

Grade 8 Science Proficiency Scale Quarter 1

	1 – Novice	2-Approaching	3- Proficient	4- Advanced
ETS	Has been exposed to and is working towards being able to use the Engineering Design Process to identify and solve problems.	Understands the Engineering Design Process OR uses the EDP to identify OR solve problems using criteria and constraints to produce viable solution(s).	Uses the Engineering Design Process (ETS1-1, ETS1-2, ETS1-3, ETS1-4) to identify, analyze, and solve problems using defined criteria and constraints to produce viable solution(s).	Defines the criteria and constraints of a problem with authenticity, uses creativity and precision to ensure a solution, evaluates other solutions by considering multiple relevant scientific principles and several potential impacts, and analyzes the data from tests to design a new solution to better meet the criteria.
Earth-Moon-Sun	Has been exposed to and is working towards being able to use specific vocabulary to explain the Earth-Sun-Moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.	Recognizes or recalls specific vocabulary, describes the lunar phases, solar and lunar eclipses, and how the seasons are created.	Develops and uses a model of the Earth-Sun-Moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons (ESS1-1), (PS2-4).	Meets expectations and thinks critically to identify specific patterns, demonstrating an in depth understanding about the Earth-Sun-Moon system, cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.
Scale & Gravity in Solar System	Has been exposed to examples of and is working towards being able to use specific vocabulary to describe scale properties of objects in the solar system and the role of gravity in the motions within galaxies and the solar system.	Recognizes or recalls specific vocabulary to describe scale properties of objects in the solar system and the role of gravity in the motions within galaxies and the solar system.	Analyzes and interprets data to determine scale properties of objects in the solar system (ESS1-3) (PS2-4) and develops and uses a model to describe the role of gravity in the motions (elliptical orbits) within galaxies and the solar system (ESS1-2), (PS2-4).	Meets expectations and applies an in depth understanding about scale properties of objects in the solar system and applies an in depth understanding about the role of gravity in the motions that occur within galaxies and the solar system.

Grade 8 Science Proficiency Scale Quarter 2

	1 – Novice	2 - Approaching	3 - Proficient	4 -Advanced
ETS	Has been exposed to and is working towards being able to use the Engineering Design Process to identify and solve problems using criteria and constraints to produce viable solution(s).	Understands the Engineering Design Process OR uses the EDP to identify OR solve problems using criteria and constraints to produce viable solution(s).	Uses the Engineering Design Process (ETS1-1, ETS1-2, ETS1-3, ETS1-4) to identify and solve problems using criteria and constraints to produce viable solution(s).	Defines the criteria and constraints of a problem with authenticity, precision to ensure a solution, evaluates other solutions by considering multiple relevant scientific principles and several potential impacts, and analyzes the data from tests to design a new solution to better meet the criteria.
Rocks, Minerals & Rock Cycle	Has been introduced to the criteria required for substances to be considered mineral, physical properties of minerals, and the processes involved in mineral formation and is working towards being able to describe these. Has been exposed to and is working towards being able to classify the types of rocks and explain how minerals make up rocks. Has been exposed to the rock cycle and is working towards being able to develop a model of the rock cycle that demonstrates the cycling of Earth's materials.	Describes the criteria required for substances to be considered mineral AND/OR identifies physical properties of minerals AND/OR Recognizes or recalls specific vocabulary and describes the role of melting, crystallization, weathering, deformation, and sedimentation in the formation of minerals. Classifies 2 of the types of rocks and/or explains how minerals make up rocks. Develops a basic model of the rock cycle that demonstrates the cycling of Earth's materials and/or the flow of energy that drives this process. Recognizes or recalls specific vocabulary and describes the role of melting, crystallization, weathering, deformation, and sedimentation in the formation of rocks.	Describes the criteria required for substances to be considered a mineral, identifies physical properties of minerals, describes processes involved in mineral formation (ESS2-1). Classifies 2 of the types of rocks and/or explains how minerals make up rocks. Develops a basic model of the rock cycle that demonstrates the cycling of Earth's materials and/or the flow of energy that drives this process.	Meets expectations and applies an in depth understanding about the criteria and physical properties of minerals. Classifies the 3 types of rocks, explains how minerals make up rocks, and provides real-life examples. Develops a model of the rock cycle that demonstrates the cycling of Earth's materials and the flow of energy that drives this process and can apply it to real-world situations.
Plate Tectonics	Has been exposed to the distribution of fossils and rocks, continental shapes, and seafloor structures, and is working towards being able to analyze or interpret data.	Analyzes or interprets some data on the distribution of fossils and rocks, continental shapes, or seafloor structures to indicate past plate motions.	Analyzes and interprets data on the distribution of rocks and fossils, continental shapes, and seafloor structures to provide evidence of past plate motions (ESS2-3).	Analyzes and interprets a variety of data on the distribution of fossils and rocks, continental shapes, and seafloor structures, to provide evidence of past plate motions and uses the evidence to support a claim.

Grade 8 Science Proficiency Scale Quarter 3

	1 - Novice	2 - Approaching	3 - Proficient	4 - Advance
ETS	Has been exposed to and is working towards being able to use the Engineering Design Process to identify and solve problems using criteria and constraints to produce viable solution(s).	Understands the Engineering Design Process OR uses the EDP to identify OR solve problems using criteria and constraints to produce viable solution(s).	Uses the Engineering Design Process (ETS1-1, ETS1-2, ETS1-3, ETS1-4) to identify and solve problems using criteria and constraints to produce viable solution(s).	Defines the criteria and constraints of a problem with authenticity, precision to ensure a solution, evaluates other solutions by considering multiple relevant scientific principles and several potential impacts, and analyzes the data from tests to design a new solution to better meet the criteria.
Geoscience Processes	Has been exposed to forces acting on tectonic plates and is working towards being able to interpret how the location of these forces relates to boundary types. Is working towards being able to explain how plate movements have changed Earth's surface.	Interpret the different forces acting on tectonic plates and the location of where they occur in relation to boundary types OR student constructs an explanation based on evidence for how plate movements have changed Earth's surface.	Interprets the different forces acting on tectonic plates and the location of where they occur in relation to various boundary types (ESS2-3). Constructs an <u>explanation based on evidence</u> for how plate movements have changed Earth's surface (ESS2-2) and for how geoscience processes (earthquakes, volcanoes) have changed Earth's surface at varying time and spatial scales (ESS2-2).	Interprets the different forces acting on tectonic plates and the location of occurrence in relation to various boundary types. Constructs an explanation for how plate movements have changed Earth's surface and can incorporate the various boundary types into their explanation, constructs a claim, based on several points of evidence, which shows how geoscience processes have changed Earth's surface at varying time and spatial scales.
Catastrophic Events	Has been exposed to what causes earthquakes and volcanoes to form and to occur and is working towards being able to use data to predict future occurrences.	Explains what causes earthquakes and/or volcanoes to form and/or occur, can utilize data to predict future occurrences OR explains using limited evidence how geoscience processes have changed Earth's surface.	Explains what causes earthquakes and volcanoes to form and occur and utilizes data to predict future occurrences (ESS3-2).	Explains what causes earthquakes and volcanoes to form and occur, gives real world examples of each, and utilizes a variety of data to predict future occurrences.
Geological Time Scal	Has been exposed to and is working towards being able to construct a partial explanation based on rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.	Constructs a partial explanation based on rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.	Constructs a <u>scientific explanation based on evidence</u> from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history (ESS1-4). Analyzes and interprets data for patterns in the fossil record using the existence of organisms during a geologic time period (index fossil) to establish relative age (MS-LS4-1).	Meets expectations and is able to think critically about how data from patterns in the fossil record provide evidence for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.

Grade 8 Science Proficiency Scale Quarter 4

	1 - Novice	2 -Approaching	3 - Proficient	4 -Advanced
ETS	Has been exposed to and is working towards being able to uses the Engineering Design Process to identify and solve problems using criteria and constraints to produce viable solution(s).	Understands the Engineering Design Process OR uses the EDP to identify OR solve problems using criteria and constraints to produce viable solution(s).	Uses the Engineering Design Process (ETS1-1, ETS1-2, ETS1-3, ETS1-4) to identify and solve problems using criteria and constraints to produce viable solution(s).	Defines the criteria and constraints of a problem with authenticity, precision to ensure a solution, evaluates other solutions by considering multiple relevant scientific principles and several potential impacts, and analyzes the data from tests to design a new solution to better meet the criteria.
Air Masses & Climate Patterns (Weather)	Has been exposed to and is working towards being able to explain how the motions and complex interactions of air masses results in changes in weather conditions and how data is used to forecast future catastrophic events. Has engaged in practices and is working towards being able to describe how unequal heating and rotation of the Earth cause climate patterns of atmospheric and oceanic circulation that determine regional climates. Has been exposed to examples of and is working towards being able to describe the cycling of water through Earth's systems.	Uses the specific vocabulary to explain how the motions and complex interactions of air masses results in changes in weather conditions OR Uses specific vocabulary to explain natural hazards to forecast future catastrophic events and/or uses specific vocabulary to describe how unequal heating and rotation of the Earth cause climate patterns of atmospheric and oceanic circulation that determine regional climates and/or uses specific vocabulary to describe the cycling of water through Earth's systems.	Explains how the motions and complex interactions of air masses result in changes in weather conditions (ESS3-2), applies an understanding about how interpretation of data on natural hazards can be used to forecast future catastrophic events and inform the development of technologies to mitigate their effects, develops and uses a model to describe how energy transfer impacts atmospheric and oceanic circulation that determine regional climates (ESS2-6), and interprets a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity (ESS2-4).	Meets expectations and applies an in-depth understanding about how the motions and complex interactions of air masses results in changes in weather conditions. Applies an in-depth understanding about how interpretation of data on natural hazards can be used to forecast future catastrophic events and inform the development of technologies to mitigate their effects. Meets expectations and can demonstrates understanding about how unequal heating and rotation of the Earth cause climate patterns of atmospheric and oceanic circulation that determine regional climates. Meets expectations and applies an in depth understanding about the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.

<p style="text-align: center;">Human Impact & Climate Change</p>	<p>Is working towards being able to apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. Has been exposed to examples and is working towards being able to identify the factors that have caused the rise in global temperatures over the past century.</p>	<p>Applies basic scientific principles to design a method for monitoring and minimizing a human impact on the environment OR constructs an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems and/or uses specific vocabulary regarding the uneven distributions of Earth's mineral, energy, and groundwater resources. Uses specific vocabulary to identify the factors that have caused the rise in global temperatures over the past century.</p>	<p>Applies scientific principles to design a method for monitoring and minimizing a human impact on the environment (ESS3-3) AND <u>constructs an argument supported by evidence</u> for how increases in human population have an impact on consumption of natural resources (ESS3-4). <u>Constructs a scientific explanation based on evidence</u> for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes (ESS3-1). Uses evidence to identify and support the claim around the factors that have caused the rise in global temperatures over the past century (ESS3-5).</p>	<p>Meets expectations and applies an in depth understanding about human impact on the environment AND how increases in human population and per-capita consumption of natural resources impact Earth's systems. Applies an in depth understanding about how the uneven distributions of Earth's minerals, energy, and groundwater resources are the result of past and current geoscience processes, and can communicate how humans impact natural resources. Meets expectations and can demonstrate depth understanding about the factors that have caused the rise in global temperatures over the past century and can propose solutions.</p>
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