

# **Platte County School District #2**

## **Science Standards**

### **4th Grade**



2017-2018 School Year

## Quarter 1: Scientific Method and Engineering Design

### ESTABLISHED GOALS

**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.

## Quarter 2: Waves and Energy

**4-PS3-2:** Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. [Assessment boundary: Assessment does not include quantitative measurements of energy.]

**4-PS3-4:** Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. [Clarification statement: Examples of devices could include electrical circuits that convert electrical energy into motion energy of a vehicle, light, or sound; and, a passive solar heater that converts light into heat. Examples of constraints could include the materials, cost, or time to design the device.]

**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. [Clarification statement: Examples of models could include diagrams, analogies, and physical models using wire to illustrate wavelength and amplitude of waves.] [Assessment boundary: Assessment does not include interference effects, electromagnetic waves, non-periodic waves, or quantitative models of amplitude and wavelength.]



## Quarter 3: Structure, Function and Information Processing

**4-LS1-1:** Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. [Clarification statement: Examples of structures could include thorns, stems, roots, colored petals, heart, stomach, lungs, brain, and skin.] [Assessment boundary: Assessment is limited to macroscopic structures within plant and animal systems.]

**4-LS1-2:** 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. [Clarification statement: Emphasis is on systems of information transfer.] [Assessment boundary: Assessment does not include the mechanisms by which the brain stores and recalls information or the mechanisms of how sensory receptors function.]

## Quarter 4: Earth's Systems – Processes That Shape the Earth

### ESTABLISHED GOALS

**4-ESS1-1:** Identify evidence from patterns in rock formations and fossils in rock layers for changes in a landscape over time to support an explanation for changes in a landscape over time. [Clarification statement: Examples of evidence from patterns could include rock layers with marine shell fossils above rock layers with plant fossils and no shells, indicating a change from land to water over time; and, a canyon with different rock layers in the walls and a river in the bottom, indicating that over time a river cut through the rock.] [Assessment boundary: Assessment does not include specific knowledge of the mechanism of rock formation or memorization of specific rock formations and layers. Assessment is limited to relative time.]

**4-ESS2-1:** Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. [Clarification statement: Examples of variables to test could include angle of slope in the downhill movement of water, amount of vegetation, speed of wind, relative rate of deposition, cycles of freezing and thawing of water, cycles of heating and cooling, and volume of water flow.] [Assessment boundary: Assessment is limited to a single form of weather or erosion.]

**4-ESS3-2:** Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans. [Clarification statement: Examples of solutions could include designing an earthquake resistant building and improving monitoring of volcanic activity.] [Assessment boundary: Assessment is limited to earthquakes, floods, tsunamis, and volcanic eruptions.]

