

Montville Public Schools
Science Curriculum Overview by Grade Level - Grade 3
Updated June 2024

Grade 3:

The performance expectations in third grade help students formulate answers to questions such as: “What is typical weather in different parts of the world and during different times of the year? How can the impact of weather-related hazards be reduced? How do organisms vary in their traits? How are plants, animals, and environments of the past similar or different from current plants, animals, and environments? What happens to organisms when their environment changes? How do equal and unequal forces on an object affect the object? How can magnets be used?” Students are able to organize and use data to describe typical weather conditions expected during a particular season. By applying their understanding of weather-related hazards, students are able to make a claim about the merit of a design solution that reduces the impacts of such hazards. Students are expected to develop an understanding of the similarities and differences of organisms’ life cycles. An understanding that organisms have different inherited traits, and that the environment can also affect the traits that an organism develops, is acquired by students at this level. In addition, students are able to construct an explanation using evidence for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. Students are expected to develop an understanding of types of organisms that lived long ago and also about the nature of their environments. Third graders are expected to develop an understanding of the idea that when the environment changes some organisms survive and reproduce, some move to new locations, some move into the transformed environment, and some die. Students are able to determine the effects of balanced and unbalanced forces on the motion of an object and the cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other. They are then able to apply their understanding of magnetic interactions to define a simple design problem that can be solved with magnets. The crosscutting concepts of patterns; cause and effect; scale, proportion, and quantity; systems and system models; interdependence of science, engineering, and technology; and influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. In the third grade performance expectations, students are expected to demonstrate grade-appropriate proficiency in asking questions and defining problems; developing and using models, planning and carrying out investigations, analyzing and interpreting data, constructing explanations and designing solutions, engaging in argument from evidence, and obtaining, evaluating, and communicating information. Students are expected to use these practices to demonstrate understanding of the core ideas.

<p>Unit: Grand Canyon Shells</p> <p>Source: CREC Science Bundle</p> <p>Unit Overview: The students, as secret agents from the environmental archeology division, will make observations and ask questions about the seemingly odd marine fossils found in the Grand Canyon. Over the course of the unit, students will define how this odd phenomenon came to be.</p> <p>Anchoring Phenomenon: Misplaced marine fossils in the Grand Canyon!</p>	<p>NGSS Standards:</p> <p>3-LS4-1 - Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.</p> <p>3-LS4-2 - Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.</p> <p>3-LS4-4 - Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.</p> <p>3-LS2-1 - Construct an argument that some animals form groups that help members survive.</p>	<p>Culminating Activity:</p> <p>Students write a final report to be published in the Grand Canyon National Park Newspaper that compiles all of the science and evidence they collected throughout the unit. They identify and describe the three most important pieces of evidence needed to solve the case of the misplaced fossils.</p> <p><u>G3 Science Standards</u></p>
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<p>Unit: Stormy Skies</p> <p>Source: Mystery Science Unit</p> <p>Unit Overview: In this unit, students investigate and make predictions about the weather through careful observation of the clouds and wind. Students also learn to differentiate between weather and climate and use models to reveal global climate patterns.</p> <p>Anchoring Phenomenon: The anchor phenomenon for this unit is an icy hailstorm that happens during warm summer weather. In the activity, Summer Ice Storm, students generate observations and questions about the phenomenon and create an initial explanation of how it happened.</p>	<p>NGSS Standards:</p> <p>3-ESS2-1 - Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.</p> <p>3-ESS2-2 - Obtain and combine information to describe climates in different regions of the world.</p> <p>3-ESS3-1 - Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.</p> <p>3-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.</p> <p>3-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.</p> <p>3-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.</p>	<p>Culminating Activity:</p> <p>Students analyze and represent real weather data in tables and bar graphs in order to forecast hail storms during different seasons and in different regions of the United States.</p> <p><u>G3 Science Standards</u></p>
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<p>Unit: Movement and Interactions of Objects</p> <p>Source: CREC Science Bundle</p> <p>Unit Overview: Students are introduced to three instances of odd motion, acting as secret agents, the students work towards solving the causes of these strange motions.</p> <p>Anchoring Phenomenon: The Cases of Odd Motion-hover plate, block eating blob, punt</p>	<p>NGSS Standards:</p> <p>3-PS2-1 - Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.</p> <p>3-PS2-2 - Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.</p> <p>3-PS2-3 - Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.</p> <p>3-PS2-4 - Define a simple design problem that can be solved by applying scientific ideas about magnets.</p> <p>3-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.</p>	<p>Culminating Activity:</p> <p>To finalize the unit, our secret agents from the Motion Detection Division complete their evidence logs and present their findings to the chief inspector when a new case comes into the division. Students will use their evidence from the anchor phenomena to solve this new case of odd motion.</p> <p><u>G3 Science Standards</u></p>
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<p>Unit: Fates of Traits</p> <p>Source: Mystery Science Unit</p> <p>Unit Overview: In this unit, students explore the inherited and acquired traits of plants and animals. Analyzing traits provides evidence for how those traits vary, how they are inherited, and how they have changed over time through both artificial and natural selection. Students also examine how a particular environment can affect traits, including inherited traits that provide animals with an advantage for survival.</p> <p>Anchoring Phenomenon: The anchor phenomenon for this unit is one of the most successful kinds of animals on Earth: ants! How can such small creatures survive in so many places with such a huge population of individuals?</p>	<p>NGSS Standards:</p> <p>3-LS2-1 - Construct an argument that some animals form groups that help members survive.</p> <p>3-LS3-1 - Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.</p> <p>3-LS3-2 - Use evidence to support the explanation that traits can be influenced by the environment.</p> <p>3-LS4-2 - Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.</p> <p>3-LS4-3 - Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.</p>	<p>Culminating Activity:</p> <p>Students will analyze data from competing ant colonies in order to construct an argument about how living in groups helps animals to survive.</p> <p><u>G3 Science Standards</u></p>
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