

Science
Unit 2: Physical Changes

Essential Understandings	<ul style="list-style-type: none"> ▪ Objects can be changed. ▪ Sound is made by vibrations.
Essential Questions	<ul style="list-style-type: none"> ▪ How can objects be changed? ▪ How is sound made?
Essential Knowledge	<ul style="list-style-type: none"> ▪ Objects can be natural or man-made. ▪ Objects are made of parts. ▪ The parts of an object work together. ▪ Parts are made of different materials with specific properties. ▪ The properties of materials can be changed. ▪ Objects have attributes (i.e., size, weight, age, and speed). ▪ Objects can move in different ways. ▪ When objects move they sometimes make sounds. ▪ Some objects make sounds by vibrating (e.g., rubber band, guitar string). ▪ People learn about things by asking questions and making careful observations. ▪ Scientists use tools to conduct investigations, gather data, and answer questions. ▪ Scientists use evidence to develop and communicate outcomes.
Vocabulary	<ul style="list-style-type: none"> ▪ <u>Terms</u>: <ul style="list-style-type: none"> ○ man-made, natural, materials, physical properties, parts, vibration, sound, heat, frozen, cut, mix, observe, observation, investigate, investigation, data, prediction
Essential Skills	<ul style="list-style-type: none"> ▪ Distinguish between objects that are man-made and objects that are natural. ▪ Classify objects that are natural or man-made. ▪ Identify the parts and attributes of an object. ▪ Identify the properties of each part of an object. ▪ Explain how the parts of an object work together. ▪ Describe how materials can be changed. ▪ Describe how objects can move. ▪ Recognize that objects vibrate to make sound. ▪ Investigate physical change by making observations and asking questions. ▪ Conduct simple investigations to answer questions. ▪ Use simple tools and materials to conduct an investigation. ▪ Recognize useful evidence. ▪ Communicate outcomes.

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<p>Related Maine Learning Results</p>	<p><u>Science</u></p> <p>A. Unifying Themes</p> <p>A1.Systems Students recognize that parts work together, and make up whole man-made and natural objects.</p> <ol style="list-style-type: none">Explain that most man-made and natural objects are made of parts.Explain that when put together parts can do things they could not do separately. <p>A4.Scale Students observe differences in scales.</p> <ol style="list-style-type: none">Compare significantly different sizes, weights, ages, and speeds of objects <p>B. The Skills and Traits of Scientific Inquiry and Technological Design</p> <p>B1.Skills and Traits of Scientific Inquiry Students conduct and communicate results of simple investigations.</p> <ol style="list-style-type: none">Ask questions and make observations about objects, organisms, and events in the environment.Safely conduct simple investigations to answer questions.Use simple instruments with basic units of measurement to gather data and extend the senses.Know what constitutes evidence that can be used to construct a reasonable explanation.Use writing, speaking, and drawing to communicate investigations and explanations. <p>C. The Scientific and Technological Enterprise</p> <p>C2.Understandings About Science and Technology Students recognize that people have always engaged in science and technology and that there is a difference between the natural and designed worlds.</p> <ol style="list-style-type: none">Distinguish between objects that occur in nature and objects that are man-made.
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<p style="text-align: center;">Related Maine Learning Results</p>	<p>D. The Physical Setting D3.Matter and Energy Students use observable characteristics to describe objects and materials and changes to physical properties of materials. a. Describe objects in terms of what they are made of and their physical properties. b. Describe changes in properties of materials when mixed, heated, frozen, or cut. D4.Force and Motion Students describe how objects move in different ways. a. Describe different ways things move and what it takes to start objects moving, keep objects moving, or stop objects. b. Give examples of things that make sound by vibrating.</p>
<p style="text-align: center;">Sample Lessons And Activities</p>	<ul style="list-style-type: none"> ▪ Sort objects as natural or man made. ▪ Complete attribute maps. ▪ Observe a bicycle and describe how its parts work together. ▪ Make play dough or slime. ▪ Make a string instrument to demonstrate sound. ▪ Strike a tuning fork, place it in water, and observe what happens.
<p style="text-align: center;">Sample Classroom Assessment Methods</p>	<ul style="list-style-type: none"> ▪ Create a lego model and describe how the parts work together. ▪ Develop a chart of natural and man made objects. ▪ List the attributes of an object, make a change to the object (ex. heat, cold, etc) and then observe the attributes. (ex. popcorn activity)
<p style="text-align: center;">Sample Resources</p>	<ul style="list-style-type: none"> ▪ <u>Publications:</u> <ul style="list-style-type: none"> ○ <u>The Science Book of Sounds</u> – Neil Ardley ○ <u>Sounds All Around</u> – Wendy Pfeffer ○ <u>Oscar and the Bat: A Book About Sounds</u> – Geoff Waring ○ <u>Music from Strings</u> – Josephene Parker ○ <u>Sound Experiments</u> – Ray Broekel ○ <u>Feel the Noise</u> – Anna Claybourne ○ <u>The Popcorn Book</u> – Tomie dePaola ○ <u>How Things Work</u> ○ <u>Go Fly a Bike: The Ultimate Book of Bicycle Fun, Freedom, and Science</u> – Bill Haduch ▪ <u>Videos:</u> <ul style="list-style-type: none"> ○ <u>Sound</u> ○ <u>The Wonder of Sound</u> ○ <u>All About Sound</u>