
Coal City Unit District #1
Fourth Grade
Science Curriculum

SC.4:1 **Students will demonstrate an understanding of the effects of environmental changes, adaptations, and behaviors that enable plants and animals to survive in changing habitats. (NGSS 4-LS1-1, NGSS 4-LS1-2)**

- SC.4:1-1 Determine the basic needs of living things.
- SC.4:1-2 Explain the functions of the basic parts of a plant.
- SC.4:1-3 Recall the process of photosynthesis.
- SC.4:1-4 Determine the plant structures which are used for protection.
- SC.4:1-5 Classify the plant structures which are used for reproduction.
- SC.4:1-6 Determine how plants respond to their environment.
- SC.4:1-7 Identify animal structures and how they are used for sensing the environment.
- SC.4:1-8 Determine the difference between instinct, reflex, memory and learned behavior.

SC.4:2 **Students will demonstrate an understanding of the Earth's structure, features, processes and formations and how they continually change due to Earth forces. (NGSS 4-ESS1-1, NGSS 4-ESS2-2)**

- SC.4:2-1 Define fossils and identify where they are found.
- SC.4:2-2 Discriminate the effects that earthquakes, volcanoes, glaciers or rainfall have on the landscape over time. (erosion/weathering)
- SC.4:2-3 Identify the basic characteristics of earthquakes and volcanoes, where they are located, and why they are located there.

SC.4:3 Students will demonstrate an understanding of the effects of weathering and erosion on the Earth's surface. (NGSS 4-ESS2-1)

- SC.4:3-1 Define erosion, weathering and deposition.
- SC.4:3-2 Use tools to measure movement of erosion/weathering materials.
- SC.4:3-3 Predict the outcome of landform weathering and erosion using different variables.
- SC.4:3-4 Demonstrate the effects of weathering on the Earth's surface.
- SC.4:3-5 Conduct an experiment to demonstrate erosion.
- SC.4:3-6 Discuss variables that could be used to show the rate of erosion.
- SC.4:3-7 Differentiate between the effects that erosion, deposition and weathering have on the Earth.

SC.4:4 Students will demonstrate an understanding of the Earth's resources, how they affect the environment, and how they are continually changing. (NGSS 4-ESS3-1)

- SC.4:4-1 Define natural, renewable and nonrenewable resources.
- SC.4:4-2 Compare and contrast renewable and nonrenewable resources.
- SC.4:4-3 Collect information from various sources to determine the effects of renewable, nonrenewable and natural resources on the environment.
- SC.4:4-4 Recall natural resources found on Earth.

SC.4:5 Students will demonstrate an understanding of the impacts of natural Earth processes on humans. (NGSS 4-ESS3-2)

- SC.4:5-1 Identify Earth's natural hazards: earthquakes, tsunamis, volcanic eruptions.
- SC.4:5-2 List ways humans can reduce the impact of natural hazards.
- SC.4:5-3 Design a solution to reduce the natural hazard (disaster) impact on humans. (e.g. earthquake, tsunami, flood)
- SC.4:5-4 Support reasons of student design.
- SC.4:5-5 Predict outcome of student design before tested.

SC.4:6 Students will demonstrate knowledge of energy in motion, the transfer of energy, relationships between energy and forces, and converting stored energy into a desired form for practical use. (NGSS 4-PS3-1, NGSS 4-PS3-2, NGSS 4-PS-3, NGSS 4-PS-4))

- SC.4:6-1 Define energy.
- SC.4:6-2 Define how energy and motion are related.
- SC.4:6-3 Determine how collisions and motions affect the transfer of energy.
- SC.4:6-4 Identify the basic forms of energy, (light, sound, thermal, and electrical) as the ability to cause motion or create change.
- SC.4:6-5 Identify how energy can be gained, lost, or stored.
- SC.4:6-6 Identify how energy can be transferred.
- SC.4:6-7 Explain how objects get an electric charge.
- SC.4:6-8 Conduct an experiment to provide evidence to show the transfer energy between substances, (e.g. potential to kinetic: electrical circuits, radiant to thermal: heat lamp, hand gets warm)
- SC.4:6-9 Investigate and describe that the speed of an object is determined by the distance it travels in a unit of time and that objects can move at different speeds. (Ramps, higher/lower)
- SC.4:6-10 Predict the outcome of experiments involving the collision of objects.
- SC.4:6-11 Design, test and revise a device that will convert electrical energy into motion, light or sound.

SC.4:7 Students will demonstrate knowledge of wave properties, patterns and the transfer of waves. (NGSS 4-PS4-1, NGSS 4-PS4-2, NGSS 4-PS4-3)

- SC.4:7-1 Explain examples of waves.
- SC.4:7-2 Identify the property of waves.
- SC.4:7-3 Identify the way waves travel through the Earth.
- SC.4:7-4 Explain how waves affect objects.
- SC.4:7-5 Construct a diagram/physical model to show an understanding of wavelength and amplitude.
- SC.4:7-6 Develop a model of waves to demonstrate objects moving using different variables. (e.g. parachute & ball, tarp & water balloon)
- SC.4:7-7 Identify how waves use patterns to transmit information. (e.g. computers, cell phones, walkie talkie, t.v./dish)

SC.4:8 **Students will demonstrate knowledge of Scientific Method to create a simple design solution which includes criteria for success. (NGSS 3-5-ETS1, NGSS 3-5-ETS1-2, NGSS 3-5-ETS1-3)**

- SC.4:8-1 Identify basic safety equipment: gloves, goggles, and lab coats.
- SC.4:8-2 Identify basic safety procedures: wear goggles, clean up spills, never taste or smell substances, and handle thermometers carefully.
- SC.4:8-3 Determine the importance of doing the experiment the same way every time, scientists share results, and recording observations accurately.
- SC.4:8-4 Identify basic scientific instruments: ruler, balance, scale, graduated cylinder, clock, thermometer, and telescope.
- SC.4:8-5 Identify the steps of the Scientific Method.
- SC.4:8-6 Identify the problem in an experiment.
- SC.4:8-7 Recall that multiple attempts must be made during the experiment.
- SC.4:8-8 Create a plan to solve a problem.
- SC.4:8-9 Observe, draw conclusions, form a hypothesis, organize data, construct a graph, and compare data using information from an experiment.
- SC.4:8-10 Interpret and share individual and group results of experiment.
- SC.4:8-11 Analyze the effectiveness of the design solution as to how well it meets the requirements considering the constraints given.