



Science - Grade 4

Course Description:

The Indian Community School cultivates an enduring cultural identity and critical thinking by weaving indigenous teachings with a distinguished learning environment. The curriculum for this course is developed from the [Next Generation Science Standards](#) and the framework of the [ICS Our Ways Cultural Calendar](#). In this course, fourth grade students will develop an understanding of the effects of weathering or erosion by water, ice, wind, or vegetation. Students will develop an understanding that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. Students will develop an understanding that energy can be transferred from place to place by sound, light, heat, and electric currents or from object to object through collisions.

Enduring Understandings:

- Knowledge of relevant science concepts and research findings are important in engineering in order to approve upon existing technology.
- People's needs and wants change over time, as do their demands for new and improved technologies.
- Engineers generate and revise models to solve a problem within the constraints of an intended outcome.
- Scientists identify, observe, and predict earth's weathering processes and how it has affected humans.
- Engineers improve existing technologies or develop new ones to increase their benefits, to decrease known risks, and to meet societal demand.
- Scientists study and compare organisms, places, ideas, and events to make sense of our world.
- Scientists plan and conduct investigations using the scientific method to analyze and modify designs to solutions.
- Scientist identify, compare, and assess cause and effect relationships to explain how energy behaves.

PHYSICAL SCIENCE

- I can use evidence to create an explanation relating the speed of an object to the energy of that object. (4-PS3-1)
- I can make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. (4-PS3-2)
- I can ask questions and predict outcomes about the changes in energy that occur when objects collide. (4-PS3-3)
- I can apply scientific ideas to design, test, and refine a device that converts energy from one form to another. (4-PS3-4)
- I can create a model of waves to describe patterns in terms of amplitude and wavelength. (4-PS4-1)
- I can create a model of waves to describe that waves can cause objects to move. (4-PS4-1)
- I can create a model to describe that light reflecting from objects and entering the eyes allow objects to be seen. (4-PS4-2)
- I can generate and compare multiple solutions that use patterns to transfer information. (4-PS4-3)



LIFE SCIENCE

- I can construct an argument that plants have internal and external structures that function to support survival, growth, behavior, and reproduction. (4-LS1-1)
- I can construct an argument that animals have internal and external structures that function to support survival, growth, behavior, and reproduction. (4-LS1-1)
- I can use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. (4-LS1-2)

EARTH AND SPACE SCIENCE

- I can identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. (4-ESS1-1)
- I can make observations to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. (4-ESS2-1)
- I can make measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. (4-ESS2-1)
- I can analyze and explain data from maps to describe patterns of Earth's features. (4-ESS2-2)
- I can research and put together information to describe that energy and fuels come from natural resources
- I can research and put together information to describe energy and fuels and how their uses affect the environment. (4-ESS3-1)
- I can generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans. (4-ESS3-2)

ENGINEERING, TECHNOLOGY, AND APPLICATIONS OF SCIENCE

- I can define a simple design problem reflecting a need that includes specific rules for success and limits on materials, time, or cost. (3-5-ETS1-1)
- I can 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-ETS1-2)
- I can plan fair tests in which variable are controlled and failure points are considered to identify aspects of a model that can be improved. (3-5-ETS1-3)
- I can carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model that can be improved. (3-5-ETS1-3)