

Correlation of Resources to National Science Standards

Use the chart below to discover how selected Science A–Z resources in the Machines 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>Simple and Complex Machines</i> (3 reading levels)	3-PS2-1; 3-PS2-2; 4-PS3-1
Project-Based Learning Pack	<i>Designing a Machine to Solve a Problem</i>	3-PS2-1; 3-PS2-2; 3-5-ETS1-1; 3-5-ETS1-2
Process Activity	<i>Design Machines</i>	3-PS2-2; 3-5-ETS1-1
Process Activity	<i>Pendulums</i>	3-PS2-2
Process Activity	<i>Strength of Electromagnets</i>	3-PS2-3
FOCUS Book	<i>The Mole Machine</i>	3-5-ETS1-1; 3-5-ETS1-2; 3-5-ETS1-3
FOCUS Book	<i>Let's Ride a Bike!</i>	3-PS2-1; 4-PS3-1; 4-PS3-4
FOCUS Book	<i>Spaceship Motions and Deep, Deep Oceans</i>	3-PS2-1; 3-5-ETS1-3
FOCUS Book	<i>Wrecking Ball vs. Strong Wall</i>	3-PS2-1; 4-PS3-1; 4-PS3-3; 3-5-ETS1-3; MS-PS3-2
FOCUS Book	<i>Waterwheels and Windmills</i>	3-PS2-1; 4-PS3-2; 4-PS3-4; 3-5-ETS1-3
Investigation Pack	<u>Topic:</u> Complex Machines <u>I. Files:</u> <i>Ferris Wheels; Can Openers; Sailboats; Clocks and Watches</i> <u>Mystery File:</u> <i>Army Ants</i>	3-PS2-1; 3-PS2-2; 4-PS3-1; 4-PS3-4
Debate	<i>Moving Boxes</i>	3-PS2-1; 3-5-ETS1-2
Science Video	<i>A Rube Goldberg Machine</i>	3-PS2-1; 3-5-ETS1-2; 3-5-ETS1-3
Science Video	<i>FlipperBot</i>	3-5-ETS1-1; 3-5-ETS1-2; 3-5-ETS1-3
Science Video	<i>Materials Engineer</i>	3-5-ETS1-1; 3-5-ETS1-2; 3-5-ETS1-3
Science Video	<i>Using Weights to Balance a Lever</i>	3-PS2-1

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Resource Type	Resource Title	Performance Expectations
Career Files	<i>Robotic Engineer; Hair Stylist/ Barber; Elevator Mechanic</i>	3-PS2-1; 3-PS2-2; 4-PS3-2; 4-PS3-4
Quick Read	<i>Earth Movers</i> (3 reading levels)	3-PS2-1
Quick Read	<i>Machines with Magnets</i> (3 reading levels)	3-PS2-3; 3-PS2-4
Quick Read	<i>Rube Goldberg</i> (3 reading levels)	3-5-ETS1-2; 3-5-ETS1-3
Science Diagram	<i>Force x Distance = Work</i>	3-PS2-1; 4-PS3-1
Science Diagram	<i>Simple Machines</i>	3-PS2-1; 4-PS3-1; 4-PS3-4

Performance Expectations Key

3-PS2-1. Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.

3-PS2-2. Make observations and/or measurements of an object’s motion to provide evidence that a pattern can be used to predict future motion.

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-PS3-1. Use evidence to construct an explanation relating the speed of an object to the energy of that object.

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-PS3-3. Ask questions and predict outcomes about the changes in energy that occur when objects collide.

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

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-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.