

**UNIT PLANNING OVERVIEW FOR QUARTER: 1st Quarter
COMPLETE WITH HOME CONNECTION**

Teacher Name: Johnson
Grade Level: 4th

Subject:
Science

Topic Description:
Magnetism & Electricity (FOSS)

STAGE 1	DESIRED RESULTS
<p>Established Goals</p>	<p><i>What relevant goals (e.g., Content Standards, Course or Program Objective, Learning Outcomes etc.) will this design address?</i></p> <p>CCSS (Informational Text) CCSS.ELA-Literacy.RI.4.3 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.</p> <p>ISBE Standards 12.D.2b Demonstrate and explain ways that forces cause actions and reactions (e.g., magnets attracting and repelling; objects falling, rolling and bouncing).</p>
<p>Enduring Understandings</p>	<p><i>Students will understand that...</i> <i>What are the “big ideas”?</i> <i>What specific understandings about them are desired?</i> <i>What misunderstandings are predictable?</i></p> <p>Big Idea(s): The Magnetism & Electricity Module provides opportunities for students to explore permanent magnetism, electric circuits, and electromagnetism through free exploration and systematic investigations. They observe and compare electric magnetic phenomena, and organize their observations on a graph. They apply their knowledge to design a telegraph.</p> <p>Misunderstandings/Intervention:</p>
<p>Essential Questions</p>	<p><i>What provocative questions will foster inquiry, understanding, and transfer of learning?</i></p> <p>How do you light a lightbulb? How do you make a motor run? How can you determine if objects are insulators and conductors? What are mystery circuits? How do you build series and parallel circuits? How do you build an electromagnet? Can you use your knowledge of electricity and electromagnetism to reinvent the telegraph?</p>

<p>Students will know...</p>	<p><i>What key knowledge and skills will students acquire as a result of this unit?</i></p> <p>Magnets stick to metal objects made of iron. Magnet interactions are caused by magnetic force. Electricity flows through pathways called circuits. An open circuit is an incomplete electric pathway; a closed circuit is a complete pathway. A circuit with only one pathway for current flow is a series circuit. A circuit with two or ore pathways for current flow is a parallel circuit. A core of iron or steel becomes an electromagnet when electricity flows through a coil of insulated wire surrounding it. There are a number of ways to change the strength of an electromagnet, including changing the number of winds of wire around the core. An electromagnet placed in a complete circuit can be used to make a telegraph. A switch can serve as a key in a telegraph system.</p>
<p>Students will be able to...</p>	<p><i>What they're able to do should allow them to use what they've learned wisely, flexibly, and creatively.</i> <i>What should they eventually be able to do as a result of such knowledge and skill?</i></p> <p>Observe the interaction of permanent magnet with a variety or common materials. Discover that magnets display forces of attraction and repulsion. Measure the change in force between two magnets as the distance between them changes. Identify material that are conductors and insulators. Understand and construct simple open, closed, parallel, and series circuits. Learn how to make an electromagnet. Experience the relationship between the number of turns of wire around an electromagnet core and the strength of the magnetism. Use their knowledge of electromagnets to make a telegraph. Acquire vocabulary associated with magnetism and electricity. Exercise language, math, and social studies skills in the context of magnetism and electricity investigations. Develop and refine the manipulative skills required for making investigations in magnetism and electricity. Use scientific thinking processes to conduct investigations and build explanations: observing, communicating, comparing, and organizing.</p>
<p>STAGE 2 ASSESSMENT EVIDENCE</p>	

<p>Performance Tasks</p>	<p><i>Through what authentic performance task(s) will students demonstrate the desired understandings?</i> <i>By what criteria will “performances of understanding” be judged?</i> <i>What criteria will constitute the final report card grade and what are the weights of each component?</i></p> <p>Measure the force of attraction between magnets. Build and compare simple circuits with a focus on how connections are made. Construct circuits that can run more than one component. Make an electromagnet. Build a telegraph.</p> <p>Rubrics will be used to judge the tasks.</p> <p>Science grade weights: Tests/Projects-50% Activities/Assignments-40% Home/Class Work-10%</p>
<p>Other Evidence</p>	<p><i>Through what other evidence (e.g. quizzes, tests, academic prompts, observations, homework, journals, etc.) will students demonstrate achievement of the desired results?</i> <i>How will students reflect upon and self-assess their learning?</i></p> <p>Formative Assessments: Chapter/unit tests & culminating projects</p> <p>Summative Assessments: Quizzes, in-class assignments, & homework</p>
<p>STAGE 3 HOME/SCHOOL CONNECTION</p>	
<p>Learning Activities</p>	<p><i>What learning experiences & instruction will enable students to achieve the desired results?</i> <i>How can parents help enhance/support the learning outcomes?</i></p> <p>The students participate in engaging activities that reinforce the concepts explored in class help support learning outcomes.</p> <p>Module Activities: Investigation 1-Magnets at Home Investigation 2-Where's the Electricity? Investigation 3-What's Inside an Electric Appliance? Investigation 4-Current Attractions</p>