

6th Grade Earth Science Scope and Sequence

Unit Title	Timing and Duration	Overview	Topic/ Content	NGSS Standard	I can.....
Composition of the Earth	7 Weeks	Introduction of elements common in minerals and the processes that occur to form the 3 major types of rock as they "cycle." Attention will also be given to mineral resources, fossil fuels, and alternative energy sources.	<ul style="list-style-type: none"> - Elements common in minerals - Rock Formation - Rock Cycle - Mining 	<p>MS-ESS2-1 Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process</p> <p>MS-ESS3-1 Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and ground water resources are the result of past and current geoscience processes.</p>	<ol style="list-style-type: none"> 1. I can name the three parts of an atom, their charges, and their location in the atom. 2. I can define matter and list the three states of matter. 3. I can define an element and recognize that elements are arranged on the periodic table by atomic number (number of protons). 4. I can define a compound and a molecule. 5. I can recognize that minerals contain one or more of the 92 naturally occurring elements. 6. I can list the five characteristics necessary for a substance to be a mineral (naturally occurring, solid, formed by inorganic processes, has a crystal structure, and a definite chemical composition). 7. I can identify a mineral by determining a mineral's characteristic properties (color, streak, luster, Moh's hardness, density, cleavage, fracture, crystalline structure, and special properties (i.e.

					<p>magnetism)).</p> <p>8. I can recognize the relationship of elements and minerals by researching a particular element. (Mighty Minerals Project).</p> <p>9. I can recognize that minerals make up rocks.</p> <p>10. I can name the three types of rocks and how they are formed.</p> <p>11. I can describe how each type of rock changes into another type as it moves through the rock cycle which is a never-ending cycle.</p> <p>12. I can explain why some geographic areas are more likely to have mining, petroleum, volcanic activity, or landslides than those that don't.</p>
The Dynamic Earth	11 Weeks	The four layers of the Earth will be explored. The theory of plate tectonics will be discussed. A correlation between the movement of these plates and mountain formations,	<ul style="list-style-type: none"> - Layers of the earth - Concept of plate tectonics - Plate motion resulting in mountain formation, earthquakes, volcanoes, and sea floor spreading 	<p>MS - ESS2 -2 Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process</p> <p>MS-ESS2-2 Construct an explanation based on evidence for how geoscience processes have</p>	<ol style="list-style-type: none"> 1. I can name the four layers of the Earth which are based on their composition. 2. I can explain how the layers of Earth are different inclusive of continental crust, oceanic crust, mantle, and core. 3. I can identify the lithosphere, asthenosphere, mesosphere, inner core, and outer core based on their physical properties. 4. I can recognize that tectonic plates

		earthquakes, and volcanoes will be explored.		<p>changed earth's surface at varying time and spatial scales.</p> <p>MS-ESS2-3 Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions</p> <p>MS-ESS3-2 Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects</p>	<p>consist of pieces of lithosphere that move around on top of the asthenosphere which allows for plate motion.</p> <p>5. I can describe continental drift and recognize the similarities of fossils and rocks along the matching coastlines of continents.</p> <p>6. I can explain how sea-floor spreading provides a way for continents to move.</p> <p>7. I can describe the three types of tectonic plate boundaries.</p> <p>8. I can use a model to explain the differences between the three major types of faults.</p>
Reshaping the Crust	8 Weeks	The processes of weathering, erosion, deposition will be addressed as well as the agents related to the reshaping of the land, such as gravity, wind, glaciers, and water. Water	<ul style="list-style-type: none"> - Weathering (physical and chemical) - Erosion (gravity, wind, water, and glaciers) - Deposition - Water cycle.river system - Glaciers and features 	<p>MS-ESS2 -1 Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.</p> <p>MS-ESS2-2 Construct an explanation based on evidence for how geoscience processes have</p>	<p>1. I can explain the difference between physical and chemical weathering.</p> <p>2. I can identify agents/causes of physical weathering. (ice, abrasion, wind, water, gravity, plants, and animals)</p> <p>3. I can identify agents/causes of chemical weathering. (water, weak acids, and air)</p> <p>4. I can list agents/causes of erosion. (gravity, water, wind, and glaciers)</p>

		systems will be explored	<ul style="list-style-type: none"> - Caverns and sinkholes 	<p>changed Earth's surface at varying time and spatial scales.</p> <p>MS-ESS2-4 Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.</p>	<p>5. I can identify deposition.</p> <p>6. I can list examples of mass movement (landslides, rock falls, mudflows, and creep)</p> <p>7. I can explain how dunes are formed by wind erosion and deposition.</p>
Weather and Climate	4 Weeks	<p>Atmospheric composition and heating will be described as well as an explanation of the relationship between pressure, temperature, altitude and the differences globally and locally. Air masses are characterized by moisture content and temperature. Humidity and forms of precipitation, weather,</p>	<ul style="list-style-type: none"> - Atmospheric gases - Air pressure - Heat transfer - Motion of pressure and pressure differences - Types of precipitations - Air masses and fronts - Weather instruments - Severe weather 	<p>MS-ESS2 -5 Collect data to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions.</p> <p>MS-ESS2-6 Develop and use a model to describe how unequal heating and rotation of the earth cause patterns of atmospheric and oceanic circulation that determine regional climates</p> <p>MS-ESS3-2 Analyze and interpret data on natural hazards to forecast future catastrophic</p>	<p>1. I can name the gases that make up the Earth's atmosphere.</p> <p>2. I can explain how air pressure changes as distance increases from Earth's surface.</p> <p>3. I can identify if a given example is an example of radiation, conduction, or convection.</p> <p>4. I can identify what causes wind.</p> <p>5. I can state how air moves with relation to differences in pressure.</p> <p>6. I can identify the four main kinds of precipitation.</p> <p>7. I can distinguish between air masses and fronts.</p>

		hurricanes, and tornadoes are discussed. Weather instruments are described, weather maps are used. Students differentiate between weather and climate and recognize how latitude, prevailing winds, geography, and ocean currents affect an area's climate.		events and inform the development of technologies to mitigate their efforts.	
Astronomy	6 Weeks	Planetary motion involving rotation, orbit, revolution and gravity will be used to describe our solar system and other galaxies. The scale of the solar system as well as the	<ul style="list-style-type: none"> - Planets - Comets, asteroids, meteoroids - Space exploration 	<p>MS-ESS1-1 Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases eclipses of the sun and moon, and seasons.</p> <p>MS-ESS1-3 Analyze and interpret data to determine scale properties of objects in the solar</p>	<ol style="list-style-type: none"> 1. I can compare and contrast between the terms rotation and revolution. 3. I can label the seasons on a diagram that is showing the placement of the Earth and the Sun, 4. I can explain why the Earth has seasons. 5. I can identify and name the eight different phases of the moon. 6. I can explain why eclipses happen.

		<p>sizes and locations of the different planets will be visually represented. Differences in composition/appearance, characteristics of the planets will be explained. Comets, asteroids, and meteoroids will be explained. Special emphasis will be given to the Earth-sun-moon system to describe lunar phases, eclipses, and seasons. History of space exploration will be used to show developments in technology.</p>		<p>system</p>	<p>7. I can list the similarities and differences of solar and lunar eclipses.</p> <p>8. I can sort information given about planets to place them into categories. (i.e. distance from sun, diameter of planets, rocky vs. gas planets, rings versus moons, how many moons etc.)</p> <p>9. I can list characteristics about the different planets and make a model of the solar system to scale..</p>
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