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-113AV2-K	Grade Level	9-12
Course Name	Summit Earth Science Core - Semester 1	# of Credits	0.5
SCED Code	03001G0.5012	Curriculum Type	K12 Inc

COURSE DESCRIPTION

This course 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.

WYOMING CONTENT AND PERFORMANCE STANDARDS

STANDARD#	BENCHMARK (Standard/Indicator) Use the Standards and Benchmarks as Spreadsheets
HS-ESS1-5	Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.
HS-ESS1-6	Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth's formation and early history.
HS-ESS2-1	Develop a model to illustrate how Earth's internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.
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-ESS2-3	Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection.
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-ESS2-7	Construct an argument based on evidence about the simultaneous coevolution of Earth's systems and life on Earth.
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 impact s to Earth systems.
HS-ETS1-5	Evaluate the validity and reliability of claims in a variety of materials.
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-PS1-7	Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.
HS-PS4-1	Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.

SCOPE AND SEQUENCE

UNIT OUTLINE	STANDARD#	OUTCOMES OBJECTIVES/STUDENT CENTERED GOALS
Unit 1: Earth Science and Systems Lesson 1: Semester Introduction	0	Give examples of advances in earth science. Explore and explain the concepts discussed in this semester of Earth Science. Define earth science, and explain its importance to life and society. Describe how earth systems interact to produce planetary changes. Give examples of how earth scientists find and incorporate new information to explain how the earth works.
Unit 1: Earth Science and Systems Lesson 2: Why Study Earth Science?	0	Give examples of advances in earth science. Define earth science, and explain its importance to life and society. Describe how earth systems interact to produce planetary changes. Give examples of how earth scientists find and incorporate new information to explain how the earth works. Describe the disciplines that make up earth science. Describe how advances in earth science contribute to society.
Unit 1: Earth Science and Systems Lesson 3: Spheres as Earth Systems	0	Give examples of advances in earth science. Describe how earth systems interact to produce planetary changes. Give examples of how earth scientists find and incorporate new information to explain how the earth works. Identify two to three prominent figures in the historical development of an earth science theory such as the age of the earth, and explain how the contributions and ideas of these individuals followed scientific methods. Discuss one to two examples from the theory that show how old ideas are modified or discarded as new evidence becomes available.

		Give examples of how discoveries in earth science have resulted in advances in technology.
Unit 1: Earth Science and Systems Lesson 4: Review Why Study Earth Science and Earth Systems	0	Give examples of advances in earth science. Define earth science, and explain its importance to life and society. Describe how earth systems interact to produce planetary changes. Give examples of how earth scientists find and incorporate new information to explain how the earth works. Discuss one to two examples from the theory that show how old ideas are modified or discarded as new evidence becomes available. Give examples of how discoveries in earth science have resulted in advances in technology. Identify two to three prominent figures in the historical development of an earth science theory (i.e., the motions of the planets), and explain how the contributions and ideas of these individuals used models.
Unit 1: Earth Science and Systems Lesson 5: Laboratory: Topographic Maps	0	Describe how earth systems interact to produce planetary changes. Identify and define the spheres that make up the earth system (atmosphere, cryosphere, hydrosphere, geosphere, and biosphere). Explain the interactions between the

		atmosphere, cryosphere, hydrosphere, geosphere, and biosphere.
Unit 1: Earth Science and Systems Lesson 6: Earth Systems and Interactions	0	Read and interpret a topographic map. Make a map profile from a topographic map. Model a topographic map using a potato. Describe ways that an earth scientist would use a topographic map.
Unit 1: Earth Science and Systems Lesson 7: Review Earth Systems and Interactions	0	Describe how earth systems interact to produce planetary changes. Give examples of how earth scientists find and incorporate new information to explain how the earth works. Explain how interactions among the various spheres have led to continuous changes in earth systems. Give examples that show how life on earth has influenced gradual changes in earth systems.
Unit 1: Earth Science and Systems Lesson 8: Laboratory: Modeling Earth Science Processes 1	0	Describe how earth systems interact to produce planetary changes. Use scientific methods to investigate a problem.
Unit 1: Earth Science and Systems Lesson 9: Laboratory: Modeling Earth Science Processes 2	0	Use scientific methods to investigate a problem.
Unit 1: Earth Science and Systems Lesson 10: Your Choice	#N/A	#N/A
Unit 1: Earth Science and Systems Lesson 11: Unit Test	HS-PS1-7	0

Unit 2: Dynamic Earth Lesson 1: Introduction to Plate Tectonics	0	Explain plate tectonics as the theory that states that earth's surface is broken into pieces called plates that move and interact with each other. Recognize that plate tectonics is the framework for understanding earthquakes, mountain building, volcanoes, and features of the ocean floor. Apply the theory of plate tectonics to explain the occurrence and interaction of earthquakes, volcanoes, and other landforms (for example, mid-ocean ridges and deep-sea trenches). Interpret a diagram that shows the earth's tectonic plates and the present arrangement of continents and oceans. Explain how plate tectonics influences continental movement and seafloor changes.
Unit 2: Dynamic Earth Lesson 2: Pangaea and Continental Drift	0	Discuss evidence that supports Wegener's theory of continental drift. Interpret diagrams that show Pangaea as a supercontinent and the process of continental drift over time.
Unit 2: Dynamic Earth Lesson 3: Moving Plates	0	Explain plate tectonics as the theory that states that earth's surface is broken into pieces called plates that move and interact with each other. Relate the movement of earth's plates to the most likely cause of plate movement: energy transfer by convection in the asthenosphere (upper mantle, below earth's crust). Explain how thermal energy transfer processes in the earth's interior (conduction and convection) influence plate movement. Analyze temperature and density data from earth's interior layers and relate this data to plate movement.

Unit 2: Dynamic Earth Lesson 4: Review Plate Tectonics	0	Explain plate tectonics as the theory that states that earth's surface is broken into pieces called plates that move and interact with each other. Recognize that plate tectonics is the framework for understanding earthquakes, mountain building, volcanoes, and features of the ocean floor. Apply the theory of plate tectonics to explain the occurrence and interaction of earthquakes, volcanoes, and other landforms (for example, mid-ocean ridges and deep-sea trenches). Describe what happens when plates move apart (diverge) and come together (converge). Give examples of specific geologic features associated with divergent and convergent plate boundaries. Interpret a diagram of geologic features at plate boundaries.
Unit 2: Dynamic Earth Lesson 5: Where Earthquakes and Volcanoes Occur	0	Explain plate tectonics as the theory that states that earth's surface is broken into pieces called plates that move and interact with each other. Recognize that plate tectonics is the framework for understanding earthquakes, mountain building, volcanoes, and features of the ocean floor. Apply the theory of plate tectonics to explain the occurrence and interaction of earthquakes, volcanoes, and other landforms (for example, mid-ocean ridges and deep-sea trenches). Describe geologic features that form at transform plate boundaries. Explain the type of plate actions that cause earthquakes and volcanic features. Interpret a diagram of geologic features at plate boundaries, and relate these features to information about past, present, and

		future geologic events (for example, seafloor spreading).
Unit 2: Dynamic Earth Lesson 6: Review Where Earthquakes and Volcanoes Occur	0	Explain plate tectonics as the theory that states that earth's surface is broken into pieces called plates that move and interact with each other. Recognize that plate tectonics is the framework for understanding earthquakes, mountain building, volcanoes, and features of the ocean floor. Explain key discoveries that led to the theory of plate tectonics. Explain how the theory of plate tectonics is an example of how scientists revise theories over time.
Unit 2: Dynamic Earth Lesson 7: Structure of Earth's Interior	0	Explain plate tectonics as the theory that states that earth's surface is broken into pieces called plates that move and interact with each other. Recognize that plate tectonics is the framework for understanding earthquakes, mountain building, volcanoes, and features of the ocean floor. Apply the theory of plate tectonics to explain the occurrence and interaction of earthquakes, volcanoes, and other landforms (for example, mid-ocean ridges and deep-sea trenches). Using plate tectonic theory, explain the occurrence of earthquakes, volcanoes, and

		other landforms. Relate the location of the Ring of Fire to earth's crustal plate boundaries.
Unit 2: Dynamic Earth Lesson 8: Review Structure of Earth's Interior	0	Describe the composition and changes in temperature and pressure for each layer. Explain the sources of heat for earth's interior. Explain how scientists know about earth's interior. Identify the four major layers of earth's interior.
Unit 2: Dynamic Earth Lesson 9: Laboratory: Island Chain Formation Lesson 9: Discuss: Hawaiian Island Chain Formation	HS-ESS1-5, HS-ESS2-1, HS-ESS2-3	Make a hypothesis based on observations. Plot and analyze scatter-plot data to test a hypothesis. Describe data that supports the hot-spot model for the Hawaiian island chain formation.
Unit 2: Dynamic Earth Lesson 10: How Earthquakes Happen	0	Explain the causes of earthquakes, the seismic waves they make, and how to use seismic waves to locate an earthquake's epicenter. Learn how earthquakes form. Investigate the relationship between deformation and earthquakes. Model earthquake formation with the bending and subsequent breaking of a ruler. Explain the relationship between elastic rebound and earthquakes. Predict the type of earthquakes that can occur at different plate boundaries.

Unit 2: Dynamic Earth Lesson 11: Review How Earthquakes Happen	0	0
Unit 2: Dynamic Earth Lesson 13: Mid-Unit Test	0	0
Unit 2: Dynamic Earth Lesson 14: Locating Earthquakes	0	Explain the causes of earthquakes, the seismic waves they make, and how to use seismic waves to locate an earthquake's epicenter. Distinguish between seismic waves (S waves and P waves) and surface waves. Describe how to determine earthquake epicenters (location, focus, and distance) using S waves and P waves. Apply data about waves to analyze the internal structure of the earth.
Unit 2: Dynamic Earth Lesson 15: Laboratory: Earthquake Epicenter	HS-ESS1-5, HS-ESS2-1, HS-ESS2-3	Explain the causes of earthquakes, the seismic waves they make, and how to use seismic waves to locate an earthquake's epicenter. Use the distance from the epicenter of three seismograph stations to triangulate the location of the epicenter. Translate the difference of arrival times into a distance. Interpret seismograms for the arrival times of P waves and S waves.
Unit 2: Dynamic Earth Lesson 16: How Volcanoes Form	0	Describe how different types of volcanoes (shield, cinder cone, and composite cone) form, the parts of a composite-cone volcano, and the impacts of volcanoes. Describe how different types of volcanoes form when magma rises to the surface: shield, cinder cone, and composite cone. Explain the processes that lead to the formation of each type of volcano. Interpret a diagram of a composite cone volcano and explain its formation.
Unit 2: Dynamic Earth Lesson 17: Review Earthquakes and Vocanoes	0	0

Unit 2: Dynamic Earth Lesson 18: Mountain Building	0	Recognize that plate tectonics is the framework for understanding earthquakes, mountain building, volcanoes, and features of the ocean floor. Apply the theory of plate tectonics to explain the occurrence and interaction of earthquakes, volcanoes, and other landforms (for example, mid-ocean ridges and deep-sea trenches). Explain how plate tectonics provides the framework for mountain building. Identify the processes that formed specific mountain chains (e.g., Himalayas, Sierra Nevada, Andes, or Alps).
Unit 2: Dynamic Earth Lesson 19: Review Mountain Building	0	0
Unit 2: Dynamic Earth Lesson 20: Your Choice	#N/A	#N/A
Unit 2: Dynamic Earth Lesson 21: Unit Test	HS-ESS1-5, HS-ESS2-1, HS-ESS2-3, HS-PS4-1,	0
Unit 3: Composition of the Earth Lesson 1: Minerals on Earth	0	Investigate the properties and characteristics of minerals. Investigate the characteristics of a mineral. Classify two substances as a mineral or nonmineral. Examine some of the common uses for minerals. Explore the importance of minerals in earth's crust.
Unit 3: Composition of the Earth Lesson 2: Mineral Properties	0	Investigate the properties and characteristics of minerals. Discuss mineral properties. Differentiate between color and streak. Differentiate between cleavage and fracture. Use the Mohs hardness scale to identify an unknown mineral.
Unit 3: Composition of the Earth Lesson 3: Review Minerals	0	0

Unit 3: Composition of the Earth Lesson 4: Rocks and Their Mineral Composition	0	Investigate the properties and characteristics of minerals. Explore the formation and composition of the three different rock types. Predict the progression of rocks through the rock cycle. Differentiate between minerals and rocks. Explore the characteristics of the three rock types. Investigate the formation and mineral composition of each rock type. Relate uniformitarianism to the formation of rocks.
Unit 3: Composition of the Earth Lesson 5: Review Rocks and Their Mineral Composition	0	0
Unit 3: Composition of the Earth Lesson 6: Three Kinds of Rocks	0	Investigate the properties and characteristics of minerals. Explore the formation and composition of the three different rock types. Predict the progression of rocks through the rock cycle. Differentiate between intrusive and extrusive rock, as well as felsic and mafic magma. Identify igneous rocks based on composition and texture. Define the three types of sediment. Identify features unique to sedimentary rocks. Review the formation of metamorphic rocks. Identify metamorphic textures. Infer the properties and composition of metamorphic rock based on the original rock.
Unit 3: Composition of the Earth Lesson 7: Review Three Kinds of Rocks	0	0
Unit 3: Composition of the Earth Lesson 8: Laboratory: Rocks and Minerals 1	HS-ESS2-7	Investigate the properties and characteristics of minerals. Perform tests for hardness, color, streak, and special properties on mineral samples. Use the results of these tests to identify several mineral samples.
Unit 3: Composition of the Earth Lesson 9: Laboratory: Rocks and Minerals 2	HS-ESS2-7	Investigate the properties and characteristics of minerals. Perform tests for hardness, color, streak, and special properties on mineral samples. Use the results of these tests to identify several mineral samples.

Unit 3: Composition of the Earth Lesson 10: The Rock Cycle	0	Investigate the properties and characteristics of minerals. Explore the formation and composition of the three different rock types. Describe the relationship between different types of rock and how one kind of rock changes into another. Interpret a diagram of the rock cycle and relate these processes and changes to plate tectonic events.
Unit 3: Composition of the Earth Lesson 11: Review Rocks and Minerals I and II and The Rock Cycle	0	0
Unit 3: Composition of the Earth Lesson 12: Your Choice	#N/A	#N/A
Unit 3: Composition of the Earth Lesson 13: Unit Test	HS-ESS2-7, HS-ETS-1-5	0
Unit 4: Geologic History Lesson 1: Earth's History	0	Study the geologic time scale to learn how major biologic events correspond to earth's geologic history. Use the fossil record to interpret the past. Interpret the rock record of an area. Use relative and absolute dating methods to determine the geologic history of an area. Apply the theory of uniformitarianism while discussing earth's geologic history.
Unit 4: Geologic History Lesson 2: The Fossil Record	0	Study the geologic time scale to learn how major biologic events correspond to earth's geologic history. Use the fossil record to interpret the past. Interpret the rock record of an area. Use relative and absolute dating methods to determine the geologic history of an area. Review the time line of life on earth. Compare the time line of life on earth with the geologic periods of earth's history. Explain how relative and absolute dating methods led to the geologic time scale.

Unit 4: Geologic History Lesson 3: Review History and The Fossil Record	0	Study the geologic time scale to learn how major biologic events correspond to earth's geologic history. Use the fossil record to interpret the past. Interpret the rock record of an area. Use relative and absolute dating methods to determine the geologic history of an area. Understand how an organism can be preserved. Infer the connection between the fossil record and the geologic history of an area. Explain how fossils can provide clues to the major events and abiotic factors in an area.
Unit 4: Geologic History Lesson 4: Age of Geologic Features	0	Study the geologic time scale to learn how major biologic events correspond to earth's geologic history. Use the fossil record to interpret the past. Interpret the rock record of an area. Use relative and absolute dating methods to determine the geologic history of an area. Identify relative ages of rocks and geologic features. Calculate the absolute age of rocks using your knowledge of radioactive decay, half-life, and parent-daughter ratios. Compare absolute and relative age techniques.

Unit 4: Geologic History Lesson 5: Earth's History Written in Rocks	0	Study the geologic time scale to learn how major biologic events correspond to earth's geologic history. Use the fossil record to interpret the past. Interpret the rock record of an area. Use relative and absolute dating methods to determine the geologic history of an area. Determine the relative ages of rocks based on a geologic cross section. Determine how relative dating techniques work in practice. Determine the geologic events, such as deformation, earthquakes, or erosion, that may have occurred in a place. Determine how the environment of deposition changed over time at that location.
Unit 4: Geologic History Lesson 6: Review Age of Geologic Features and Earth's History Written in Rocks	0	0
Unit 4: Geologic History Lesson 7: Laboratory: Interpreting Geologic History, Day 1	HS-ESS1-6	Define and use the theory of uniformitarianism. Study the geologic time scale to learn how major biologic events correspond to earth's geologic history. Use the fossil record to interpret the past. Interpret the rock record of an area. Use relative and absolute dating methods to determine the geologic history of an area. Determine the relative ages of rocks based on a geologic cross section. Determine how relative dating techniques work in practice. Determine the geologic events, such as deformation, earthquakes, or erosion, that may have occurred in a place.

		Determine how the environment of deposition changed over time at that location.
Unit 4: Geologic History Lesson 8: Laboratory: Interpreting Geologic History, Day 2	HS-ESS1-6	Study the geologic time scale to learn how major biologic events correspond to earth's geologic history. Use relative and absolute dating methods to determine the geologic history of an area. Determine the relative ages of rocks based on a geologic cross section. Determine how relative dating techniques work in practice. Determine the geologic events, such as deformation, earthquakes, or erosion, that may have occurred in a place. Determine how the environment of deposition changed over time at that location.
Unit 4: Geologic History Lesson 9: Your Choice	#N/A	#N/A
Unit 4: Geologic History Lesson 10: Unit Test	HS-ESS1-6	0
Unit 5: Earth's Atmosphere Lesson 1: Layers in the Atmosphere	0	Describe the structure and composition of earth's atmosphere. Identify and describe the properties of each atmospheric layer. Interpret a diagram of temperature and air

		pressure changes in each layer of the atmosphere.
Unit 5: Earth's Atmosphere Lesson 2: Composition of the Atmosphere	0	Describe the composition and structure of the earth's atmosphere. Describe the consequences of the heat energy that is taken up by the atmosphere and what the atmosphere does with it. Explain how air temperature, air pressure, air density, and the earth's rotation interact to produce air circulations locally and globally. Explain temperature inversions and how they occur. Associate atmospheric layers with weather and human activities.
Unit 5: Earth's Atmosphere Lesson 3: Review Atmosphere	0	Interpret a diagram of the layers of the atmosphere, including temperature and air pressure data for each layer. Describe the structure and composition of earth's atmosphere. Identify and describe the properties of each atmospheric layer. Explain temperature inversions and how they occur. Associate atmospheric layers (troposphere) with weather and human activities.
Unit 5: Earth's Atmosphere Lesson 4: Laboratory: Barometer 1 Lesson 4: 5.04 Discussion	HS-ESS2-2, HS-ESS2-4	Explain how air temperature, air pressure, air density, and the earth's rotation interact to produce air circulations locally and globally. Define barometric pressure. Build and use a barometer to make barometric pressure measurements. Explain the relationship between barometric pressure and types of weather. Use wind and barometric data to predict weather.
Unit 5: Earth's Atmosphere Lesson 5: Laboratory: Barometer 2	HS-ESS2-2, HS-ESS2-4	Explain how air temperature, air pressure, air density, and the earth's rotation interact to produce air circulations locally and globally. Define barometric pressure. Build and use a barometer to make barometric pressure measurements. Explain the relationship between barometric pressure and types of weather. Use wind and barometric data to predict weather.

Unit 5: Earth's Atmosphere Lesson 6: Your Choice	#N/A	#N/A
Unit 5: Earth's Atmosphere Lesson 7: Mid-Unit Test	0	0
Unit 5: Earth's Atmosphere Lesson 8: The Sun and Energy	0	Explain how heat energy is transferred from the sun to the earth and the atmosphere. Describe the consequences of the heat energy that is taken up by the atmosphere and what the atmosphere does with it. Explain how radiation, conduction, or convection can transfer heat energy. Describe how heat energy enters the earth's system from the sun and is transferred through the atmosphere.
Unit 5: Earth's Atmosphere Lesson 9: Solar Radiation	0	Explain how heat energy is transferred from the sun to the earth and the atmosphere. Describe the consequences of the heat energy that is taken up by the atmosphere and what the atmosphere does with it. Interpret a diagram showing the distribution of incoming solar radiation on the earth. Explain how earth maintains a constant temperature over time. Discuss incoming solar radiation and its impact on energy absorption and reflection.
Unit 5: Earth's Atmosphere Lesson 10: Review The Sun and Energy and Solar Radiation	0	Describe how heat energy enters the earth's system by way of radiation from the sun and is transferred from earth's surface to the atmosphere by way of conduction, and how heat is then transported through the atmosphere by convection. Explain how radiation, conduction, or convection can transfer heat energy. Interpret a diagram showing the distribution of incoming solar radiation (insolation) on the earth. Discuss incoming solar radiation and its impact on energy absorption and reflection. Explain how earth maintains a constant temperature over time by radiating an equal amount of heat received from the sun back into space.
Unit 5: Earth's Atmosphere Lesson 11: Temperature and Air Pressure	0	Explain how air temperature, air pressure, air density, and the earth's rotation interact to produce air circulations locally and globally. Explain the connection between temperature and air pressure. Generalize the impact that air pressure has

		on the changing weather. Relate the connection, both globally and locally, between air pressure and air circulation patterns.
Unit 5: Earth's Atmosphere Lesson 12: Review Temperature and Air Pressure	0	Explain the connection between temperature and air pressure. Generalize the impact that air pressure has on the changing weather.
Unit 5: Earth's Atmosphere Lesson 13: Air Circulation Patterns 1	0	Explain how air temperature, air pressure, air density, and the earth's rotation interact to produce air circulations locally and globally. Predict the movement of air in global winds around earth's surface. Examine a map of the sun's energy hitting earth's surface and predict the areas of greatest energy. Describe the formation of a sea breeze and a land breeze. Differentiate between local and global winds. Predict the movement of air from an area of high temperature to an area of low temperature.
Unit 5: Earth's Atmosphere Lesson 14: Air Circulation Patterns 2	0	Explain how air temperature, air pressure, air density, and the earth's rotation interact to produce air circulations locally and globally.
Unit 5: Earth's Atmosphere Lesson 15: Review Air Circulation Patterns	0	Predict the movement of air in global winds around earth's surface. Examine a map of the sun's energy hitting earth's surface and predict the areas of greatest energy. Describe the formation of a sea breeze and a land breeze. Differentiate between local and global winds. Predict the movement of air from an area of high temperature to an area of low temperature. Explain what causes winds. Describe the role that earth's rotation has on air circulation. Predict the movement of objects based on the Coriolis effect. Interpret a map of the global wind systems. Describe the major wind belts and where they are located.

Unit 5: Earth's Atmosphere Lesson 16: Laboratory: Energy Absorption/Reflection 1 Lesson 16: Discuss: Energy Absorption	HS-ESS2-2, HS-ESS2-4	Explain how air temperature, air pressure, air density, and the earth's rotation interact to produce air circulations locally and globally. Predict that different materials will absorb or reflect sunlight. Design an experiment to test your prediction. Explain how the absorption or reflection of sunlight may affect natural settings. Explain how heat energy is transferred from the sun to the earth and the atmosphere. Describe the consequences of the heat energy that is taken up by the atmosphere and what the atmosphere does with it.
Unit 5: Earth's Atmosphere Lesson 17: Laboratory: Energy Absorption/Reflection 2	HS-ESS2-2, HS-ESS2-4	Design an experiment to test the absorptive and reflective qualities of a variety of materials. Conduct an experiment to test the absorptive and reflective qualities of a variety of materials. Interpret data to make assumptions about the absorptive and reflective qualities of certain materials. Extrapolate how materials on earth's surface, both natural and manufactured, will reflect or absorb sunlight.
Unit 5: Earth's Atmosphere Lesson 18: Your Choice	#N/A	#N/A
Unit 5: Earth's Atmosphere Lesson 19: Unit Test	HS-ESS2-2, HS-ESS2-4, HS-PS1-6	0
Unit 6: Weather 1 Lesson 1: What Makes the Weather?	0	Define climate as the average atmospheric conditions of a region, as described by weather observations made over time. Explain the atmospheric conditions that lead to the greenhouse effect. Define weather as the physical state of the atmosphere at a particular time and place. Describe the various atmospheric variables that influence weather patterns.
Unit 6: Weather 1 Lesson 2: Review What Makes the Weather?	0	Define weather as the physical state of the atmosphere at a particular time and place. Describe the various atmospheric variables that influence weather patterns.
Unit 6: Weather 1 Lesson 3: Gathering Weather Data	0	Define climate as the average atmospheric conditions of a region, as described by weather observations made over time. Explain that climate, weather, and currents are the result of uneven distribution of solar energy over earth's surface. Identify the tools used to gather data about

		atmospheric conditions and explain how they are used.
Unit 6: Weather 1 Lesson 4: Weather Maps	0	Accurately read keys and symbols on a weather map. Analyze the weather page in a newspaper. Analyze weather data and maps to develop appropriate weather forecasts.
Unit 6: Weather 1 Lesson 5: Review Gathering Weather Data and Weather Maps	0	Describe some of the instruments used in earth science investigations. Identify the tools used to gather data about atmospheric conditions and explain how they are used. Accurately read keys and symbols on a weather map. Analyze the weather page in a newspaper. Analyze weather data and maps to develop appropriate weather forecasts.
Unit 6: Weather 1 Lesson 6: Laboratory: Weather Map Interpretation 1	0	Read and interpret symbols from a surface weather map. Construct surface maps of temperature, pressure, dew points, and wind directions from surface data. Identify regions of specific temperatures, pressures, and moisture. Compare surface maps with other weather images.
Unit 6: Weather 1 Lesson 7: Laboratory: Weather Map Interpretation 2	0	Read and interpret symbols from a surface weather map. Construct surface maps of temperature, pressure, dew points, and wind directions from surface data. Identify regions of specific temperatures, pressures, and moisture. Compare surface maps with other weather images.
Unit 6: Weather 1 Lesson 8: Cloud Formation	0	Interpret a diagram that shows cloud formation. Identify examples of clouds associated with different types of weather. Describe how fog forms.
Unit 6: Weather 1 Lesson 9: How Storms Develop	0	Describe the specific conditions that lead to severe weather events. Identify examples of severe weather—hurricanes, tornadoes, and thunderstorms.

Unit 6: Weather 1 Lesson 10: Review Weather Maps, Cloud Formation, and How Storms Develop	0	Read and interpret symbols from a surface weather map. Interpret a diagram that shows cloud formation. Identify examples of clouds associated with different types of weather. Describe how fog forms. Identify examples of severe weather (e.g., hurricanes, tornadoes, and thunderstorms). Describe the specific conditions that lead to severe weather events. Construct surface maps of temperature, pressure, dew point, and wind direction from surface data. Identify regions of specific temperature, pressure, and moisture.
Unit 6: Weather 1 Lesson 12: Unit Test	HS-ESS2-2, HS-PS1-6, HS-ESS3-5, HS-ETS1-5	0
Unit 7: Semester 1 Review and Test Lesson 1: Semester 1 Review	0	0
Unit 7: Semester 1 Review and Test Lesson 2: Your Choice	0	0
Unit 7: Semester 1 Review and Test Lesson 3: Your Choice	0	0
Unit 7: Semester 1 Review and Test Lesson 4: Semester 1 Test	0	0