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	AC03158	Grade Level	6 - 8
Course Name	Life Science	# of Credits	1
SCED Code	03158	Curriculum Type	Acellus

COURSE DESCRIPTION

In Acellus Life Science, students study living organisms, including plants, animals, and human beings. Beginning with a review of the basics of science, such as the scientific method. Life itself is explored, beginning with cellular organization and discussing the organization of living things. Particular emphasis is placed on human biology. Course topics include: The Scientific Method, Science and Nature, The Nature of Life, Plant and Animal Cells, Cell Division, The Si Kingdoms, Protista, Fungus, Plants, Simple Invertebrates, Vertebrates, Major Systems of the Human Body, and Nutrition.

WYOMING CONTENT AND PERFORMANCE STANDARDS

STANDARD #	BENCHMARK (Standard/Indicator) Use the Standards and Benchmarks as Spreadsheets
MS-LS1-1	Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.
MS-LS1-2	Develop and use models to describe the parts, functions, and basic processes of cells.
MS-LS1-3	Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.
MS-LS1-4	Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.
MS-LS1-5	Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.
MS-LS1-6	Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.
MS-LS1-7	Develop a model to describe how food molecules (sugar) are rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.
MS-LS1-8	Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.
MS-LS2-1	Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.
MS-LS2-2	Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
MS-LS2-3	Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.

MS-LS2-4	Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.
MS-LS3-1	Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.
MS-LS3-2	Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.
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-LS4-2	Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.
MS-LS4-4	Construct an explanation based on evidence that describes how genetic variations of traits in a population affects individuals' probability of surviving and reproducing in a specific environment.
MS-LS4-5	Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.
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.

SCOPE AND SEQUENCE

UNIT OUTLINE	STANDARD#	OUTCOMES OBJECTIVES/STUDENT CENTERED GOALS
Unit 1 – Exploring Science	MS-ETS1-4	In this unit students learn the various branches of science, basic science and metric system vocabulary, the scientific method, tools used in science, the microscope, and safety rules and symbols for science. They also see a lab on chemical color.
Unit 2 – Science and Nature	MS-LS1-4, MS-LS1-5, MS-LS1-6, MS-LS2-1, MS-LS2-2, MS-LS2-3, MS-LS2-4, MS-LS4-1, MS-LS4-2, MS-LS4-4	In this unit students learn about food webs and chains, the history of life on Earth, and evidence of evolution. They also learn about forest, land, and water biomes, cycles in nature and time, organisms and the environment, and conservation.
Unit 3 – The Nature of Life, Cells, and Classification of Organisms	MS-LS1-1, MS-LS1-2, MS-LS2-3	In this unit students learn five basic life processes, the basic needs, the chemistry of living things, cell theory, and levels of organization. Students also learn about the inner and outer parts of plant and animal cells, cell processes and division, and mitosis.

Unit 4 – Simple Kingdoms and Classification	MS-LS1-1, MS-LS2-3	In this unit students learn what classification is and how it works. They also learn about the six Kingdoms, characteristics of Viruses, Monerans, and Protists, and parts of a Moneran, animal-like Protists, and plant and fungus-like Protists.
Unit 5 – Fungi and Plants	MS-LS1-1, MS-LS1-4, MS-LS1-6, MS-LS1-7, MS-LS2-3	In this unit students learn about fungus, spotlighting mushrooms. They also learn about muticellular algae, land and vascular plants, seeds, leaves and photosynthesis, gymnosperms, angiosperm flower parts, mold and graphing.
Unit 6 – Simple Invertebrates	MS-LS1-1, MS-LS1-4	In this unit students learn about sponges, cnidarians, mollusks, worms (with a spotlight on earthworms), groups of arthropods, characteristics of insects, echinoderms, and the parts of a starfish. They also experience earthworm and starfish dissection labs.
Unit 7 – Vertebrate Animals	MS-LS1-1, MS-LS1-4, MS-LS2-2, MS-LS4-4	In this unit students learn the characteristics of fish, amphibians, reptiles, birds, and mammals. They also learn the parts of bony fish and frogs, groups of reptiles, mammals, and placental mammals, types of birds, beaks, and feet, and how to use dichotomous keys. They also experience a frog dissection lab.
Unit 8 – Skeletal and Muscular System	MS-LS1-1, MS-LS1-3	In this unit students learn types of tissue, characteristics of the skeletal system, bones, and skeletal joints. They also learn what muscles and the muscular system are, and the muscles of the body.
Unit 9 – Nutrition	MS-LS1-3, MS-LS1-5	In this unit students learn the six food groups and the six basic nutrients. They also learn about the digestive system and its parts.
Unit 10 – Major Systems of the Body	MS-LS1-1, MS-LS1-3, MS-LS1-7	In this unit students study the major systems of the body. They learn about the circulatory system, the heart, the blood, and the immune, respiratory, excretory, integumentary, and endocrine systems.
Unit 11 – The Nervous System and Senses	MS-LS1-1, MS-LS1-3, MS-LS1-8	In this unit students learn about the central and peripheral nervous systems. They also learn about the senses, and the systems of the body.
Unit 12 – Reproductive System and Genetics	MS-LS1-1, MS-LS1-3, MS-LS1-5, MS-LS3-2, MS-LS3-1, MS-LS4-5	In this unit students learn the female and male reproductive systems. They also learn the history of genetics, probability, heredity, DNA, phases of meiosis, and asexual reproduction.
Unit 13 – Alcohol, Drugs, and Tobacco		In this unit students learn about drugs, alcohol, and tobacco. They also learn about drug prevention.