

Correlation of Resources to National Science Standards

Use the chart below to discover how selected Science A–Z resources in the Electricity and Magnetism unit support certain Next Generation Science Standards* (NGSS). While a single reading resource, science activity, comprehension support, or lesson cannot satisfy an entire Performance Expectation, using these resources together can help students develop the understandings and abilities they will need in order to satisfy each standard listed below. Most standards cited align with the grade level of this Science A–Z unit. For a reverse correlation tool that connects the standards to resources, visit our NGSS correlations page: www.sciencea-z.com/main/NextGenerationScienceStandards.



Check the Performance Expectations Key below this chart for the complete text of the standards cited for each resource.

Resource Type	Resource Title	Performance Expectations
Unit Nonfiction Book	<i>Electricity and Magnetism</i> (3 reading levels)	3-PS2-3; 3-PS2-4; 4-PS3-2; 4-PS3-4; MS-PS2-3; MS-PS2-5
Interactive Science Lesson	<i>An Introduction to Circuits</i> Part 1: What Are the Parts of a Circuit?	4-PS3-2; 4-PS3-4; 3-5-ETS1-3
Interactive Science Lesson	<i>An Introduction to Circuits</i> Part 2: What Makes a Circuit Work?	4-PS3-2; 4-PS3-4; 3-5-ETS1-3
Process Activity	<i>Electromagnets</i>	3-PS2-3; 3-PS2-4; 3-5-ETS1-3; MS-PS2-3; MS-PS2-5; MS-ETS1-3
FOCUS Book	<i>Electrical Safety</i>	4-PS3-2; MS-PS2-3
FOCUS Book	<i>Battle of the Currents</i>	3-5-ETS1-2; MS-ETS1-1; MS-ETS1-2; MS-ETS1-4
FOCUS Book	<i>Remote Control</i>	3-PS2-3; 4-PS4-3; MS-PS4-3; MS-ETS1-1; MS-ETS1-2; MS-ETS1-4
FOCUS Book	<i>Setting Up Circuits</i>	4-PS3-2; 3-5-ETS1-1; 3-5-ETS1-2; MS-PS2-3; MS-ETS1-1; MS-ETS1-2; MS-ETS1-4
FOCUS Book	<i>Blackout!</i>	4-PS3-2; 3-5-ETS1-1; 3-5-ETS1-2; MS-ETS1-1; MS-ETS1-2; MS-ETS1-4
Investigation Pack	<u>Topic:</u> Electric Motors <u>I. Files:</u> <i>Electric Drill; Electric Toothbrush;</i> <i>Vacuum Cleaner; Toy Helicopter</i> <u>Mystery File:</u> <i>Generators</i>	4-PS3-2; MS-PS2-3; MS-PS2-5
Debate	<i>Wind Energy</i>	4-PS3-4
Science Video	<i>Conductors and Insulators</i>	4-PS3-2

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Resource Type	Resource Title	Performance Expectations
Science Video	<i>Current Strength Affects Electromagnets</i>	MS-PS2-3
Science Video	<i>Discovering Solar Energy</i>	4-PS3-4
Science Video	<i>Human-Powered Generator</i>	MS-PS2-3
Career Files	<i>Power Plant Worker; Nuclear Medicine Technologist; Electric Linework</i>	4-PS3-2
Quick Read	<i>Earth as a Magnet</i> (3 reading levels)	MS-PS2-5
Quick Read	<i>Electrical Safety</i> (3 reading levels)	4-PS3-2
Science Diagram	<i>Electricity from Steam</i>	4-PS3-4
Science Diagram	<i>Magnets Attract and Repel</i>	MS-PS2-5
Science Diagram	<i>Particles of an Atom</i>	5-PS1-1; MS-PS1-1

Performance Expectations Key

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.

4-PS3-2. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.

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

4-PS4-3. Generate and compare multiple solutions that use patterns to transfer information.

5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen.

3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

MS-PS1-1. Develop models to describe the atomic composition of simple molecules and extended structures.

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

MS-PS2-5. Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.

MS-PS4-3. Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.

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MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.