

Wyoming Department of Education Required Virtual Education Course Syllabus

BIG HORN COUNTY SCHOOL DISTRICT #1

Program Name	WYCA	Content Area	Science
Course ID	CAEL76357	Grade Level	4
Course Name	Science 4 A	# of Credits	0.5
SCED Code	NoCourseSCED	Curriculum Type	Connections Academy

COURSE DESCRIPTION

Science is an adventure in which everyone can take part! In this first semester course, the student will be participating in scientific investigations of many different forms including simple observations and experiments. Results from these investigations will provide information about the surrounding world. The McGraw-Hill textbook, Science: A Closer Look, and the science kit are the primary resources for this course.

The opening unit examines volcano exploration and reviews the scientific method. The life science units examine the commonalities and differences among organisms. The Earth Science units provide an opportunity for the student to investigate the different land features on Earth, as well as how to care for Earth. In this course the student will observe seed growth, explore the effects of flooding on a riverbank, and much, much more!

WYOMING CONTENT AND PERFORMANCE STANDARDS

STANDARD#	BENCHMARK
4-PS3-1	Use evidence to construct an explanation relating the speed of an object to the energy of that object.
4-PS3-2	Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.
4-PS3-3	Ask questions and predict outcomes about the changes in energy that occur when objects collide.
4-PS3-4	Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.
4-PS4-1	Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.
4-PS4-2	Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.
4-PS4-3	Generate and compare multiple solutions that use patterns to transfer information.
4-LS1-1	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

SCOPE AND SEQUENCE

UNIT OUTLINE	STANDARD#	OUTCOMES
<p>Unit 1: Mechanical Energy & Speed In this unit you will differentiate between instantaneous speed and average speed. Through investigation, you will explore the relationship between speed and mass. You will also discover how energy is transferred when two objects collide.</p>	4-PS3-1, 4-PS3-3	<ul style="list-style-type: none"> Relate the speed of an object to the energy of that object. Predict outcomes about the changes in energy that occur when objects collide
<p>Unit 2: Energy Transfer In this unit your student will learn that energy can be transferred from place to place in different ways, including sound, light, heat, and electric currents. Using the engineering design process, your student will design a device that converts energy from one form to another.</p>	4-PS3-2, 4-PS3-4	<ul style="list-style-type: none"> Demonstrate that energy can be transferred from place to place by sound, light, heat and electric currents. Using the engineering process, design a device that converts energy from one form to another.
<p>Unit 3: Waves and Light In this unit you will, through observation and the use of models, explore the human eye and learn that light reflects off of objects, allowing them to be seen. You will learn how energy travels over waves, and learn the components of a wave. Using your understanding of the characteristics of waves, you will create graphic models of different kinds of waves. Finally, you will explore and design a method for transmitting information over distance using light.</p>	4-PS4-1, 4-PS4-2, 4-PS4-3	<ul style="list-style-type: none"> Develop a model to explain that light reflecting from objects and entering the eye allows them to be seen. Describe waves as regular patterns of motion along which energy, such as light or sound energy, travels Create graphic models of waves to show that they can differ in amplitude and wavelength Design a method to transfer information using patterns of light.

<p>Unit 3: Adaptations for Survival</p> <p>In this unit, your student will observe and describe how a plant takes in water and nutrients through its roots and makes food from sunlight. Your student will observe how plant structures have specific adaptations that support survival in different habitats. Animals share different external structures that help them survive in different habitats, and your student will observe examples of these adaptations.</p>	<p>4-LS1-1</p>	<ul style="list-style-type: none"> • Describe how roots are associated with the intake of water and soil nutrients and green leaves are associated with making food from sunlight. • Explain how external structures of plants help them survive in different habitats • Compare external structures of animals that help them survive in different habitats.
<p>Unit 4: Adaptations for Reproduction and Growth</p> <p>In this unit, your student will learn about reproductive adaptations of flowering plants and animals. He will learn that in flowering plants, different structures enable fertilization by the transfer of pollen to plant female reproductive organs. The seeds that are produced have different structures that aid in their dispersal and germination. The student will learn that animals have a wide variety of behaviors that help them find mates and rear their young, and he will review examples such as marking territory and building nests.</p>	<p>4-LS1-1</p>	<ul style="list-style-type: none"> • Explain how the external structures of flowering plants function for plant reproduction • Compare animal adaptations that are beneficial to finding mates and promote reproduction of a species.