

Correlation with National Science Standards

Use the chart below to find Science A–Z units that best support the Next Generation Science Standards* topics at grade 4 and several featured resources from those units that provide strong connections. Each Performance Expectation in the chart represents all three dimensions: Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts.



Storylines from Science A–Z present a coherent sequence of lessons that target the bundle of Performance Expectations within each topic at grade 4. They include:

- [Energy: Movement, Changes, and Sources](#) (Energy)
- [Using Waves and Patterns to Transfer Information](#) (Waves: Waves and Information)
- [Features of Plants and Animals](#) (Structure, Function, and Information Processing)
- [Shaping the Earth](#) (Earth's Systems: Processes that Shape the Earth)

4. Energy		
Performance Expectations	Disciplinary Core Ideas	Science A–Z Units (Featured Resources)
4-PS3-1. Use evidence to construct an explanation relating the speed of an object to the energy of that object.	PS3.A: Definitions of Energy	5–6 Force and Motion (Unit Nonfiction Books; <i>Soccer FOCUS Book</i> ; <i>Racecars FOCUS Book</i> ; <i>Roller Coasters FOCUS Book</i> ; <i>Force, Mass, and Acceleration</i> Interactive Science Lesson)
4-PS3-2. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.	PS3.A: Definitions of Energy	3–4 Heat Energy (Unit Nonfiction Books; <i>Campfire Science FOCUS Book</i> ; <i>Thermal Energy Transfer</i> Interactive Science Lesson) 3–4 Sound (Unit Nonfiction Books; <i>Animal Sounds FOCUS Book</i> ; <i>Musical Instruments FOCUS Book</i> ; <i>String Telephones</i> Process Activity) 5–6 Electricity and Magnetism (<i>An Introduction to Circuits</i> Interactive Science Lesson)
	PS3.B: Conservation of Energy and Energy Transfer	3–4 Heat Energy (Unit Nonfiction Books; <i>Light Energy Converts to Heat Energy</i> Science Diagram; <i>Thermal Energy Transfer</i> Interactive Science Lesson) 3–4 Machines (<i>Waterwheels and Windmills</i> FOCUS Book)

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4. Energy (continued)		
Performance Expectations	Disciplinary Core Ideas	Science A–Z Units (Featured Resources)
4-PS3-3. Ask questions and predict outcomes about the changes in energy that occur when objects collide.	PS3.A: Definitions of Energy	3–4 Machines (<i>Wrecking Ball vs. Strong Wall</i> FOCUS Book)
	PS3.B: Conservation of Energy and Energy Transfer	3–4 Machines (<i>Wrecking Ball vs. Strong Wall</i> FOCUS Book)
	PS3.C: Relationship Between Energy and Forces	5–6 Force and Motion (<i>Soccer</i> FOCUS Book)
4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.	PS3.B: Conservation of Energy and Energy Transfer	3–4 Heat Energy (<i>Geothermal Energy</i> Quick Reads) 3–4 Machines (<i>Waterwheel and Windmills</i> FOCUS Book)
	PS3.D: Energy in Chemical Processes and Everyday Life	5–6 Electricity and Magnetism (Unit Nonfiction Books; <i>Electricity from Steam</i> Science Diagram; <i>An Introduction to Circuits</i> Interactive Science Lesson) 5–6 Light Energy (Unit Nonfiction Books)
	ETS1.A: Defining Engineering Problems	No correlations
4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.	ESS3.A: Natural Resources	3–4 Heat Energy (<i>Geothermal Power</i> Quick Reads; <i>Heat Sources Used Around the World</i> Quick Reads; <i>Gallon of Gas</i> Science Video) 5–6 Energy Resources (Unit Nonfiction Books; <i>Renewable Energy</i> Investigation Pack)

4. Waves: Waves and Information		
Performance Expectations	Disciplinary Core Ideas	Science A–Z Units (Featured Resources)
4-PS4-1. Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.	PS4.A: Wave Properties	3–4 Sound (Unit Nonfiction Books; <i>Seeing Sound</i> FOCUS Book; <i>Properties of Sound</i> Investigation Pack; <i>Wave Properties</i> Interactive Science Lesson) 5–6 Light Energy (Unit Nonfiction Books; <i>Electromagnetic Spectrum</i> Science Diagram)

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4. Waves: Waves and Information (continued)		
4-PS4-3. Generate and compare multiple solutions that use patterns to transfer information.	PS4.C: Information Technologies and Instrumentation	3-4 Sound (<i>Seeing Sound</i> FOCUS Book; <i>CDs: Sound from Light</i> Quick Reads; <i>Properties of Sound</i> Investigation Pack) 5-6 Light Energy (Unit Nonfiction Books; <i>Radiant Energy</i> Investigation Pack)
	ETS1.C: Optimizing The Design Solution	3-4 Sound (<i>Communicating with Sound Patterns</i> Project-Based Learning Pack)

4. Structure, Function, and Information Processing		
Performance Expectations	Disciplinary Core Ideas	Science A-Z Units (Featured Resources)
4-PS4-2. Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.	PS4.B: Electromagnetic Radiation	3-4 The Human Body (Unit Nonfiction Books; <i>The Sense of Sight</i> Science Diagram) K-2 Senses (<i>Properties of Senses</i> Investigation Pack) 5-6 Inside Living Things (<i>Incredible Eyes</i> FOCUS Book)
4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.	LS1.A: Structure and Function	3-4 Vertebrates (Unit Nonfiction Books; <i>Pipe Cleaner Skeletons</i> Process Activity) 3-4 Invertebrates (Unit Nonfiction Books; <i>Observe Invertebrates</i> Process Activity) 3-4 Plant Life (<i>Properties of Plants</i> Investigation Pack; <i>Air Plants</i> FOCUS Book)
4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.	LS1.D: Information Processing	3-4 Invertebrates (<i>Arthropods</i> Investigation Pack) 3-4 Vertebrates (<i>Creatures of the Deep: Chimaera</i> Science Video) 3-4 The Human Body (<i>The Sense of Sight</i> Science Diagram; <i>The Sense of Smell</i> Science Diagram)

4. Earth's Systems: Processes that Shape the Earth		
Performance Expectations	Disciplinary Core Ideas	Science A-Z Units (Featured Resources)
4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.	ESS1.C: The History of Planet Earth	3-4 Minerals, Rocks, and Soil (Unit Nonfiction Books; <i>Fossils</i> FOCUS Book; <i>Diamonds</i> FOCUS Book; <i>Weathering Rocks</i> Process Activity; <i>Fossils: Evidence of Earth's Past</i> Interactive Science Lesson) 3-4 Habitats/Environment (<i>Habitats Then and Now</i> FOCUS Book)

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4. Earth's Systems: Processes that Shape the Earth (continued)		
Performance Expectations	Disciplinary Core Ideas	Science A–Z Units (Featured Resources)
4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.	ESS2.A: Earth Materials and Systems	3–4 Minerals, Rocks, and Soil (Unit Nonfiction Books; <i>Weathering Rocks</i> Process Activity) 5–6 Changing Landforms (Unit Nonfiction Books)
	ESS2.E: Biogeology	K–2 Animals (<i>Animals of the Rivers</i> FOCUS Book; <i>Animals in the Ground</i> FOCUS Book)
4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth's features.	ESS2.B: Plate Tectonics and Large-Scale System Interactions	3–4 Habitats/Environment (<i>Habitats Then and Now</i> FOCUS Book) 5–6 Changing Landforms (Unit Nonfiction Books)
4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.	ESS3.B: Natural Hazards	3–4 Clouds, Wind, and Storms (Unit Nonfiction Books; <i>Ice Storms</i> FOCUS Book; <i>Listen to Weather Warnings</i> Quick Reads) K–2 Weather (<i>Wind</i> Investigation Pack) 5–6 Changing Landforms (<i>Protecting People from a Volcanic Eruption</i> Project-Based Learning Pack)
	ETS1.B: Designing Solutions to Engineering Problems	K–2 Weather (<i>Harmful Hurricanes</i> FOCUS Book) 5–6 Water (<i>Tsunami!</i> FOCUS BOOK) 5–6 Changing Landforms (<i>Protecting People from a Volcanic Eruption</i> Project-Based Learning Pack)