



Middle School Earth and Space Science Curriculum Map

Unit 1 – Lab Skills

1-1	Lab Equipment
1-2	Safety
1-3	Lab Procedures
1-4	Making Observations
1-5	Measuring
1-6	Planning an Investigation
1-7	Reporting

Unit 2 – Our Solar System

2-1	The Planets of Our Solar System <ul style="list-style-type: none">• <i>MS-ESS1-2</i> Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.• <i>MS-ESS1-3</i> Analyze and interpret data to determine scale properties of objects in the solar system.
2-2	The Sun <ul style="list-style-type: none">• <i>MS-ESS1-2</i> Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.• <i>MS-ESS1-3</i> Analyze and interpret data to determine scale properties of objects in the solar system.
2-3	Stars <ul style="list-style-type: none">• <i>MS-ESS1-2</i> Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.• <i>MS-ESS1-3</i> Analyze and interpret data to determine scale properties of objects in the solar system.

<p>2-4</p>	<p>Life Cycle of a Star</p> <ul style="list-style-type: none"> • <i>MS-ESS1-2</i> Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.
<p>2-5</p>	<p>Constellations</p> <ul style="list-style-type: none"> • <i>MS-ESS1-1</i> 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. • <i>MS-ESS1-3</i> Analyze and interpret data to determine scale properties of objects in the solar system.
<p>2-6</p>	<p>Galaxies</p> <ul style="list-style-type: none"> • <i>MS-ESS1-2</i> Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system. • <i>MS-ESS1-3</i> Analyze and interpret data to determine scale properties of objects in the solar system.
<p>2-7</p>	<p>Asteroids, Comets, and Meteors</p> <ul style="list-style-type: none"> • <i>MS-ESS1-2</i> Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system. • <i>MS-ESS1-3</i> Analyze and interpret data to determine scale properties of objects in the solar system.
<p>2-8</p>	<p>The Big Bang</p> <ul style="list-style-type: none"> • <i>MS-ESS1-2</i> Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.
<p>2-9</p>	<p>Conditions for Life</p> <ul style="list-style-type: none"> • <i>MS-ESS1-1</i> 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>2-10</p>	<p>Discovering Other Planets</p> <ul style="list-style-type: none"> • <i>MS-ESS1-3</i> Analyze and interpret data to determine scale properties of objects in the solar system.

Unit 3 – Planet Earth

<p>3-1</p>	<p>Earth’s Place in the Solar System</p> <ul style="list-style-type: none"> • <i>MS-ESS1-1</i> 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. • <i>MS-ESS1-3</i> Analyze and interpret data to determine scale properties of objects in the solar system.
<p>3-2</p>	<p>Earth’s Rotation and Revolution</p> <ul style="list-style-type: none"> • <i>MS-ESS1-1</i> 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. • <i>MS-ESS1-2</i> Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.
<p>3-3</p>	<p>Day and Night</p> <ul style="list-style-type: none"> • <i>MS-ESS1-1</i> 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>3-4</p>	<p>Seasons</p> <ul style="list-style-type: none"> • <i>MS-ESS1-1</i> 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>3-5</p>	<p>The Moon</p> <ul style="list-style-type: none"> • <i>MS-ESS1-1</i> 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. • <i>MS-ESS2-4</i> 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>3-6</p>	<p>Lunar Phases</p> <ul style="list-style-type: none"> • <i>MS-ESS1-1</i> 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>3-7</p>	<p>Eclipses</p> <ul style="list-style-type: none"> • <i>MS-ESS1-1</i> 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>3-8</p>	<p>Tides</p> <ul style="list-style-type: none"> • MS-ESS1-2 Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system. • 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.
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Unit 4 – Earth’s History

<p>4-1</p>	<p>The Formation of the Earth</p> <ul style="list-style-type: none"> • MS-ESS2-2 Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales. • 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>4-2</p>	<p>Geological Time Scale</p> <ul style="list-style-type: none"> • MS-ESS1-4 Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth’s 4.6-billion-year-old history.
<p>4-3</p>	<p>Early Life on Earth</p> <ul style="list-style-type: none"> • 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>4-4</p>	<p>Mass Extinction</p> <ul style="list-style-type: none"> • MS-ESS1-4 Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth’s 4.6-billion-year-old history. • MS-ESS2-2 Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales. • 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

	<p>motions.</p>
4-5	<p>Climate on Prehistoric Earth</p> <ul style="list-style-type: none"> • MS-ESS1-4 Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth’s 4.6-billion-year-old history. • 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.
4-6	<p>Types of Fossils</p> <ul style="list-style-type: none"> • MS-ESS1-4 Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth’s 4.6-billion-year-old history. • 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.
4-7	<p>The Fossil Record</p> <ul style="list-style-type: none"> • MS-ESS1-4 Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth’s 4.6-billion-year-old history. • 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.
4-8	<p>Relative and Absolute Dating</p> <ul style="list-style-type: none"> • MS-ESS1-4 Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth’s 4.6-billion-year-old history.

Unit 5 – Earth’s Materials and Systems

5-1	<p>The Structure of the Earth</p> <ul style="list-style-type: none"> • MS-ESS1-3 Analyze and interpret data to determine scale properties of objects in
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	<p>the solar system.</p> <ul style="list-style-type: none"> • 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.
5-2	<p>The Earth's Crust</p> <ul style="list-style-type: none"> • MS-ESS2-2 Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales. • 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.
5-3	<p>Plate Tectonics</p> <ul style="list-style-type: none"> • MS-ESS2-1 Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. • MS-ESS2-2 Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales • 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.
5-4	<p>Convection</p> <ul style="list-style-type: none"> • MS-ESS2-1 Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.
5-5	<p>Plate Boundaries</p> <ul style="list-style-type: none"> • MS-ESS2-2 Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales • 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.
5-6	<p>Continental Drift</p> <ul style="list-style-type: none"> • MS-ESS2-2 Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales • 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.
5-7	<p>Volcanoes</p> <ul style="list-style-type: none"> • MS-ESS2-2 Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales. • 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. • MS-ESS3-3 Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
5-8	<p>Earthquakes</p> <ul style="list-style-type: none"> • MS-ESS2-2 Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales. • 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. • MS-ESS3-3 Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
5-9	<p>Meteorites</p> <ul style="list-style-type: none"> • MS-ESS2-2 Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales. • 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.

Unit 6 – Earth’s Changing Surface

6-1	<p>Chemical Weathering</p> <ul style="list-style-type: none"> • MS-ESS2-1 Develop a model to describe the cycling of Earth’s materials and the flow of energy that drives this process. • MS-ESS2-2 Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales.
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6-2	Physical Weathering <ul style="list-style-type: none"> • <i>MS-ESS2-1</i> Develop a model to describe the cycling of Earth’s materials and the flow of energy that drives this process. • <i>MS-ESS2-2</i> Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales.
6-3	Agents of Erosion <ul style="list-style-type: none"> • <i>MS-ESS2-1</i> Develop a model to describe the cycling of Earth’s materials and the flow of energy that drives this process. • <i>MS-ESS2-2</i> Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales. • <i>MS-ESS2-4</i> Develop a model to describe the cycling of water through Earth’s systems driven by energy from the sun and the force of gravity.
6-4	The Erosion Cycle <ul style="list-style-type: none"> • <i>MS-ESS2-1</i> Develop a model to describe the cycling of Earth’s materials and the flow of energy that drives this process. • <i>MS-ESS2-2</i> Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales.
6-5	Rocks vs Minerals <ul style="list-style-type: none"> • <i>MS-ESS2-1</i> Develop a model to describe the cycling of Earth’s materials and the flow of energy that drives this process. • <i>MS-ESS2-2</i> Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales.
6-6	Classifying Rocks <ul style="list-style-type: none"> • <i>MS-ESS2-3</i> Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.
6-7	The Rock Cycle <ul style="list-style-type: none"> • <i>MS-ESS2-1</i> Develop a model to describe the cycling of Earth’s materials and the flow of energy that drives this process. • <i>MS-ESS2-2</i> Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales.

6-8	The Carbon Cycle <ul style="list-style-type: none"> • <i>MS-ESS2-1</i> Develop a model to describe the cycling of Earth’s materials and the flow of energy that drives this process.
6-9	The Nitrogen Cycle <ul style="list-style-type: none"> • <i>MS-ESS2-1</i> Develop a model to describe the cycling of Earth’s materials and the flow of energy that drives this process.

Unit 7 – Water and Earth’s Surface Processes

7-1	The Hydrosphere <ul style="list-style-type: none"> • <i>MS-ESS2-2</i> Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales. • <i>MS-ESS2-4</i> Develop a model to describe the cycling of water through Earth’s systems driven by energy from the sun and the force of gravity.
7-2	Fresh vs. Saltwater <ul style="list-style-type: none"> • <i>MS-ESS2-4</i> Develop a model to describe the cycling of water through Earth’s systems driven by energy from the sun and the force of gravity.
7-3	The Water Cycle <ul style="list-style-type: none"> • <i>MS-ESS2-1</i> Develop a model to describe the cycling of Earth’s materials and the flow of energy that drives this process. • <i>MS-ESS2-2</i> Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales. • <i>MS-ESS2-4</i> Develop a model to describe the cycling of water through Earth’s systems driven by energy from the sun and the force of gravity.
7-4	Water Movement and Earth’s Surface <ul style="list-style-type: none"> • <i>MS-ESS2-2</i> Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales • <i>MS-ESS2-3</i> Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.

	<ul style="list-style-type: none"> • 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.
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Unit 8 – Weather and Climate

8-1	The Atmosphere <ul style="list-style-type: none"> • MS-ESS2-5 Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions. • 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.
8-2	Atmospheric Gases <ul style="list-style-type: none"> • MS-ESS2-5 Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions. • 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.
8-3	Weather Patterns <ul style="list-style-type: none"> • MS-ESS2-5 Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions. • 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.
8-4	Cloud Formation <ul style="list-style-type: none"> • MS-ESS2-5 Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions. • 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>8-5</p>	<p>Weather Hazards</p> <ul style="list-style-type: none"> • MS-ESS2-5 Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions. • 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. • MS-ESS3-3 Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. • 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>8-6</p>	<p>Weather vs. Climate</p> <ul style="list-style-type: none"> • MS-ESS2-5 Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions. • 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>8-7</p>	<p>Biomes</p> <ul style="list-style-type: none"> • MS-ESS2-5 Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions. • 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>8-8</p>	<p>Climate, Wind and Ocean Currents</p> <ul style="list-style-type: none"> • 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. • MS-ESS2-5 Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions. • 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>8-9</p>	<p>Climate Change – Glacial and Interglacial Periods</p>

	<ul style="list-style-type: none"> • MS-ESS2-5 Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions. • 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.
8-10	<p>Effects of Climate Change</p> <ul style="list-style-type: none"> • MS-ESS3-1 Construct a scientific explanation based on evidence for how the uneven distributions of Earth’s mineral, energy, and groundwater resources are the result of past and current geosciences processes.

Unit 9 – Human Impact

9-1	<p>Earth’s Natural Resources</p> <ul style="list-style-type: none"> • MS-ESS3-1 Construct a scientific explanation based on evidence for how the uneven distributions of Earth’s mineral, energy, and groundwater resources are the result of past and current geosciences processes. • MS-ESS3-4 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth’s systems.
9-2	<p>Renewable and Non-Renewable Resources</p> <ul style="list-style-type: none"> • MS-ESS3-1 Construct a scientific explanation based on evidence for how the uneven distributions of Earth’s mineral, energy, and groundwater resources are the result of past and current geosciences processes.
9-3	<p>Human Activities Affecting the Earth’s Surface</p> <ul style="list-style-type: none"> • MS-ESS3-3 Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. • MS-ESS3-4 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth’s systems.
9-4	<p>Resource Extraction</p>

	<ul style="list-style-type: none"> • MS-ESS3-4 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.
9-5	<p>Quarrying, Mining and Drilling</p> <ul style="list-style-type: none"> • MS-ESS3-4 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems. • MS-ESS3-5 Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.
9-6	<p>Water Pollution</p> <ul style="list-style-type: none"> • MS-ESS3-3 Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. • MS-ESS3-4 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.
9-7	<p>Air Pollution</p> <ul style="list-style-type: none"> • MS-ESS3-3 Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. • MS-ESS3-4 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems. • MS-ESS3-5 Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.
9-8	<p>Acid Rain</p> <ul style="list-style-type: none"> • MS-ESS3-4 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems. • MS-ESS3-5 Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.
9-9	<p>Soil Erosion</p> <ul style="list-style-type: none"> • MS-ESS3-3 Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. • MS-ESS3-4 Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact



	Earth's systems.
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