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	AC03236	Grade Level	6
Course Name	Grade 6 Science	# of Credits	1
SCED Code	03236	Curriculum Type	Acellus

COURSE DESCRIPTION

Acellus Grade 6 Science is an integrated course covering Astronomy, Forces and Motion and Earth Structure. The course includes lab videos where students observe experiments that demonstrate the concepts they are learning. Course Topics Include: Objects in Space, Forces and Movement in Space, Force and Motion, Newton's Laws and Energy, Electricity and Magnetism, Earth Systems, Rocks and Minerals, Plate Boundaries and Movement, Earthquakes and Volcanoes.

WYOMING CONTENT AND PERFORMANCE STANDARDS

STANDARD #	BENCHMARK (Standard/Indicator) Use the Standards and Benchmarks as Spreadsheets
MS-PS2-2	Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.
MS-PS2-3	Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.
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-PS3-1	Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.
MS-PS3-2	Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.
MS-PS3-5	Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.
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-ETS1-1	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
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-ETS1-3	Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.
MS-ETS1-4	Develop a model for a proposed object, tool or process and then use an iterative process to test the model, collect data, and generate modification ideas trending toward an optimal design.
MS-ETS2-1	Ask questions about a common household appliance, collect data to reverse-engineer the appliance and learn how it's design has evolved, describe how scientific discoveries, technological advances, and engineering design played significant roles in its development, and explore how science, engineering and technology might be used together or individually in producing improved versions of the appliance.

SCOPE AND SEQUENCE

UNIT OUTLINE	STANDARD#	OUTCOMES OBJECTIVES/STUDENT CENTERED GOALS
Unit 1: Objects in Space	MS-ESS1-1	In this unit students study the concepts of axis and equator, planets and moons, stars, constellations, and actual vs. apparent motion. They also learn the concepts of the scientific method, lab safety, and model how to follow the steps of the scientific method during an experiment.
Unit 2: Forces and Movement in Space	MS-PS2-4, MS-ESS1-1, MS-ESS1-2	In the Forces and Movement in Space unit, students learn about rotation and revolution, reasons for seasons, solstice and equinox, and gravity. Additionally, students learn about objects in orbit, moon motions, moon phases, solar and lunar eclipses, and how to make a pinhole viewer.
Unit 3: History of the Solar System and Rockets	MS-ESS1-3, MS-ETS2-1	In this unit students learn about rocket inventions, modern rockets, how rockets work, and the space race. They also learn about space spinoffs, ancient solar system models, large and small solar system Objects, and solar system formation, and how to build a simple rocket.
Unit 4: Solar System Objects and Space Measurement	MS-ESS1-2, MS-ESS1-3	In this unit, students study the layers of the sun, sun features, dwarf planets, comet features, asteroids, and meteoroids and meteors. They also learn about space measurements, star characteristics, the life cycle of a star, and galaxy types are also introduced. Additionally, they gain an understanding of the scale of the solar system.
Unit 5: Force and Motion	MS-PS3-1	In the Forces and Motion unit, students learn about motion, relative motion, speed, and velocity. They also learn how to graph speed, and come to understand acceleration, force, net force, and friction. They also learn about friction force and roller coaster physics.

Unit 6: Newton's Laws and Energy	MS-PS2-2, MS-PS3-2, MS-PS3-5	In this unit, students build on the previous unit, learning the 1st, 2nd, and 3rd Laws of Motion. They also learn about work, power, energy, types of energy, forms of energy, energy transformation, and energy conservation. In addition, they learn about energy transformation, and marble energy.
Unit 7: Electricity and Magnetism	MS-PS2-3	In this unit students learn about electrical charges, electrical fields, charge build up, static discharge, and what makes sparks. Additionally, they learn about electric current, electric circuits, conductors and insulators. Finally, they learn what is in a circuit, types of circuits, magnetism, how to make a compass, and magnetic fields.
Unit 8: Earth Systems	MS-ESS1-4, MS-ESS2-1, MS-ESS2-2, MS-ESS2-4, MS-ESS2-5, MS-ESS2-6, MS-ESS3-5	In the Earth Systems unit, students learn about the main earth system parts, including the age of earth, rock strata, the four "Spheres", and constructive and destructive forces. Students study how the Earth's systems work together and they look at climate and weather. Students also learn about the earth's interior, the layers of earth, and heat transfer.
Unit 9: Rocks and Minerals	MS-ESS2-1, MS-ESS2-2, MS-ESS3-1	In this unit students learn about minerals, mineral identification, how minerals form, the characteristics of rocks, and classifying rocks. They also learn about igneous rocks, sedimentary rock, metamorphic rock, rock cycle.
Unit 10: Plate Boundaries and Movement	MS-ESS2-3	In this unit students learn about continental drift, mid-ocean ridges, sea-floor spreading and trenches, as well as subduction, subduction and earth's oceans, and plate tectonics. They also learn about divergent boundaries, convergent boundaries, transforming of boundaries, the three types of stress, and fault formation.
Unit 11: Earthquakes and Volcanoes	MS-ESS3-2, MS-ESS3-3, MS-ESS3-4, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4	In the Earthquakes and Volcanoes unit students learn about earthquakes, seismic waves, measuring earthquakes, and earthquake risk. They also learn about volcanoes, what is inside a volcano, volcanic eruption, stages of volcanic activity, lava and ash created landforms, magma created landforms, and seismographs. At the end of this unit, students study the human impact on Earth and focus on how we can make a positive difference through innovation.