For Teachers:
Alignment to Curriculum Frameworks

Note: Lesson plans in this series are aligned to one or more of the following sets of standards:
• U.S. Science Education Standards (http://www.nap.edu/catalog.php?record_id=4962)
• U.S. Next Generation Science Standards (http://www.nextgenscience.org/)
• International Technology Education Association’s Standards for Technological Literacy (http://www.iteea.org/TAAPDFs/xstdnd.pdf)
• U.S. National Council of Teachers of Mathematics’ Principles and Standards for School Mathematics (http://www.nctm.org/standards/content.aspx?id=16909)
• U.S. National Council of Teachers of Mathematics’ Principles and Standards for School Mathematics (http://www.nap.edu/catalog.php?record_id=4962)
• U.S. Common Core State Standards for Mathematics (http://www.corestandards.org/Math)
• Computer Science Teachers Association K-12 Computer Science Standards (http://csta.acm.org/Curriculum/sub/K12Standards.html)

◆ National Science Education Standards Grades K-4 (ages 4 - 9)

CONTENT STANDARD A: Science as Inquiry
As a result of activities, all students should develop
◆ Abilities necessary to do scientific inquiry
◆ Understanding about scientific inquiry

CONTENT STANDARD B: Physical Science
As a result of the activities, all students should develop an understanding of
◆ Light, heat, electricity, and magnetism

CONTENT STANDARD E: Science and Technology
As a result of activities, all students should develop
◆ Understanding about science and technology

◆ National Science Education Standards Grades 5-8 (ages 10 - 14)

CONTENT STANDARD B: Physical Science
As a result of their activities, all students should develop an understanding of
◆ Motions and forces
◆ Transfer of energy

CONTENT STANDARD F: Science in Personal and Social Perspectives
As a result of activities, all students should develop understanding of
◆ Science and technology in society

CONTENT STANDARD G: History and Nature of Science
As a result of activities, all students should develop understanding of
◆ History of science
IEEE Lesson Plan: Basic Alternating Current Motors

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◆ Next Generation Science Standards Grades 3-5 (Ages 8-11)

Motion and Forces: Stability and Interaction

Students who demonstrate understanding can:

◆ 3-PS2-3. Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.

◆ 3-PS2-4. Define a simple design problem that can be solved by applying scientific ideas about magnets.

Energy

Students who demonstrate understanding can:

◆ 4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.

◆ Next Generation Science Standards – Grades 6-8 (Ages 11-14)

Motion and Stability: Forces and Interactions

◆ MS-PS2-3. Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.

Energy

◆ MS-PS3-2. Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.

◆ Standards for Technological Literacy - All Ages

Technology and Society

◆ Standard 7: Students will develop an understanding of the influence of technology on history.

Design

◆ Standard 10: Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving.

The Designed World

◆ Standard 16: Students will develop an understanding of and be able to select and use energy and power technologies.