



ISE GRADE 4 SCIENCE CURRICULUM STANDARDS / LEARNING OUTCOMES



<u>Curriculum Standards/Learning Outcomes</u>	<u>Teaching Strategies</u>	<u>Resources</u>
<p data-bbox="178 315 758 349"><u>Topic Three: Magnets and Electricity</u></p> <p data-bbox="178 383 758 417">The Force</p> <ul data-bbox="231 451 758 784" style="list-style-type: none">• Magnets stick to iron and steel• Magnets attract or repel one another.• The magnetic force causes magnetic interactions.• The magnetic force of attraction between two magnets decreases with distance.• Magnetism can be induced in a piece of steel that is close to or touching a magnet.	<ul data-bbox="808 451 1339 1052" style="list-style-type: none">• Explore properties of permanent magnets.• Use a magnet to detect objects made from iron.• Explore the force of magnetism through a variety of materials.• Measure the force of attraction between magnets.• Investigate changes in the force of attraction between magnets.• Find ways to detect and “see” the magnetic force.• Record data on a graph.• Use scientific thinking processes to conduct investigations and build explanations: observing, communicating, comparing, and organizing.	<ul data-bbox="1390 451 1919 548" style="list-style-type: none">• FOSS Kit: Magnets and Electricity• Library Books: (see list)• Textbook: Houghton Mifflin unit F



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<p>Making Connections</p> <ul style="list-style-type: none">• A circuit is a pathway through which electric current flows.• A closed circuit allows electricity to flow; an open circuit does not.• Conductors are materials that allow the flow of electricity; insulators are materials that do not allow the flow of electricity.• A switch is a device that opens and closes a circuit.	<ul style="list-style-type: none">• Build and compare simple circuits with a focus on how connections are made.• Identify the essential components of an electric circuit and understand their functions.• Demonstrate evidence of the flow of electricity.• Identify materials that are conductors and insulators.• Draw pictures and schematic diagrams to represent electric circuits and communicate understandings.• Use technology to solve problems.• Use scientific thinking processes to conduct investigations and build explanations: observing, communicating, comparing, and organizing.	



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<p>Advanced Connections</p> <ul style="list-style-type: none">• An electric circuit is a pathway along which electricity flows.• A circuit with only one pathway for current flow is a series circuit.• A circuit that splits into two or more pathways before coming together at the battery is a parallel circuit.	<ul style="list-style-type: none">• Review and apply basic concepts of circuitry.• Construct circuits that can run more than one component.• Compare series and parallel circuits.• Organize data to support judgments about the advantages of series and parallel circuits.• Continue to develop ideas about electricity through the interplay between what they know about the flow of electricity and trial-and-error experiences making circuits work.• Use scientific thinking processes to conduct investigations and build explanations: observing, communicating, comparing, and organizing.	



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<p>Current Attractions</p> <ul style="list-style-type: none">• Electromagnetism is magnetism created by current flowing through a conductor.• Electromagnets can be turned on and off.• The strength of the magnetism produced by an electromagnet can be varied. <p>Click It</p> <ul style="list-style-type: none">• Science and technology are closely related. Science is knowledge of the natural world; technology is using scientific knowledge to modify the world to solve human problems.• A circuit is a pathway through which electric current flows.• Electromagnetism is magnetism created by current flowing through a conductor.	<ul style="list-style-type: none">• Learn how to make an electromagnet.• Find the relationship between the number of winds of wire around a core and the strength of the magnetic force.• Investigate other ways to change the strength of an electromagnet's magnetic force.• Use scientific thinking processes to conduct investigations and build explanations: observing, communicating, comparing, and organizing. <ul style="list-style-type: none">• Review and apply the concepts of electric circuit and electromagnet.• Build a telegraph.• Use a simple code to send and receive messages.• Learn the concept of technology.• Use scientific thinking processes to conduct investigations and build explanations: observing, communicating, comparing, and organizing.	