

Second Grade Science Units Overview

	Unit: Structure and Properties of Matter	Unit: Interdependent Relationships in Ecosystems
Performance Expectations	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object. Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. 	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> Plan and conduct an investigation to determine if plants need sunlight and water to grow Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants. Make observations of plants and animals to compare the diversity of life in different habitats.
Scientific Core Ideas	<p>Students who demonstrate understanding can describe that:</p> <ul style="list-style-type: none"> Waves, which are regular patterns of motion, can be made in water by disturbing the Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties. Different properties are suited to different purposes. A great variety of objects can be built up from a small set of pieces. Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not. 	<p>Students who demonstrate understanding can describe that:</p> <ul style="list-style-type: none"> Plants depend on water and light to grow. Plants depend on animals for pollination or to move their seeds around. There are many different kinds of living things in any area, and they exist in different places on land and in water. Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people.
Language Arts Expectations	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> Refer to details and examples in a text when explaining what the text says explicitly. Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. Describe how reasons support specific points the author makes in a text. Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section. Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). Recall information from experiences or gather information from provided sources to answer a question. 	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> Ask and answer questions about key details in a text. Write opinion pieces on topics or texts, supporting a point of view with reasons and information. Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.

*Words in this synopsis were taken directly from the Next Generation of Science Standards (NGSS).

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<p>Mathematics Expectations</p>	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> • Reason abstractly and quantitatively. • Model with mathematics. • Use appropriate tools strategically. Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. • Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. 	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> • Reason abstractly and quantitatively. • Model with mathematics. • Use appropriate tools strategically. • Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems.
<p>Engineering Expectations</p>	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> • Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. • Analyze data from tests of an object or tool to determine if it works as intended. • Every human-made product is designed by applying some knowledge of the natural world and is built by using natural materials. 	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> • Develop a simple model based on evidence to represent a proposed object or tool.
<p>Information and Technology Literacy</p>	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> • Ask and answer such questions such as <i>who</i>, <i>what</i>, <i>where</i>, <i>when</i>, <i>why</i>, and <i>how</i> to demonstrate understanding. • Use a variety of digital tools to produce, publish, and collaborate with peers. 	

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	Unit: Earth's Systems: Processes that Shape the Earth
Performance Expectations	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> • Use information from several sources to provide evidence that Earth events can occur quickly or slowly. • Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land. • Develop a model to represent the shapes and kinds of land and bodies of water in an area. • Obtain information to identify where water is found on Earth and that it can be solid or liquid.
Scientific Core Ideas	<p>Students who demonstrate understanding can describe that:</p> <ul style="list-style-type: none"> • Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. • Wind and water can change the shape of the land. • Maps show where things are located. One can map the shapes and kinds of land and water in any area. • Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form. • Because there is always more than one possible solution to a problem, it is useful to compare and test designs.
Language Arts Expectations	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> • Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. • Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. • Compare and contrast the most important points presented by two texts on the same topic. • With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. • Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). • Recall information from experiences or gather information from provided sources to answer a question. • Recount or describe key ideas or details from a text read aloud or information presented orally or through other media. • Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.
Mathematics Expectations	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> • Reason abstractly and quantitatively. • Model with mathematics. • Use appropriate tools strategically. • Understand place value. • Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. • Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.
Engineering Expectations	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> • Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. • Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem. • Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs. The performance expectations above were developed using.

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