


IPC Curriculum Bundle #5

Title	Suggested Dates
Electricity and Magnetism 	11/16 – 12/4/2009 (12 days)

Big Idea/Enduring Understanding	Guiding Questions
Electricity is a useful, yet sometimes dangerous form of energy with many different sources. Electromagnetic energy is a wave with electric and magnetic components.	<p>How do electricity & circuits improve your life?</p> <p>How is magnetism related to electricity?</p>

The resources included here provide teaching examples and/or meaningful learning experiences to address the District Curriculum. In order to address the TEKS to the proper depth and complexity, teachers are encouraged to use resources to the degree that they are congruent with the TEKS and research-based best practices. Teaching using only the suggested resources does not guarantee student mastery of all standards. Teachers must use professional judgment to select among these and/or other resources to teach the district curriculum.

Knowledge & Skills with Student Expectations	District Specificity/Examples	Suggested Resources (See note above)
<p>6 The student knows the impact of energy transformations in everyday life.</p> <p>6C Analyze the efficiency of energy conversions that are responsible for the production of electricity.</p>	<p>Such as</p> <ul style="list-style-type: none"> • Radiant (solar) • Hydroelectric • Nuclear • Geothermal sources • Fossil fuels • <i>analyze energy conversions such as those from radiant, nuclear, and geothermal sources; fossil fuels such as coal, gas, oil; and the movement of water or wind</i> 	
<p>6 The student knows the impact of energy transformations in everyday life.</p> <p>6E Measure the thermal and electrical conductivity of various materials and explain results.</p>	<p>Including</p> <ul style="list-style-type: none"> • Demonstrate the relationship between electrical and thermal conductivity of a variety of materials • Compare and contrast insulators and conductors 	
<p>6 The student knows the impact of energy transformations in everyday life.</p> <p>6F Investigate and compare series and parallel circuits</p>	<p>Including</p> <ul style="list-style-type: none"> • Describe the difference in open and closed circuits • Assemble a series and parallel circuit • Using Ohm’s Law calculate resistance using voltage and current • Identify the symbols in a schematic diagram • Distinguish between direct current and alternate 	<p>What is a Circuit?”, “Types of Circuits Lab”- <u>Investigations in Chemistry and Physics</u></p> <p>“Series Circuit Lab” – <u>Investigations in Physics and Chemistry</u></p> <p>“Parallel Circuits Lab” – <u>Investigations in Physics and Chemistry</u></p>

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	<p>current</p> <ul style="list-style-type: none"> • Calculate electric power • <i>evaluate the transfer of electrical energy in series and parallel circuits and conductive materials</i> 	<p>“Combination Circuits Lab” - <u>Investigations in Physics and Chemistry</u></p> <p>“Ohm’s Law Lab” – <u>Investigation in Physics and Chemistry</u></p> <p>Van De Graff Generators demo</p>
<p>6 The student knows the impact of energy transformations in everyday life.</p> <p>6G Analyze the relationship between an electric current and the strength of its magnetic field using simple electromagnets.</p>	<p>Including</p> <ul style="list-style-type: none"> • Describe the earth’s magnetic field and it’s effect on a compass • Describe an electric field • <i>demonstrate that moving electric charges produce magnetic forces and moving magnets produce electric forces</i> 	<p>“Permanent Magnets” – <u>Investigations in Physics and Chemistry</u></p> <p>“Electromagnets” – <u>Investigations in Physics and Chemistry</u></p> <p>Executive Magnetic Toys – bring a few magnetic toys to class and demonstrate them</p>