Wyoming Department of Education Required Virtual Education Course Syllabus

Sheridan County School District # 1

Program Name	Sheridan County School District #1 Virtual School	Content Area	SC
Course ID	AC03010	Grade Level	6 - 8
Course Name	Earth Science	# of Credits	1
SCED Code	03010	Curriculum Type	Acellus

COURSE DESCRIPTION

The Acellus Earth Science course provides an opportunity to study the earth on which we live. This course investigates the structure and composition, its changing surface and the role that energy plays in earth systems. It explores the earth's ecological resources and atmosphere, its water cycle and weather. It further discusses the earth's landmasses and its relationships with its neighbors in space. Along the way, students are shown how to use scientific thinking, investigations, tools and technologies. Course topics include: Minerals, Rocks, Weathering and Soil, Erosion and Deposition, Plate Tectonics, Earthquakes, Mountains and Volcanoes, Earth's Past, Natural Resources, Earth's Fresh Waters, Ocean Systems, Earth's Atmosphere, Weather Factors, Weather Patterns, Weather Predictions, Earth's Movement and its Effects, Earth's Moon, Space Exploration, The Solar System, Exploring the Universe.

WYOMING CONTENT AND PERFORMANCE STANDARDS

STANDARD #	BENCHMARK_(Standard/Indicator) Use the Standards and Benchmarks as Spreadsheets
MS-PS1-3	Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.
MS-PS2-4	Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.
MS-LS4-1	Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.
MS-ESS1-1	Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.
MS-ESS1-2	Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.
MS-ESS1-3	Analyze and interpret data to determine scale properties of objects in the solar system.
MS-ESS1-4	Construct a scientific explanation based on evidence from rocks and rock strata for how the geologic time scale is used to organize Earth’s 4.6-billion-year-old history.
MS-ESS2-1	Develop a model to describe the cycling of Earth’s materials and the flow of energy that drives this process.
MS-ESS2-2	Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales.
MS-ESS2-3	Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.
MS-ESS2-4	Develop a model to describe the cycling of water through Earth’s systems driven by energy from the sun and the force of gravity.

MS-ESS2-5	Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.
MS-ESS2-6	Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.
MS-ESS3-1	Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.
MS-ESS3-2	Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.
MS-ESS3-3	Apply scientific principles to design a method for monitoring, evaluating, and managing a human impact on the environment.
MS-ESS3-4	Construct an argument supported by evidence for how changes in human population and per-capita consumption of natural resources impact Earth's systems.
MS-ESS3-5	Ask questions to clarify evidence of the factors that have caused changes in global temperatures over time.
MS-ETS1-2	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
MS-ETS2-2	Develop a model defining and prioritizing the impacts of human activity on a particular aspect of the environment, identifying positive and negative consequences of the activity, both short and long-term, and investigate and explain how the ethics and integrity of scientists and engineers and respect for individual property rights might constrain future development.

SCOPE AND SEQUENCE

UNIT OUTLINE	STANDARD#	OUTCOMES OBJECTIVES/STUDENT CENTERED GOALS
Unit 1 – Minerals	MS-ESS3-3, MS-ETS2-2	In this unit students study minerals. They learn what minerals are and how they are identified, mined, and used.
Unit 2 – Rocks	MS-ESS2-1	In this unit students learn about the 'rock cyclel' They also learn about igneous, sedimentary, and metamorphic rock.
Unit 3 – Weathering and Soil	MS-ESS2-1	In this unit students study weathering and soil. They learn about mechanical versus chemical weathering, properties of soil, and how climate affects soil.
Unit 4 – Erosion and Deposition	MS-ESS2-1, MS-ESS2-2	In this unit students learn about how the Earth's surface is built up and worn down. They also learn how land is shaped by water movement, waves, and wind; and how glaciers change land by moving sediment.

Unit 5 – Plate Tectonics	MS-ESS2-2, MS-ESS2-3	In this unit students learn about the composition versus the physical structure of the Earth. They learn where the Earth's plates are located, how the continents drift, about the plate boundaries, and how Earth's crust is deformed.
Unit 6 – Earthquakes	MS-ESS3-2	In this unit students study earthquakes. They learn what earthquakes are, how they are measured, and how to prepare for them.
Unit 7 – Mountains and Volcanoes	MS-ESS2-1, MS-ESS2-2, MS-ESS3-2	In this unit students study mountains and volcanoes. They learn about how mountains are formed, what happens when a volcano erupts, what causes an eruption, and what types of volcanoes there are.
Unit 8 – Earth's Past	MS-LS4-1, MS-ESS1-4,	In this unit students study Earth's past. They learn about relative and absolute dating, types of unconformities and fossils, and the geologic time scale.
Unit 9 – Natural Resources	MS-PS1-3, MS-ESS3-1, MS-ESS3-4	In this unit students study natural resources. They learn about renewable and non-renewable resources, with special emphasis on fossil fuels, conservation and recycling. They also learn about other energy sources.
Unit 10 – Earth's Fresh Waters	MS-ESS2-4, MS-ESS3-1, MS-ESS3-4	In this unit students study Earth's fresh waters. They learn about the water cycle, and fresh water as a resource, both frozen and underground. The also learn about water shortages.
Unit 11 – Ocean Systems	MS-ESS2-6	In this unit students study the Earth's oceans as connected systems. They also learn about the ocean floors, how ocean water moves, what waves are and what they do, and what causes tides.
Unit 12 – Earth's Atmosphere	MS-ESS3-5	In this unit students study Earth's atmosphere. They learn about the composition of the atmosphere and its layers, air pressure, air quality and pollution.
Unit 13 – Weather Factors	MS-ESS2-4, MS-ESS2-5, MS-ESS2-6, MS-ESS3-5	In this unit students study weather factors. They learn about the energy that we get from the sun, how heat transfer works and what it does for us, what wind is, the difference between local and global winds, and where the global wind belts are. They also learn about humidity, types of clouds,
Unit 14 – Weather Patterns	MS-ESS2-5, MS-ESS2-6, MS-ESS3-2	In this unit students study weather patterns. They learn about types of air masses and how they move, as well as types of fronts. They also learn about cyclones and anticyclones, thunderstorms, tornadoes, hurricanes, and snowstorms.
Unit 15 – Weather Predictions	MS-ESS3-2	In this unit students study weather predictions. They learn about weather forecasting and technology, and how to read a weather map.
Unit 16 – Earth in Space	MS-PS2-4, MS-ESS1-1, MS-ESS1-2, MS-ESS2-6	In this unit students learn about how Earth moves in space. They also learn about Earth's seasons, gravity, and motion.

Unit 17 – Earth's Moon	MS-ESS1-1, MS-ESS1-2	In this unit students study the moon. They learn about the phases of the moon, the difference between lunar and solar eclipses, and the surface, origin, and characteristics of the moon.
Unit 18 – Space Exploration	MS-PS2-4	In this unit students study space exploration. They learn about the history of rockets and how they work, multistage rockets, the space program, working in space, and the challenges we face in space.
Unit 19 – The Sun	MS-ESS1-3	In this unit students study the sun. They learn about the Sun's interior, its atmosphere, and its features.
Unit 20 – Inner Planets	MS-PS2-4, MS-ESS1-2, MS-ESS1-3	In this unit students study the inner planets. They learn about The Earth, Mercury, Venus, and Mars.
Unit 21 – Outer Planets – Gas Giants	MS-PS2-4, MS-ESS1-2, MS-ESS1-3	In this unit students study the outer planets, some of which are known as the gas giants. They learn about Jupiter, Saturn, Uranus, Neptune, and Pluto.
Unit 22 – Comets, Asteroids, and Meteors	MS-ESS1-2	In this unit students study non-planetary objects in our solar system. They learn about comets, asteroids, and meteors.
Unit 23 – Telescopes	MS-ETS1-2	In this unit students study telescopes. They learn about electromagnetic radiation, different types of telescopes, and observatories.
Unit 24 – Stars	MS-ESS1-2, MS-ESS1-3	In this unit students study stars. They learn about the classification and lives of stars and how to measure the distance to stars, as well as Hertzsprung-Russell diagrams, star systems, galaxies, and the expanding universe.