

Physical Science

PS1 - All living and nonliving things are composed of matter having characteristic properties that distinguish one substance from another (independent of size/amount of substance).

	K-2	3-4
1. COMPOSITION	<p>S(PS1)-2-1.1 Recognize that objects can be composed of different types of materials, such as wood, metal, and paper.</p> <p>S(PS1)-2-1.2 Recognize that objects can be made of one or more materials.</p>	<p>S(PS1)-4-1.1 Explain that materials may be composed of parts that are too small to be seen without magnification.</p> <div style="border: 2px solid black; padding: 5px;"> <p>S(PS1)-4-1.2 Use measures of weight (data) to demonstrate that the whole equals the sum of its parts. [PS1 (K-4) SAE -3]</p> </div>
2. PROPERTIES	<p>S(PS1)-2-2.1 Identify the observable properties of different objects, such as color, size, shape, weight and texture.</p>	<p>S(PS1)-4-2.1 Recognize that substances can be classified by observable properties.</p> <p>S(PS1)-4-2.2 Explain that some materials can exist in different states, and describes the distinct physical properties of each state of matter.</p> <p>S(PS1)-4-2.3 Explain how some materials, such as water, can change from one state to another by heating or cooling.</p>

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		<div data-bbox="1102 446 1921 641" style="border: 2px solid black; padding: 5px;"> <p>S(PS1)-4-2.4 Make a prediction about what might happen to the state of common materials when heated or cooled or categorize materials as solid, liquid, or gas. [PS1 (K-4) POC -2]</p> </div> <div data-bbox="1102 714 1921 950" style="border: 2px solid black; padding: 5px; margin-top: 10px;"> <p>S(PS1)-4-2.5 Collect and organize data about physical properties in order to classify objects or draw conclusions about objects and their characteristic properties (e.g., temperature, color, size, shape, weight, texture, flexibility) [PS1 (K-4) INQ -1]</p> </div>

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PS 2 - Energy is necessary for change to occur in matter. Energy can be stored, transferred and transformed, but cannot be destroyed.

	K-2	3-4
1. CHANGE	<p>S(PS2)-2-1.1 Describe how the properties of certain materials can change when specific actions are applied to them, such as freezing, mixing, heating, cutting, dissolving and bending.</p> <p>S(PS2)-2-1.2 Recognize that not all materials react the same way when an action is applied to them.</p>	<p>S(PS2)-4-1.1 Recognize that energy has the ability to create change.</p>
2. CONSERVATION	<i>None at this grade span.</i>	<i>None at this grade span.</i>
3. ENERGY	<p>S(PS2)-2-3.1 Recognize that sound is produced by vibrating objects and that the pitch of the sound can be varied by changing the rate of vibration.</p> <p>S(PS2)-2-3.2 Explain that the Sun provides the Earth with heat and light.</p> <p>S(PS2)-2-3.3 Describe that heat can be produced in a variety of ways, such as</p>	<p>S(PS2)-4-3.1 Identify the various forms of energy, such as electrical, light, heat, sound.</p> <p>S(PS2)-4-3.2 Recognize that electricity in circuits can produce light, heat, sound, and magnetic effects.</p> <p>S(PS2)-4-3.3 Identify and describe the organization of a simple circuit.</p> <p>S(PS2)-4-3.4 Differentiate between objects and</p>

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	<p>burning, rubbing, and mixing substances together.</p> <p>S(PS2)-2-3.4 Recognize that energy comes from different sources, such as electricity and water, and is utilized in many common objects.</p>	<p>materials that conduct electricity and those that are insulators of electricity.</p> <p>S(PS2)-4-3.5 Explain that light travels in a straight line until it strikes an object, and describe how it can be reflected by a mirror, bent by a lens, or absorbed by the object.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>S(PS2)-4-3.6 Given a specific example or illustration (e.g., simple closed circuit, rubbing hands together, predict the observable effects of energy (i.e., light bulb lights, a bell rings, hands warm up) (E.g., a test item might ask, “what will happen when...?”). [PS2 (K-4) SAE -4]</p> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>S(PS2)-4-3.7 Use observations of light in relation to other objects/substances to describe the properties of light (can be reflected, refracted, or absorbed). [PS2 (K-4) SAE – 5]</p> </div>

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		<p>S(PS2)-4-3.8 Experiment, observe, or predict how heat might move from one object to another. [PS2 (K-4) INQ+SAE -6]</p>

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PS 3 - The motion of an object is affected by force.

	K-2	3-4
1. FORCES	<p>S(PS3)-2-1.1 Describe the properties of magnetism and demonstrate how magnets can be used to move some things without touching them.</p> <p>S(PS3)-2-1.2 Describe and demonstrate that things close to the Earth drop to the ground unless something supports them.</p>	<p>S(PS3)-4-1.1 Recognize that magnets attract certain kinds of other materials and classify objects by those magnets will attract and those they will not.</p> <p>S(PS3)-4-1.2 Recognize that magnets attract and repel each other.</p> <p>S(PS3)-4-1.3 Explain that electrically charged material pulls on all other materials and can attract or repel other charged materials.</p> <p>S(PS3)-4-1.4 Recognize that the Earth's gravitational force pulls any object toward it.</p> <div style="border: 2px solid black; padding: 5px;"> <p>S(PS3)-4-1.5 Use observations of magnets in relation to other objects to describe the properties of magnetism (i.e., attract or repel certain objects or has no effect) [PS3 (K-4) INQ+ SAE -8]</p> </div>
2. MOTION	<p>S(PS3)-2-2.1 Describe the many different ways things can move, such as in a straight line, zigzag or circular motion, back and forth, and fast and slow.</p>	

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	<p>S(PS3)-2-2.2 Describe and demonstrate how the position and motion of an object can be changed by applying force, such as pushing and pulling, and explain that the greater the force, the greater the change.</p> <p>S(PS3)-2-2.3 Describe the position of an object by referencing its location in relation to another object or background.</p>	<div style="border: 2px solid black; padding: 5px;"> <p>S(PS3)-4-2.1 Use data to predict how a change in force (greater/less) might affect the position, direction of motion, or speed of an object (e.g., ramps and balls) [PS3 (K-4)-INQ+SAE -7]</p> </div>

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PS4 - The growth of scientific knowledge in Physical Science has been advanced through the development of technology and is used (alone or in combination with other sciences) to identify, understand and solve local and global issues.		
	K-2	3-4
1. DESIGN TECHNOLOGY	S(PS4)-2-1.1 Recognize that new objects can be made out of physical materials, such as cloth and paper.	S(PS4)-4-1.1 Understand that materials are used in certain products based on their properties, such as strength and flexibility. S(PS4)-4-1.2 Recognize that products are made using a combination of technologies, such as how an escalator uses both a pulley system and an electrical motor.
2. TOOLS	S(PS4)-2-2.1 Identify tools and simple machines, such as a wheel, and explain how they work. S(PS4)-2-2.2 Demonstrate how to use tools, such as rulers, scales, balances, magnifiers and thermometers to measure properties of objects, such as size, weight, temperature.	S(PS4)-4-2.1 Demonstrate how to use tools, such as magnifiers, scales, balances, rulers, and thermometers to gather data and extend the senses. S(PS4)-4-2.2 Describe how some tools can be used to modify natural materials by processes such as separating, shaping, and joining, to produce new materials.
3. SOCIAL ISSUES (LOCAL & GLOBAL) ENERGY, POWER, AND TRANSPORTATION	S(PS4)-2-3.1 Provide examples of how man uses energy in everyday life, such as providing light, warmth in winter, cooling in summer, TVs, computers, telephones, transportation, factories.	S(PS4)-4-3.1 Give examples of transportation systems used in New Hampshire, such as buses, trains, cars, and bicycles and describe the sources of energy they use. S(PS4)-4-3.2 Explain that manufactured

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MANUFACTURING	S(PS4)-2-3.2 Provide examples of items that are manufactured or produced.	<p>products are designed to solve a problem or meet a need.</p> <p>S(PS4)-4-3.3 Provide an example to illustrate that manufacturing involves changing natural materials into finished products, and explain that this results in the production of a large number of objects that look almost identical.</p>
4. CAREER TECHNICAL EDUCATION CONNECTIONS	S(PS4)-2-4.1 Recognize that some jobs/careers require knowledge and use of physical science content and/or skills.	S(PS4)-4-4.1 Identify some jobs/careers that require knowledge and use of physical science content and/or skills.

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