

Key Physics Concepts	
Section Summaries	Physics Principles
<p><b>Section 1 The Electricity and Magnetism Connection</b></p> <p>Investigating the interaction between a bar magnet and a compass, students observe properties of the magnetic interaction and map out a magnetic field. Students investigate the interaction between an electric current and magnetic fields by observing how a current-carrying wire affects a magnetic compass.</p>	<p>Magnetic fields Interaction between electric current and magnetic fields</p>
<p><b>Section 2 Electromagnets</b></p> <p>Students determine the variables that affect the strength of a magnetic field of a solenoid. Students identify and explain variables that affect the magnetic field of an electromagnet.</p>	<p>Interaction between electric current and magnetic fields Electromagnets Solenoids Magnetic domains</p>
<p><b>Section 3 Building an Electric Motor</b></p> <p>Observations of the force on a current-carrying wire from a magnet are used to help explain a motor that students build. Students describe the interaction between a current-carrying wire and a magnet using magnetic fields.</p>	<p>Interaction between electric current and magnetic fields Motors</p>
<p><b>Section 4 Detect and Induce Currents</b></p> <p>Using a galvanometer, students observe that a magnet moving near wire in a closed loop induces a current in the wire, and investigate the variables that affect the amount of induced current. Students read about generators.</p>	<p>Interaction between magnetic fields and electric current Galvanometers Generators Energy conversion</p>
<p><b>Section 5 AC and DC Currents</b></p> <p>Students observe, describe, and explain the generation of AC and DC currents, and discuss information presented. Students describe and explain AC and DC generators.</p>	<p>Interaction between magnetic fields and electric current AC and DC generators</p>
<p><b>Section 6 Electromagnetic Spectrum: Maxwell's Great Synthesis</b></p> <p>Students apply an experience of finding patterns and creating classifications to finding patterns in what they know about electricity and magnetism. Students are introduced to the speed of light and read and discuss the electromagnetic spectrum.</p>	<p>Patterns and classification Electromagnetic waves</p>