



## 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](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/TAA/PDFs/xstnd.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. 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

### Basic Alternating Current Motors

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**For Teachers:**  
**Alignment to Curriculum Frameworks****◆ 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.

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