

Wyoming Department of Education Required Virtual Education Course Syllabus

BIG HORN COUNTY SCHOOL DISTRICT #1

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| Program Name | WYCA | Content Area | Science |
| Course ID | CAEL76406 | Grade Level | 5 |
| Course Name | Science 5 B | # of Credits | 0.5 |
| SCED Code | NoCourseSCED | Curriculum Type | Connections Academy |

COURSE DESCRIPTION

Science is an ongoing process that constantly renders new discoveries. In this second semester course, the student will be sharpening his investigative skills and expanding upon his existing knowledge in order to make his own new discoveries. The McGraw-Hill textbook, Science: A Closer Look, and the science kit are the primary resources for the course. The Earth science units provide an opportunity for the student to investigate weather patterns and the universe. The physical science units examine the characteristics of matter, energy, and forces.

The lessons in this course are designed to accommodate many learning styles, and to provide a variety of opportunities for the entire family to participate in the student's education. Some lessons, or groups of lessons, in each unit are activity-centered, which allow the student to engage the new concepts he encounters through exploration and discovery; others are more traditional, requiring the student to read, research, and reflect on the underlying theory.

WYOMING CONTENT AND PERFORMANCE STANDARDS

| STANDARD# | BENCHMARK |
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| 5-PS3-1 | Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun. |
| 5-LS1-1 | Support an argument that plants get the materials they need for growth primarily from air and water. |
| 5-ESS1-1 | Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth. |
| 5-ESS1-2 | Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky. |
| 5-ESS2-2 | Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. |
| 5-ESS3-1 | Obtain and combine information about ways individual communities use science ideas to conserve Earth's resources and environment. |
| 3-5-ETS1-1 | Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. |
| 3-5-ETS1-2 | Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. |
| 3-5-ETS1-3 | Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. |

SCOPE AND SEQUENCE

| UNIT OUTLINE | STANDARD# | OUTCOMES |
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| <p>Unit 1: Energy to Food In this unit, your student will learn what materials a plant needs to produce its own food, and why plants are a critical part of any food web.</p> | 5-LS1-1 | <ul style="list-style-type: none"> Explain the role of producers in food chains and webs. Explain that as producers, plants meet their needs for making food chiefly from air, water, and the sun's energy in a process called photosynthesis. |
| <p>Unit 2: Transfer of Energy In this unit, your student will create and use models to show how the sun's energy moves through a food web.</p> | 5-PS3-1 | <ul style="list-style-type: none"> Examine how energy is transferred from producers to primary consumers to secondary consumers. Create a model of energy transfer in a given food web. |
| <p>Unit 3: Astronomy of Seasons In this unit, your student will learn how day/night and the seasons are caused by the motion and changing position of Earth in relation to the sun. He will explore how the amount of direct sunlight changes the length of the day, temperature, and season at different locations on Earth. He will describe changes in the night sky as the seasons change, and explain why the constellations that are visible change over the course of the year. He will understand how the apparent brightness of stars relates to the star's distance from Earth. He will explain the phases of the moon and the effect of the moon's gravitational pull on Earth. He will describe the position of Earth, the moon, and the sun during a lunar eclipse.</p> | 5-ESS1-1, 5-ESS1-2 | <ul style="list-style-type: none"> Explain the daily and yearly changes in length and direction of shadows. Describe the seasonal changes in star patterns visible in the night sky Relate the apparent brightness of stars and their distance from Earth Explain the lunar phases, lunar eclipse, and the affect of the moon's gravitational pull on Earth. |

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| <p>Unit 4: Water Resources</p> <p>In this unit, your student will identify saltwater and freshwater resources on Earth. She will describe how fresh water is used in many aspects of daily life, and how these many uses put strain on the freshwater resources. Your student will identify what can be done to clean, protect, and conserve freshwater resources on Earth. They will understand that fresh water, though technically renewable, is actually a limited resources. Finally, she will design a solution to a water-related problem. She will build a prototype and test their model, and then identify how the prototype could be improved.</p> | <p>5-ESS2-2, 3-5-ETS1-1, 3-5-ETS1-2, 3-5-ETS1-3,</p> | <ul style="list-style-type: none"> • Draw conclusions about fresh water as a limited resource by describing percentages of available fresh and salt water on Earth and classifying ways that fresh water is used as a resource. • Define a simple design problem concerning cleaning water and address constraints on materials, time or cost. • Generate and compare multiple solutions to a problem. • Plan and carry out tests to identify aspects of a model or prototype that can be improved. |
| <p>Unit 5: Earth's resources</p> <p>In this unit, your student will learn about what natural resources are and how we use them. Learning will include learning about minerals as natural resources, and the properties of minerals that make them useful. Your student will learn about both living and non-living natural resources that can be protected or conserved. Through research, he will also find out about local or state practices or policies that promote conservation or protection of natural resources.</p> | <p>5-ESS3-1</p> | <ul style="list-style-type: none"> • Examine ways in which plants, animals and minerals are natural resources. • Describe properties of minerals. • Describe ways that different kinds of natural resources, both living and non-living, can be protected or conserved. • Evaluate community or state agricultural or industrial practices used to protect or conserve natural resources. |