

First Grade Science Units Overview

	Unit: Light and Sound Waves	Unit: Structure, Function, and Information Processing
Performance Expectations	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. Make observations to construct an evidence-based account that objects can be seen only when illuminated. Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light. Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance. 	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive. Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.
Scientific Core Ideas	<p>Students who demonstrate understanding can describe that:</p> <ul style="list-style-type: none"> Sound can make matter vibrate, and vibrating matter can make sound. Objects can be seen if light is available to illuminate them or if they give off their own light. Some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. Mirrors can be used to redirect a light beam. People use a variety of devices to communicate over long distances. 	<p>Students who demonstrate understanding can describe that:</p> <ul style="list-style-type: none"> All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive. Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs. Young animals are very much, but not exactly, like their parents. Plants also are very much, but not exactly, like their parents. Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.
Language Arts Expectations	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> Write an explanatory text Write a sequence of instructions 	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> Ask and answer questions about key details in a text. Identify the main topic and retell key details of a text. With prompting and support, read informational texts appropriately complex for grade.
Mathematics Expectations	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> Use appropriate tools strategically. Order objects by length; compare the length of two objects. Draw a picture to represent data. Solve simple put-together, take-apart, and compare problems using information presented in a picture. 	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> Reason abstractly and quantitatively. Use appropriate tools strategically. Draw a picture to represent data. Solve simple put-together, take-apart, and compare problems using information presented in a picture.
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 perform. 	
Information and Technology Literacy	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> Ask and answer such questions such as <i>who, what, where, when, why,</i> and <i>how</i> to demonstrate understanding. Use a variety of digital tools to produce, publish, and collaborate with peers. 	

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

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	Unit: Space Systems: Patterns and Cycles	Unit: Energy
Performance Expectations	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> • Use observations of the sun, moon, and stars to describe patterns that can be predicted. • Make observations at different times of the year to relate the amount of daylight to the time of the year. 	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> • Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.
Scientific Core Ideas	<p>Students who demonstrate understanding can describe that:</p> <ul style="list-style-type: none"> • Patterns of motion of the sun, moon, and stars in the sky can be observed, described, and predicted. • Seasonal patterns of sunrise and sunset can be observed, described, and predicted. 	<p>Students who demonstrate understanding can describe that:</p> <ul style="list-style-type: none"> • Pushes and pulls can have different strengths and directions. • Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. • When objects touch or collide, they push on one another and can change motion. • A bigger push or pull makes things speed up or slowdown more quickly.
Language Arts Expectations	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> • Write an explanatory text. • Write a sequence of instructions. 	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> • Write an explanatory text. • Write a sequence of instructions.
Mathematics Expectations	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> • Reason abstractly • Model with mathematics. • Use appropriate tools strategically. • Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another. 	<p>Students who demonstrate understanding can:</p> <ul style="list-style-type: none"> • Reason abstractly and quantitatively • Describe measurable attributes of objects such as length or weight. Describe measurable attributes of a single object. • Directly compare two objects with a measurable attribute in common, to see which object has “more of/less of” the attribute, and describe the difference.
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 perform. 	
Information and Technology Literacy	<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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