

# Fourth Grade Science

## Earth Systems

Standard(s) and Practices	Objectives	FOSS/EIE Kits	Journeys Connection	Target Skill and Ideas	Other Resources
<b>4-ESS1-1</b> <b>4-ESS2-1</b> <b>4-ESS2-2</b>	Students will: <ul style="list-style-type: none"> <li>Identify how local, regional, and global patterns of rock formations reveal changes over time due to earth forces, such as earthquakes.</li> <li>Recognize the presence and location of certain fossil types indicate the order in which rock layers were formed.</li> </ul>	<b>FOSS Kit: LANDFORMS</b> Investigations 2 and 3	<ul style="list-style-type: none"> <li>Lesson wk. 6 "Invasion from Mars"- Land Formation</li> </ul>	<ul style="list-style-type: none"> <li>Rock formations and fossil layers as indicators of changes in Earth's landscape over time.</li> </ul>	<ul style="list-style-type: none"> <li>Earth Materials Investigations 1, 2, and 4</li> </ul>
<b>4-ESS1-1</b>	Students will: <ul style="list-style-type: none"> <li>Identify and classify rocks according to properties.</li> </ul>	<b>FOSS Kit: EARTH MATERIALS</b> Investigations 1-4	<ul style="list-style-type: none"> <li>Lesson wk. 6 "Invasion from Mars"</li> <li>Lesson 12 "The Earth Dragon Awakes"-Land Formation and Earthquake</li> </ul>	<ul style="list-style-type: none"> <li>Classify rocks</li> </ul>	<ul style="list-style-type: none"> <li>Ohio State University Website: <a href="#">Beyond Penguins and Polar Bears</a></li> <li><a href="#">e-learning for kids website</a></li> <li><a href="#">Geology.com Website</a></li> </ul>
<b>4-ESS2-1</b> <b>4-ESS2-2</b>	Students will: <ul style="list-style-type: none"> <li>Use maps to locate the different land and water features of earth.</li> <li>Understand that the locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns.</li> <li>Understand most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans.</li> </ul>	<b>FOSS Kit: LANDFORMS</b> Investigations 1-4	<ul style="list-style-type: none"> <li>Lesson 11 Studying weather and effects on geographic features</li> <li>Lesson 12 "The Earth Dragon Awakes"</li> <li>Natural disasters</li> <li>Lesson 3 "My Librarian is a Camel"</li> <li>Obstacles due to geographic features</li> </ul>	<ul style="list-style-type: none"> <li>Effects of natural forces and living organisms on the Earth's geographic features.</li> </ul>	<ul style="list-style-type: none"> <li>Earth Materials investigation 1</li> <li>Ducksters.com Earth Science for Kids</li> <li><a href="#">e-learning for kids website</a></li> <li>Ohio State University Website: <a href="#">Beyond Penguins and Polar Bears</a></li> <li><a href="#">USGS Website</a> Earthquake Hazards Program</li> </ul>

<p><b>4-ESS3-2</b>  <b>3-5 ETSI 1-1</b>  <b>3-5 ETSI 1-2</b>  <b>3-5 ETSI 1-3</b></p>	<p>Students will:</p> <ul style="list-style-type: none"> <li>• Develop a procedure to test possible solutions.</li> <li>• Test possible solutions to determine which best solves the problem.</li> <li>• Evaluate the success of a solution based on specific criteria.</li> </ul>	<p><b>EIE Kit: A Sticky Situation: Designing Walls</b></p>	<ul style="list-style-type: none"> <li>• Lesson 12 “The Earth Dragon Awakes”- Earthquakes</li> </ul>	<ul style="list-style-type: none"> <li>• Engineering and Technology Science Standards should be imbedded within the Earth Systems Unit.</li> <li>• Example: Students design solutions to mitigate earthquake damage.</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">CanTeach Elementary Resources Website</a></li> </ul>
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**Life Science and Physical Science (Energy)**

<b>Standard(s) and Practices</b>	<b>Objectives</b>	<b>FOSS/EIE Kits</b>	<b>Journeys Connection</b>	<b>Target Skill and Ideas</b>	<b>Other Resources</b>
<p><b>4-LS1-1</b></p>	<p>Students will:</p> <ul style="list-style-type: none"> <li>• Demonstrate that animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction.</li> <li>• Demonstrate that plants have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction.</li> <li>• Cite evidence to support their argument.</li> </ul>		<ul style="list-style-type: none"> <li>• Lesson 13 “Antarctic Journal” Ecosystems</li> <li>• Lesson 14 “The Life and Times of the Ant”-Roles in ecosystems</li> <li>• Lesson 15 “Ecology for Kids”-Ecology</li> <li>• Lesson 23 “The Ever-Living Tree”- changes in trees</li> <li>• Lesson 19 “Harvesting Hope”- importance of farming</li> <li>• Lesson 27 “Amphibian Alert”- Life cycle of frogs</li> <li>• Lesson 29 “Save Timber Woods”- Conservation</li> <li>• Lesson 30 “Mystery at Reed’s Pond”- Conservation</li> </ul>	<ul style="list-style-type: none"> <li>• Internal and external structures of animal and plant survival.</li> </ul>	<ul style="list-style-type: none"> <li>• Alaska Department of Fish and Game <a href="#">website (salmon)</a></li> <li>• Ohio State University Website: <a href="#">Beyond Penguins and Polar Bears</a></li> <li>• <a href="#">e-learning for kids website</a></li> <li>• Alaska K-12 Science Curricular Initiative <a href="#">website</a></li> <li>• PBS Learning Media <a href="#">Wild Kratts</a></li> </ul>

<b>4-LS-2</b>	Students will: Understand and identify migrations, reproduction and survival.		<ul style="list-style-type: none"> <li>Lesson 13 “Antarctic Journal”-Ecosystems</li> <li>Lesson 14 “The Life and Times of the Ant”-Roles in ecosystems</li> <li>Lesson 24 “Owen and Mzee”-Comparing animal and human behavior</li> </ul>	<ul style="list-style-type: none"> <li>Animal senses with regard to behavior.</li> </ul>	<ul style="list-style-type: none"> <li>Alaska Department of Fish and Game <a href="#">website (salmon)</a></li> <li>PBS Learning Media <a href="#">Wild Kratts</a></li> </ul>
<b>3-5-ETSI-1</b> <b>3-5 ETSI-2</b>	Students will: <ul style="list-style-type: none"> <li>Develop a procedure to test possible solutions.</li> <li>Test possible solutions to determine which best solves the problem.</li> <li>Evaluate the success of a solution based on specific criteria.</li> </ul>		<ul style="list-style-type: none"> <li>Lesson 25 “Isaac Asimov”-Inventors, changing the way we do things.</li> <li>Lesson 26 “The Girl Who Loved Spiders”-Patterns in nature</li> </ul>	<ul style="list-style-type: none"> <li>Engineering and Technology Science Standards should be imbedded within the Life Science Unit</li> <li>Example: Students design a solution to solve the issue of human impact on migration patterns</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Takepart Website</a>5 Epic Animal Migrations Under Threat from Human Roadblocks</li> </ul>
<b>4-PS3-1</b>	Students will: <ul style="list-style-type: none"> <li>Explain that the faster a given object is moving, the more energy it possesses.</li> </ul>		<ul style="list-style-type: none"> <li>Lesson 11 “Hurricanes”-Wind speeds</li> <li>Lesson 12 “The Earth Dragon Awakes”-Earthquakes</li> <li>Lesson 18 “Hercules Quest”-Speed/Energy</li> </ul>	<ul style="list-style-type: none"> <li>Speed and Energy</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Open Ed Lesson Plan Website</a> for NGSS</li> </ul>

### Physical Science (Energy continue)

Standard(s) and Practices	Objectives	FOSS/EIE Kits	Journeys Connection	Target Skill and Ideas	Other Resources
<b>4-PS3-2</b> <b>4-PS3-3</b> <b>4-PS2-2</b>	Students will: <ul style="list-style-type: none"> <li>Understand energy is present whenever there are moving objects, sound, light, or heat.</li> <li>Understand when objects collide, energy can be transferred from one object to another, thereby changing their motion.</li> </ul>	<b>FOSS Kit: PHYSICS of SOUND</b> <b>EIE Kit: An Alarming Idea: Designing Alarm Circuits</b>	<ul style="list-style-type: none"> <li>Lesson 5 “Stormalong”-transfer of energy</li> <li>Lesson 6 “Invasion from Mars”-Force</li> <li>Lesson 11 “Hurricanes”-Wind energy</li> <li>Lesson 12 “The Earth Dragon Awakes”-Earthquakes/Wind</li> </ul>	<ul style="list-style-type: none"> <li>Transfer of Energy</li> </ul>	<ul style="list-style-type: none"> <li><a href="#">Watch Know Learn Website</a> Transfer of Energy</li> <li>Magic School Bus- food chain, hurricanes</li> </ul>

	<ul style="list-style-type: none"> <li>• Understand when objects collide some energy is also transferred to surrounding air producing heat and sound.</li> <li>• Understand light also transfers energy from place to place.</li> <li>• Understand energy can also be transferred from place to place by electric currents to produce motion, sound, heat, or light.</li> <li>• Understand electric currents can be produced by transforming the energy of motion into electrical energy.</li> <li>• Predict the change of motion when objects collide.</li> <li>• Understand that transfer of energy causes the change in motion.</li> </ul>		<ul style="list-style-type: none"> <li>• Lesson 13 Antarctica-engineering problems of heat transfer.</li> <li>• Lesson 18 “Hercules’ Quest”-Kinetic energy</li> <li>• Lesson 19 “Harvesting Hope”- Farming (food chain)</li> <li>• Lesson 25 “The Fun They Had”- Technology and innovation</li> </ul>		
<p>4PS3-4 4-PS2-1 3-5-ETS1-3 3-5-ETS1-1</p>	<p>Students will:</p> <ul style="list-style-type: none"> <li>• Apply knowledge that energy can be transferred from place to place by electric currents, which can then be used to produce motion, sound, heat or light.</li> <li>• Connect the expression “produced energy” refers to the conversion of “stored energy” into a desired form for practical use.</li> <li>• Define engineering problems and propose possible solutions.</li> <li>• Test possible solutions to convert energy.</li> <li>• Understand constraints, such as materials,</li> </ul>	<p><b>FOSS Kit:</b> <b>PHYSICS of SOUND</b> <b>EIE Kit: An Alarming Idea: Designing Alarm Circuits</b></p>	<ul style="list-style-type: none"> <li>• Lesson 5 “Stormalong”-transfer of energy</li> <li>• Lesson 6 “Invasion from Mars”-Force</li> <li>• Lesson 11 “Hurricanes”-Wind energy</li> <li>• Lesson 12 “The Earth Dragon Awakes”- Earthquakes/Wind</li> <li>• Lesson 13 Antarctica-engineering problems of heat transfer.</li> <li>• Lesson 18 “Hercules’ Quest”-Kinetic energy</li> <li>• Lesson 19 “Harvesting Hope”- Farming (food chain)</li> </ul>	<ul style="list-style-type: none"> <li>• Transfer of Energy (application) includes Engineering and Technology Standards requiring students to propose and test possible solutions to problems.</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Watch Know Learn Website</a> Transfer of Energy</li> </ul>

	<p>resources, costs, may limit solution</p> <ul style="list-style-type: none"> <li>• Develop a procedure to test possible solutions.</li> <li>• Test possible solutions to determine which best solves the problem.</li> <li>• Evaluate the success of a solution based on specific criteria.</li> </ul>		<ul style="list-style-type: none"> <li>• Lesson 25 “The Fun They Had”- Technology and innovation</li> </ul>		
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### Physical Science (Waves)

Standard(s) and Practices	Objectives	FOSS/EIE Kits	Journeys Connection	Target Skill and Ideas	Other Resources
<b>4-PS2-1</b>	<p>Students will</p> <ul style="list-style-type: none"> <li>• Understand that waves may differ in amplitude and wave lengths and may cause objects to move.</li> <li>• Understand that waves cause objects to move.</li> <li>• Create a model that shows wave movement.</li> <li>• Demonstrate that water moves up and down when waves move across the surface, except when water meets a beach.</li> </ul>		<ul style="list-style-type: none"> <li>• Lesson 5 “Stormalong”- wind/water waves</li> <li>• Lesson 11 “Hurricanes”-weather</li> <li>• Lesson 12 “The Earth Dragon Awakes”- Earthquake</li> </ul>	<ul style="list-style-type: none"> <li>• Wave amplitude and length</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Ducksters Education Website</a>: Physics for Kids</li> </ul>
<b>4-PS2-2</b>	<p>Students will:</p> <ul style="list-style-type: none"> <li>• Model to show an object can have been seen when light reflected from its surface enters the eyes.</li> <li>• Use instrument to change light waves.</li> </ul>		<ul style="list-style-type: none"> <li>• Lesson 17 “The Right Dog for the Job”- Service animals</li> </ul>	<ul style="list-style-type: none"> <li>• Light waves</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Physics4Kids Website</a>: Types of Light</li> <li>• <a href="#">Explain that Stuff! Website</a> Light</li> </ul>

<p><b>4-PS2-3</b></p>	<p>Students will:</p> <ul style="list-style-type: none"> <li>• Create their own model and transfer info using Morse code.</li> </ul>	<p><b>FOSS Kit:</b>  <b>MAGNETISM and ELECTRICITY</b>      Investigations 5      Morse Code</p>	<ul style="list-style-type: none"> <li>• Lesson 6 “Invasion from Mars”-written and performance stories</li> </ul>	<ul style="list-style-type: none"> <li>• Use patterns to transfer information.</li> <li>• This includes Engineering and Technology Standards requiring students to develop and test a solution to a problem.</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">CS Unplugged Website</a> Computer Science without a computer</li> <li>• <a href="#">Wikipedia Website</a> Data transmission definition</li> <li>• <a href="#">Fun Kids Digital Radio and Online Website</a></li> </ul>
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