

St. Lucie County Public Schools Scope and Sequence 2012-2013

Course: 4<sup>th</sup> Grade

Course Code: 5020010

Quarter: 3

**Topic of Study:** Properties of and Changes in Matter

**Standards:** Physical Science

**Big Ideas:** 8. Properties of Matter, 9. Changes in Matter

**Essential Questions:** What are Physical Properties of Matter? How are Physical Properties Observed? What is Conservation of Mass? What are the States of Water? What are Magnets? How do Magnets Attract Objects? What are Physical and Chemical Changes?

**Optional Teacher Background:** *ScienceSaurus*- Physical Science Section

[RESOURCES](#)

[SCIENCE CENTER](#)

**Vocabulary:** matter, physical property, mass, volume, density, solid, liquid, gas, change of state, evaporation, condensation, magnet, magnetic field, magnetic pole, electromagnet, motor, physical change, chemical change

**Common Inquiry Labs:**

- *Science Fusion* Inquiry Flipchart “Measuring Liquids” & “Measuring Volume” p.17
- *Science Fusion* Inquiry Flipchart “ How are Physical Properties Observed? ” p.18
- *Science Fusion* Inquiry Flipchart “What is Conservation of Mass?” p.19
- *Science Fusion* Inquiry Flipchart “Melt, Boil, Evaporate” & “Lift Ice with a Toothpick” p.20
- *Science Fusion* Inquiry Flipchart “ Needle Dance” & “Electromagnets Among Us” p.21
- *Science Fusion* Inquiry Flipchart “How do Magnets Attract Objects?” p.22
- *Science Fusion* Inquiry Flipchart “Kitchen Chemistry” & “Calcium Capers” p.23
- *Science Fusion* Inquiry Flipchart “How Can You Tell When a New Substance Forms?” p.24

	<b>Technology Links:</b>	
<p><b><u>Lab Assistance:</u></b></p> <p><a href="#">Daily Inquiries</a></p> <p><a href="#">Logs and Mini Lessons</a></p> <p><a href="#">Health Activities</a></p>	<p><b><u>Science Links:</u></b></p> <p><a href="http://www.Thinkcentral.com">www.Thinkcentral.com</a></p> <p><a href="#">Fusion Teacher Resources</a></p> <p><a href="#">Graphic Organizers</a></p>	<p><b><u>Online Guides:</u></b></p> <p><a href="#">Above Level</a></p> <p><a href="#">On Level</a></p> <p><a href="#">Below Level</a></p>

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NGSSS	Content	Targets
<p>SC.4.P.8.1 Measure and compare objects and materials based on their physical properties including: mass, shape, volume, color, hardness, texture, odor, taste, attraction to magnets. Cognitive Complexity: <b>Moderate</b></p> <p>SC.4.P.8.2 Identify properties and common uses of water in each of its states. Cognitive Complexity: <b>Low</b></p> <p>SC.4.P.8.4 Investigate and describe that magnets can attract magnetic materials and attract and repel other magnets. Cognitive Complexity: <b>High</b></p> <p>SC.4.P.8.3 Explore the law of conservation of mass by demonstrating that the mass of a whole object is always the same as the sum of the masses of its parts. Cognitive Complexity: <b>Moderate</b></p>	<p>What are Physical Properties of Matter?</p> <ul style="list-style-type: none"> <li>▪ Use your Senses</li> <li>▪ Mass</li> <li>▪ Describe That (hardness, color, size, taste, texture, odor, shape)</li> <li>▪ Measuring Volume</li> <li>▪ Measuring Density</li> <li>▪ Sorting Matter by Physical Properties</li> </ul> <p>What are the States of Water?</p> <ul style="list-style-type: none"> <li>▪ Solids</li> <li>▪ Liquids</li> <li>▪ Gases</li> <li>▪ Water's Forms</li> <li>▪ Water Changing Form</li> <li>▪ Freezing</li> <li>▪ Melting</li> <li>▪ Evaporation</li> <li>▪ Condensation</li> </ul> <p>What are Magnets?</p> <ul style="list-style-type: none"> <li>▪ Magnets are Everywhere</li> <li>▪ Magnetic Fields and Poles</li> <li>▪ Magnetic Force</li> <li>▪ Electromagnets</li> </ul>	<ul style="list-style-type: none"> <li>▪ Explain how Physical properties can be used to identify matter.</li> <li>▪ Define matter, mass, density, and volume.</li> <li>▪ Compare a set of objects by their physical properties.</li> <li>▪ Describe the three states of water.</li> <li>▪ Explain how heating and cooling change the states of matter.</li> <li>▪ Explain that matter isn't lost or gained as it changes states.</li> <li>▪ Compare the properties of magnets.</li> <li>▪ Recognize the usefulness of magnets.</li> <li>▪ Observe how magnets can be used to produce motion.</li> </ul>
<p>SC.4.P.9.1 Identify some familiar changes in materials that result in other materials with different characteristics, such as decaying animal or plant matter, burning, rusting, and cooking. Cognitive Complexity: <b>Low</b></p>	<p>What are Physical and Chemical Changes?</p> <ul style="list-style-type: none"> <li>▪ Physical Changes are All Around (Stacking, Soaking, Shredding, Crumpling)</li> <li>▪ Chemical Changes are All Around (Rusting, Rotting, Burning, Cooking)</li> <li>▪ Chemical vs. Physical</li> <li>▪ Chemical Changes at Home (Composting, Fireworks, Tarnished metals, cooking)</li> </ul> <p><b>TEACHER TRANSITION INTO NEXT TOPIC OF STUDY</b> Now that we have studied the physical properties of matter let's learn about some basic forms of energy and their properties.</p>	<ul style="list-style-type: none"> <li>▪ Identify that for a chemical change, the substances before and after the change have different characteristics.</li> <li>▪ Explain how chemical changes differ from physical changes.</li> <li>▪ Describe examples of physical and chemical changes.</li> </ul>