

NGSS for Science Expo Activities

Earth Science and Geology

Activity Name	3rd Grade Standard	4th Grade Standard	5th Grade Standard
<i>Just Around the Riverbend</i>		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 SystemsEarth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather
<i>Groundwater Explorations</i>			5-ESS2-2. Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.
<i>Quakes and Plates</i>		4-ESS1; ESS1.C: The History of Planet Earth-Local, regional, and global patterns of rock formations reveal changes over time due to earth forces, such as earthquakes. The presence and location of certain fossil types indicate the order in which rock layers were formed. (4-ESS1-1)	

<i>Modeling Convection Currents in the Mantle</i>		4-ESS1; ESS1.C: The History of Planet Earth- Local, regional, and global patterns of rock formations reveal changes over time due to earth forces, such as earthquakes. The presence and location of certain fossil types indicate the order in which rock layers were formed. (4-ESS1-1)	
<i>The Break Down</i>		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.	
<i>Rock Detective</i>		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.	
<i>Birdseed Mining</i>		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.C: Human Impacts on Earth Systems Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments. (5-ESS3-1)
<i>Magnetic Earth</i>	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.		5-PS1-3. Make observations and measurements to identify materials based on their properties.
<i>Fossil Dig</i>	3-LS4-1. Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.	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.	

<p><i>All About Fossils</i></p>	<p>3-LS4-1. Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.</p>	<p>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.</p>	
<p><i>Volcano Loco</i></p>		<p>ESS2.B: Plate Tectonics and Large-Scale System Interactions <input type="checkbox"/> T</p> <p>mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns. Most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans. Major mountain chains form inside continents or near their edges. Maps can help locate the different land and water features areas of Earth. (4-ESS2-2)</p>	
<p><i>Earthquake Machine</i></p>	<p>3-ESS3-1. Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.</p>	<p>4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans</p>	
<p><i>3-D Earthquake Viewer</i></p>		<p>ESS2.B: Plate Tectonics and Large-Scale System Interactions <input type="checkbox"/> T</p> <p>mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns. Most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans. Major mountain chains form inside continents or near their edges. Maps can help locate the different land and water features areas of Earth. (4-ESS2-2)</p>	

<p><i>Shake & Break</i></p>		<p>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</p>	<p>ESS2.A: Earth Materials and Systems Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather</p>
<p><i>Renewable v. Nonrenewable</i></p>		<p>4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.</p>	<p>Energy and Matter <input type="checkbox"/> En transferred in various ways and between objects. (5-PS3-1)</p>

Space Science

Activity Name	3rd Grade Standard	4th Grade Standard	5th Grade Standard
<i>How Big is the Moon?</i>			5-ESS1-1. Earth's Place in the Universe. Support an argument that the apparent brightness of the sun and stars is due to their relative distances from the Earth.
<i>Moon Dance</i>			5-ESS1-2. Earth's Place in the Universe. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.
<i>Time of the Seasons</i>			5-ESS1-2. Earth's Place in the Universe. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.
<i>Pocket Solar System</i>			5-ESS1-2. Earth's Place in the Universe. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.
<i>The Fabric of Space-Time</i>	3-PS2-1. Motion and Stability: Forces and Interactions. Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.		5-PS2-1. Motion and Stability: Forces and Interactions. Support an argument that the gravitational force exerted by Earth on objects is directed down.

<i>Jumping on Jupiter</i>			5-ESS1-2. Earth's Place in the Universe. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.
<i>Cooking up Comets</i>		5-PS1-4. Matter and Its Interactions. Conduct an investigation to determine whether the mixing of two or more substances results in new substances.	
<i>Meteor Impact</i>	4-PS3-3. Energy. Ask questions and predict outcomes about the changes in energy that occur when objects collide.	4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth's features.	
<i>Solar Sensations</i>			5-ESS1-1. Earth's Place in the Universe. Support an argument that the apparent brightness of the sun and stars is due to their relative distances from the Earth.
<i>Challenger Planetarium (Public Event Only)</i>			5-ESS1-2. Earth's Place in the Universe. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.

Weather & Climate

Activity Name	3rd Grade Standard	4th Grade Standard	5th Grade Standard
<i>Air is Everywhere/ The Power of words</i>			5-ESS2-1: Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.
<i>Stubborn Balloon/ Automatic Balloon Inflator</i>			5-ESS2-1: Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.
<i>Cartesian Divers</i>			5-ESS2-1: Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.
<i>Dangerous Atmosphere</i>	3-ESS2-1: Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.		

<i>Updrafts in Action</i>			5-ESS2-1: Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.
<i>Cloud in A bottle</i>			5-ESS2-1: Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.
<i>How much Water is in Clouds</i>	3-ESS2-1: Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.		5-ESS2-1: Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.
<i>Kissing Balloons</i>			5-ESS2-1: Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.
<i>Sizing up Hail</i>	3-ESS3-1: Make a claim about the merit of a design solution that reduces the impacts of a weather related hazard.		

<i>Difference Between Climate and Weather</i>	3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. 3-ESS2-2: Obtain and combine information to describe climates in different regions of the world.		
<i>Rumbling Road/Lightning Room</i>	3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.3-ESS2-2: Obtain and combine information to describe climates in different regions of the world.		
<i>Climate Change</i>	3-ESS2-2: Obtain and combine information to describe climates in different regions of the world.		5-ESS3-1: Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.
<i>Forest Service Fire Weather, hosted by Bill Sanders</i>	3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.3-ESS2-2: Obtain and combine information to describe climates in different regions of the world.		5-ESS3-1: Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.
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