.</p> <p>Explore controversial issues in earth science. Develop tolerance of peers' ideas.</p>
<p>Unit 8: Honors Project 2: Issues in Science Debate Lesson 8: Debate: Second Rebuttal</p>		<p>Develop and practice skills in formulating and writing well-articulated arguments.</p> <p>Develop tolerance of the ideas of peers and professionals.</p> <p>Explore controversial issues in earth science. Develop tolerance of peers' ideas.</p>
<p>Unit 8: Honors Project 2: Issues in Science Debate Lesson 9: Debate: Summary Argument</p>		<p>Develop and practice skills in formulating and writing well-articulated arguments.</p> <p>Develop tolerance of the ideas of peers and professionals.</p> <p>Explore controversial issues in earth science. Develop tolerance of peers' ideas.</p>
<p>Unit 8: Honors Project 2: Issues in Science Debate Lesson 10: Discuss: Issues in Science Debate</p>	<p>HS-ETS1-5</p>	<p>Develop and practice skills in formulating and writing well-articulated arguments.</p> <p>Develop tolerance of the ideas of peers and professionals.</p> <p>Develop tolerance of peers' ideas.</p> <p>Explore controversial issues in biology..</p>