

# Winchester Public Schools

## First Grade Science Unit Guide



Weeks	Unit	PE	SEP	DCI	CCC
7 weeks	<b>Patterns in Sun, Stars, Moon</b>	<p><b>1-ESS1-1.</b> Use observations of the sun, moon, and stars to describe patterns that can be predicted.</p> <p><b>1-ESS1-2.</b> Make observations at different times of year to relate the amount of daylight to the time of year.</p>	<p><b>Planning and Carrying Out Investigations.</b> Make observations (firsthand or from media) to collect data that can be used to make comparisons.</p> <p><b>Analyzing and Interpreting Data</b> Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions.</p>	<p><b>ESS1.A: The Universe and its Stars</b> Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted.</p> <p><b>ESS1.B: Earth and the Solar System</b> Seasonal patterns of sunrise and sunset can be observed, described, and predicted.</p>	<p><b>Patterns</b> Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.</p>

<p><b>9 weeks</b></p>	<p><b>Light and Sound</b></p>	<p><b>1-PS4-1.</b> Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.</p> <p><b>1-PS4-2.</b> Make observations to construct an evidence-based account that objects can be seen only when illuminated.</p> <p><b>1-PS4-3.</b> Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.</p> <p><b>1-PS4-4.</b> 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> <p><b>ETS1-1.</b> 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.</p> <p><b>ETS1-2.</b> 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.</p> <p><b>ETS1-3.</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</p>	<p><b>Planning and Carrying Out Investigations</b></p> <p>Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question.</p> <p><b>Constructing Explanations and Designing Solutions</b></p> <p>Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena</p> <p>Use tools and materials provided to design a device that solves a specific problem.</p> <p><b>Asking Questions and Defining Problems</b></p> <p>Ask questions based on observations to find more information about the natural and/or designed</p>	<p><b>PS4.A: Wave Properties</b></p> <ul style="list-style-type: none"> <li>• Sound can make matter vibrate, and vibrating matter can make sound.</li> </ul> <p><b>PS4.B: Electromagnetic Radiation</b></p> <ul style="list-style-type: none"> <li>• Objects can be seen if light is available to illuminate them or if they give off their own light.</li> <li>• 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.</li> </ul> <p><b>PS4.C: Information Technologies and Instrumentation</b></p> <ul style="list-style-type: none"> <li>• People also use a variety of devices to communicate (send and receive information) over long distances.</li> </ul> <p><b>ETS1.A: Defining and Delimiting Engineering Problems</b></p> <ul style="list-style-type: none"> <li>• A situation that people want to change or create can be approached as a problem to be solved through engineering.</li> <li>• Asking questions, making observations, and gathering information are helpful in thinking about problems.</li> <li>• Before beginning to design a solution, it is important to clearly understand the problem.</li> </ul> <p><b>ETS1.B: Developing Possible Solutions</b></p> <ul style="list-style-type: none"> <li>• Designs can be conveyed through sketches, drawings, or physical models.</li> </ul>	<p><b>Cause and Effect</b> Simple tests can be designed to gather evidence to support or refute student ideas about causes.</p> <p><b>Structure and Function</b> The shape and stability of structures of natural and designed objects are related to their function(s).</p>
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<p><b>8 weeks</b></p>	<p><b>Biomimicry</b></p>	<p><b>1-LS1-1.</b> 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.</p> <p><b>1-LS1-2.</b> Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.</p> <p><b>1-LS3-1.</b> Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.</p> <p><b>ETS1-1.</b> 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.</p> <p><b>ETS1-2.</b> 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.</p> <p><b>ETS1-3.</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</p>	<p><b>Constructing Explanations and Designing Solutions</b> Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.</p> <p>Use materials to design a device that solves a specific problem or a solution to a specific problem</p> <p><b>Obtaining, Evaluating, and Communicating Information</b> Read grade appropriate texts and use media to obtain scientific information to determine patterns in the natural world.</p> <p><b>Asking Questions and Defining Problems</b> Ask questions based on observations to find more information about the natural and/or designed</p>	<p><b>LS1.A: Structure and Function</b> 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.</p> <p><b>LS1.B: Growth and Development of Organisms</b> 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.</p> <p><b>LS1.D: Information Processing</b> 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.</p> <p><b>LS3.A: Inheritance of Traits</b> Young animals are very much, but not exactly, like their parents. Plants also are very much, but not exactly, like their parents.</p> <p><b>LS3.B: Variation of Traits</b> Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.</p> <p><b>ETS1.A: Defining and Delimiting Engineering Problems</b></p> <ul style="list-style-type: none"> <li>• A situation that people want to change or create can be approached as a problem to be solved through engineering.</li> </ul>	<p><b>Patterns</b> Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.</p> <p><b>Structure and Function</b> The shape and stability of structures of natural and designed objects are related to their function(s).</p>
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