

SCIENCE GRADE LEVEL 3	<b>YEAR AT A GLANCE</b> <b>Student Learning Outcomes by Unit</b> <b>2016-2017</b>
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Unit: Structures of Life Dates:	Overarching/general themes: Plant and animal parts and functions; habitat; behavior; structures, life cycle; respect for living things				
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Networks A & B - 3/21 to 6/13					
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8 sessions, 3 weeks	<b>Investigation 1</b> Origin of Seeds	<ul style="list-style-type: none"> <li>• Identify and explain plant parts and functions: seed as an organism, seed parts, plant parts, seed embryo, fruit. (LS-1)</li> <li>• Estimate numbers of seeds in various fruits.</li> <li>• Compare and contrast seeds using a variety of properties. (LS-1)</li> <li>• Organize information gathered by sorting, comparing and recording the number and properties of seeds from a variety of fruits.</li> <li>• Write a narrative based on observations that describes how plants and seeds change over time. (LS-6)</li> <li>• Write a claim and provide evidence from investigation about the effect water has on seeds. (LS-2)</li> <li>• <b>Close Reading: FOSS Science Stories, <i>Traveling Seeds</i>. (LS-3)</b></li> </ul>			
8 sessions, 3 weeks	<b>Investigation 2</b> Growing Further	<ul style="list-style-type: none"> <li>• Observe and sort seedlings by properties of germination. Capture the results in a notebook, using illustrations. (LS-9)</li> <li>• Write a concluding statement about the similarities and differences in the way different organisms grow through the germination of a variety of seeds. Use illustrations to make ideas clearer. (LS-9)</li> <li>• Record information from investigations systematically for later analysis (routine writing in notebooks).</li> <li>• Write an explanation of the hydroponic bean experiment, including the bean life cycle from seed to flower to seed. (LS-3)</li> </ul>			
8 sessions, 3 weeks	<b>Investigation 3</b> Meet the Crayfish	<ul style="list-style-type: none"> <li>• Compare and record observations about structures of an organism, e.g., Crayfish have observable structures such as legs, pincers, antennae, eyes, swimmerets, tail and mouthparts. Use this information to write a description about structures. (LS-2)</li> <li>• Observe, describe and compare behaviors of an organism, e.g., crayfish claim a territory that they protect from other animals. Use this information to write a description of the animal's behaviors. (LS-7)</li> <li>• Write a concluding statement that uses information from investigations and informational texts that living things (crayfish) have certain requirements for life, including clean, cool water, food and shelter. (LS-1, LS-7)</li> <li>• Include evidence in the notebook that demonstrates that they record data systematically over time.</li> <li>• Write informative text that provides a description and details/examples including that <i>habitat</i> is where an animal lives, <i>behavior</i> is what an animal does and <i>structures</i> are various body parts that organisms have, both internal and external. (LS-1, LS-9)</li> </ul>			
8 sessions, 3 weeks	<b>Investigation 4</b> Meet the Bess Beetle	<ul style="list-style-type: none"> <li>• Establish an appropriate habitat for an organism and justify the design in terms of the needs of the organism. (LS-7)</li> <li>• Observe, analyze and write an informational text that describes the similarities and differences between crayfish and Bess beetle body structures and behaviors. (LS-2, LS-9)</li> <li>• Write a plan for and then conduct an investigation to find out more about the structure and function of animals. (LS-2)</li> <li>• Demonstrate the ability to work with animals without hurting them.</li> </ul>			

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Unit: Water	Overarching/general themes: Properties of water; direction and rate of flow; surface tension; density; effects of temperature; states-solid and liquid; water power; evaporation; condensation; water cycle				
Dates:	Textual References Water Teacher's Guide (FOSS)	To Demonstrate Proficiency by the End of the Unit Students Will:			
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8 Sessions, 3 weeks	<b>Investigation 1</b> Water Observations	<ul style="list-style-type: none"> <li>• Describe and communicate observations, through talk and in writing, about observable properties, including transparency, shapelessness, and movement or flow. (PS-1)</li> <li>• Write a description of observations and make comparisons about water on a variety of surfaces. (PS-1)</li> <li>• Observe and compare direction and rates of water flow and write a concluding statement about them.</li> <li>• Describe surface tension as the skin-like surface of water that pulls it together into the smallest possible volume. (PS-1)</li> </ul>			
8 Sessions, 3 weeks	<b>Investigation 2</b> Hot Water, Cold Water	<ul style="list-style-type: none"> <li>• Observe and compare the interaction of water at different temperatures. (PS-3)</li> <li>• Observe and describe the properties of water in two states, solid and liquid. (PS-3)</li> <li>• Write explanatory text that clearly conveys ideas developed through observations made about water, e.g., hot, cold, as heated, as cooled, density at different temperatures. (PS-3)</li> <li>• <b>Close Reading: FOSS Science Stories, <i>Why Pipes Burst</i> (PS-3)</b></li> </ul>			
8 Sessions, 3 weeks	<b>Investigation 3</b> Water Vapor	<ul style="list-style-type: none"> <li>• Observe evaporation and condensation. Write informational text that defines, and explains how they contribute to the movement of water through the water cycle. Use illustrations to aid comprehension. (ES-11)</li> <li>• Write a claim and use supporting evidence that is gathered through the comparison of rates of evaporation under different conditions. (PS-2)</li> <li>• Organize results from evaporation investigations in writing so that others can understand the data gathered.</li> </ul>			
9 Sessions, 3 weeks	<b>Investigation 4</b> Waterworks	<ul style="list-style-type: none"> <li>• Observe and compare movement of water through different materials. Write a claim and provide evidence/reasons about water absorption or movement through materials based on observations and informational text. (ES-7, ES-11)</li> <li>• Observe water power and write an explanation using examples and illustrations.</li> <li>• Organize results of the investigation of water samples in writing so that others can understand the data gathered.</li> </ul>			

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Unit: Physics of Sound Dates:	Overarching/general themes: Sound as vibration; physical properties of sound source (length, frequency, tension); how sound travels; source, medium, receiver; pitch						
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8 Sessions, 3 weeks	<b>Investigation 1</b> Dropping In	<ul style="list-style-type: none"> <li>Communicate with others using a code, inferring that sound can convey information. With hearing students, distinguish between objects by the sounds they make when dropped.</li> <li>Compare sounds to develop discrimination. Write a description of their characteristics.</li> <li>Provide a description of the relationship between sound source and receiver, using sequence and cause and effect language and the concepts of vibration and characteristics of sound. (PS-1)</li> </ul>					
9 Sessions, 3 weeks	<b>Investigation 2</b> Good Vibrations	<ul style="list-style-type: none"> <li>Observe that sound originates from a vibrating source and explore several variables that affect pitch, including size (length) and tension of the source material. Write explanatory text that discusses the findings as well as the process that students used to explore sound. (PS-1)</li> <li>Record observations on sound, comparing different pitches and organize the data in a notebook. (PS-1)</li> <li>Relate the pitch of a sound to the physical properties of the sound source. Write a description about the relationship and provide illustrations for clarity.</li> <li><b>Close Reading: FOSS Science Stories, <i>Highs and Lows</i> (PS-1)</b></li> </ul>					
8 Sessions, 3 weeks	<b>Investigation 3</b> How Sound Travels	<ul style="list-style-type: none"> <li>Observe that sound travels through solids, water, and air and compare how sound travels through different mediums. Keep a record of the investigations in a notebook. Use this data to write an explanation about how sound travels, using examples from investigations. (TE-1.1)</li> <li>Describe how our outer ears are designed to receive, focus, and amplify sounds. (TE-1.1)</li> </ul>					
8 Sessions, 3 weeks	<b>Investigation 4</b> Sound Challenges	<ul style="list-style-type: none"> <li>Report findings from investigations and informational text in a class presentation that shows student understanding of what sound is; the relationship between the pitch of a sound and the physical properties of the sound source (i.e. length of vibrating objects, frequency of vibrations, and tension of vibrating string, thickness of source material); how it travels from a source, through various media to the outer ear for us to hear it; and how we direct and amplify it. (PS-1, TE-1.2)</li> <li>Explain that sound originates from a source that is vibrating and is detected at a receiver such as the human ear.</li> <li>Demonstrate the ability to use vocabulary associated with the physics of sound.</li> <li>Develop and refine the manipulative skills required for investigating sound, using knowledge of the physics of sound to solve simple sound challenges. (ED-2.1, ED-2.2)</li> </ul>					