

SCIENCE GRADE LEVEL 6	<b>YEAR AT A GLANCE</b> <b>Student Learning Outcomes by Unit</b> <b>2016-2017</b>
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UNIT: Human Body Systems Dates:	Overarching/general themes Systems and interactions; structure and function; passive/active transport; homeostasis					
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 2px;">Networks A, D &amp; G – 1/25 to 6/13</td> <td style="width: 50%; padding: 2px;">Textual References Human Body Systems Teacher’s Guide (STC)</td> </tr> <tr> <td style="width: 50%; padding: 2px;">Networks B, C, E &amp; F - 9/8 to 1/19</td> <td style="width: 50%; padding: 2px;"></td> </tr> </table>	Networks A, D & G – 1/25 to 6/13	Textual References Human Body Systems Teacher’s Guide (STC)	Networks B, C, E & F - 9/8 to 1/19			<b>To Demonstrate Proficiency by the End of the Unit Students Will:</b>
Networks A, D & G – 1/25 to 6/13	Textual References Human Body Systems Teacher’s Guide (STC)					
Networks B, C, E & F - 9/8 to 1/19						
12 – 15 Sessions, 3 weeks	<b>Investigations 1-4</b> The Digestive System	<ul style="list-style-type: none"> <li>• Compare and contrast various organs and body systems. Construct a labeled model (poster) of human body systems (Digestive, Respiratory and Circulatory, Musculoskeletal). (LS-6)</li> <li>• Construct and use a model to explore how food moves through the digestive tract by means of peristalsis. Investigate what happens to food as it moves through the mouth, esophagus, stomach, small intestine, and large intestine. (LS-6, TE-2.2)</li> <li>• Perform controlled chemical tests to identify the presence of two forms of carbohydrates and to observe the modeling of the chemical breakdown of proteins. Organize data, make inferences from the test results and write conclusions in a science notebook. (PS-10, LS-6)</li> <li>• Use models to compare and contrast active and passive transport (diffusion) and their roles in the absorption of nutrients in digestion. (LS-6, TE-2.2)</li> <li>• Write an explanation about the digestive system and its role in maintaining life that includes the major organs and their functions, and descriptions of processes that are inferred from classroom activities and informational text. (LS-6)</li> <li>• Use multiple resources to research diseases and health care careers. Present information in writing and/or orally.</li> <li>• <b>Close Reading: FOSS Student Resource Book, <i>Nutrients: You Can’t Live Without ‘Em</i></b></li> </ul>				
12 – 20 Sessions, 3-4 weeks	<b>Investigations 5-9</b> The Respiratory and Circulatory Systems	<ul style="list-style-type: none"> <li>• Use a model for breathing (bell jar) and discuss its strengths and limitations. Construct a new model and compare and contrast it to the bell-jar model. (LS-6)</li> <li>• Explain the process of gas exchange in respiration.</li> <li>• Use a measuring device to collect data on several aspects of lung capacity. Describe some factors that influence vital lung capacity.</li> <li>• Investigate the processes of combustion and cellular respiration. Conduct an experiment to demonstrate that food is a source of energy and that different foods have different amounts of energy. (LS-4, LS-6)</li> <li>• Use informational text and investigations to write an explanation about cellular respiration and its role in humans.</li> <li>• Gain an appreciation of the complexity and efficiency of the heart by building a model and through informational text.</li> <li>• Perform tests of factors affecting heart rate, blood pressure and record data in notebooks.</li> <li>• <b>CWA: <i>Are some body systems more important than the others?</i></b></li> </ul>				
12 – 20 Sessions, 3-4 weeks	<b>Investigations 10-14</b> Musculoskeletal System	<ul style="list-style-type: none"> <li>• Investigate the structures and functions of muscles and joints and explain how they work together to create movement in the human body.</li> <li>• Collect data to draw conclusions about the relationships among muscle size, strength and fatigue. Pool data to increase sample size and provide a more reliable basis for developing conclusions. Explain the relationships found in the data as well as the importance of sample size.</li> <li>• Explain the difficulty of maintaining homeostasis, using data gathered in an experiment modeling temperature control.</li> </ul>				

**YEAR AT A GLANCE**  
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SCIENCE  
 GRADE LEVEL 6

UNIT: Weather & Water Dates:		Overarching/general themes: Weather and factors that affect it; air pressure; weather patterns; seasons; radiation, conduction and heat transfer; density
Networks A, D & G – 9/8 to 1/19 Networks B, C, E & F – 1/25 to 6/13	Textual References Weather and Water Teacher’s Guide (FOSS)	To Demonstrate Proficiency by the End of the Unit Students Will:
2 Sessions, 1-2 days	<b>Investigation 1</b> What Is Weather?	<ul style="list-style-type: none"> <li>Describe weather conditions of Earth’s atmosphere at a given time in a given place using weather instruments to measure temperature, atmospheric pressure, humidity, wind direction, and wind speed. Discuss the factors that constitute weather. (ES-4)</li> </ul>
3-4 Sessions, 1 week	<b>Investigation 2</b> Where’s the Air?	<ul style="list-style-type: none"> <li>Diagram and describe the layers of the atmosphere, noting where weather happens (troposphere) and the gases that make up that layer (nitrogen, oxygen, and other gases, including water vapor). (ES-1)</li> <li>Conduct experiments to make observations and collect evidence about air, its mass, and compression. Explain how experimental results provide evidence that air has mass. (TE-2.2)</li> <li>Design a demonstration to show that air has mass. (TE-2.2)</li> <li>Use a molecular model to compare a gas at standard pressure and a gas under increased pressure. (PS-4)</li> </ul>
5 Sessions, 1 week	<b>Investigation 3</b> Seasons and Sun	<ul style="list-style-type: none"> <li>Explain how the shape of Earth and its relationship to the Sun affect the weather around the world. (ES-4)</li> <li>Graph monthly day-length data for a single location to look for a pattern. (PS-16)</li> <li>Use a model of day length throughout the year to explain seasonal variations. (ES-11)</li> <li>Analyze sunlight data and consider explanations. (ES-11)</li> <li>Use a Sun-Earth model to identify relationships involving the tilt of Earth’s axis, Earth’s rotation, and Earth’s revolution around the Sun. Write an explanation about the relationships. (ES-11, TE-2.2)</li> </ul>
5 Sessions, 1 week	<b>Investigation 4</b> Heat Transfer	<ul style="list-style-type: none"> <li>Use a model to explain how energy transfers from the Sun to Earth’s surface and the atmosphere, including the two mechanisms of heat transfer in solids, liquids, and gases: radiation and conduction. (ES-3, ES-4, PS-14, PS-16)</li> <li>Collect and analyze temperature data measuring the heating and cooling of different earth materials. (ES-3)</li> <li><b>Close Reading: FOSS Student Resource Book, <i>Heating The Atmosphere</i></b></li> </ul>
5 Sessions, 1 week	<b>Investigation 5</b> Convection	<ul style="list-style-type: none"> <li>Explain density in terms of the ratio of a mass and its volume. Use a model to demonstrate that as matter heats up, it expands, causing the matter to become less dense. (PS-2, PS-14)</li> <li>Describe how materials of different densities interact, using data/observations from investigations. (PS-16)</li> <li>Observe and describe how heating and cooling of fluids moves air in a system. (ES-4, PS-16)</li> <li>Explain how energy transfer drives the process of convection. (ES-3)</li> </ul>
8 Sessions, 2 weeks	<b>Investigation 6</b> Water in the Air	<ul style="list-style-type: none"> <li>Explore the forms water takes in the atmosphere by observing condensation on surfaces. Use data/observations as evidence to infer that water vapor is part of the air.</li> <li>Explain evaporation and condensation in terms of the relationship between water and heating and cooling of air. (ES-3, ES-4, PS-16)</li> <li>Determine dew point and predict cloud formation from dew point and temperature data.</li> </ul>

UNIT: Weather & Water Dates:		Overarching/general themes: Weather and factors that affect it; air pressure; weather patterns; seasons; radiation, conduction and heat transfer; density	
Networks A, D & G – 9/8 to 1/19	Textual References Weather and Water Teacher’s Guide (FOSS)	To Demonstrate Proficiency by the End of the Unit Students Will:	
Networks B, C, E & F - 1/25 to 6/13			
4 Sessions, 1 week	<b>Investigation 7</b> The Water Planet	<ul style="list-style-type: none"> <li>• Describe the distribution of water over Earth and a path a water molecule might take as it travels in the water cycle.</li> <li>• Explain with words and drawings how evaporation, condensation, precipitation, and other processes produce many variations of the water cycle. (TE-2.2)</li> </ul>	
8 Sessions, 1-2 weeks	<b>Investigation 8</b> Air Pressure and Wind	<ul style="list-style-type: none"> <li>• Apply pressure to a system and observe the compression of gas. Describe the relationship of pressure to volume. (PS-2)</li> <li>• Build/use tools (anemometer/barometer) to gather data about wind speed and atmospheric pressure. (TE-2.2)</li> <li>• Interpret a pressure map and use it and other data to make weather predictions. (ES-1)</li> <li>• Explain how differential heating of Earth by the Sun creates local winds. (ES-3, ES-4)</li> <li>• Describe the relationship between changing air pressure and wind. (PS-2)</li> </ul>	
6 Sessions, 1-2 weeks	<b>Investigation 9</b> Weather and Climate	<ul style="list-style-type: none"> <li>• Use models, maps, and diagrams to explain that air masses are large bodies of air that are uniform in temperature and humidity, and a front is a boundary that separates two air masses. Use evidence to describe how weather conditions can change as a front passes by. (ES-1)</li> <li>• Use maps to illustrate how climate is the average weather over a long period of time in a region. (ES-1)</li> <li>• Model and explain why when two air masses of different densities meet they can create severe weather. (PS-2, ES-3, ES-4)</li> <li>• Use multiple data sources to explain how a global temperature increase could affect the water cycle and Earth’s climate.</li> <li>• <b>CWA: <i>Why are there seasons?</i></b></li> </ul>	