2020/2021 Cartersville Middle School Curriculum Map **Grade Level/Subject Area: 6th Grade Earth Science**

	Essential Standards	Essential Standard (s) Learning Targets	Supporting Standards	Supporting Standard (s) Learning Targets
Unit: Introduction to Earth Science **Estimated Teaching Time: 3.5 Weeks**	**Pre-Standard Essential Topics:** **Lab Safety**	I can demonstrate proper and safe techniques to use in the science lab.	Pre-Standard Supporting Topics: Branches of Earth Science Lab Equipment Scientific Method Metric Measurement Density	I can illustrate examples of various branches of Earth science. I can identify and describe functions of lab equipment. I can demonstrate the proper way to find and record data using a Celsius thermometer, triple beam balance, graduated cylinder and meter stick. I can conduct a scientific investigation using the steps of the scientific method. I can describe the concept of density and how it relates to various substances.

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Unit: **Minerals** **Estimated Teaching Time:** **3.5 Weeks**	**S6E5. Obtain, evaluate, and communicate information to show how Earth's surface is formed.** b. Plan and carry out an investigation of the characteristics of minerals, and how minerals contribute to rock composition.	1. I can plan and carry out an investigation of the characteristics of minerals and how minerals contribute to rock composition. 2. I can design and evaluate solutions for sustaining the quality and supply of natural resources such as water, soil (composed of minerals), and air.	**S6E6. Obtain, evaluate, and communicate information about the uses and conservation of various natural resources and how they impact the Earth.** b. Design and evaluate solutions for sustaining the quality and supply of natural resources such as water, soil, and air.	I can explain the four major characteristics of a mineral. I can identify minerals by examining their physical properties. I can demonstrate how mineral ore is extracted from the ground. I can identify examples of how minerals are used in our daily lives.
Unit: **Rocks & Weathering** **Estimated Teaching Time:** **4 Weeks**	**S6E5. Obtain, evaluate, and communicate information to show how Earth's surface is formed.**	I can describe how the three main types of rocks are formed. I can identify types of weathering, agents of erosion and transportation, and environments of deposition.	c. Construct an explanation of how to classify rocks by their formation and how rocks change through geologic processes in the rock cycle. d. Ask questions to identify types of weathering, agents of erosion and transportation, and environments of deposition. e. Develop a model to demonstrate how natural processes (weathering, erosion, and deposition) and human activity change rocks and the surface of the Earth.	I can describe the relationship between rocks and sediment. I can describe three types of rocks. I can illustrate the processes that change rocks from one type to another during the rock cycle.

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Unit: **Soil Formation** **Estimated Teaching Time:** **3 Weeks**	**S6E5. Obtain, evaluate, and communicate information to show how Earth's surface is formed.** d. Ask questions to identify types of weathering, agents of erosion and transportation, and environments of deposition.	I can identify the factors responsible for weathering, eroding and depositing soil.	e. Develop a model to demonstrate how natural processes (weathering, erosion, and deposition) and human activity change rocks and the surface of the Earth. h. Plan and carry out an investigation to provide evidence that soil is composed of layers of weathered rocks and decomposed organic material. **S6E6. Obtain, evaluate, and communicate information about the uses and conservation of various natural resources and how they impact the Earth.** b. Design and evaluate solutions for sustaining the quality and supply of natural resources such as water, soil, and air.	I can illustrate a soil profile, including defining soil horizons by composition and physical properties. I can describe the effects of human activity to improve or deteriorate soil quality.

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Unit: Plate Tectonics **Estimated Teaching Time: 4 Weeks**	**S6E5. Obtain, evaluate, and communicate information to show how Earth's surface is formed.**	I can explain The Theory of Continental Drift and Plate Tectonics.	a. Ask questions to compare and contrast the Earth's crust, mantle, inner and outer core, including temperature, density, thickness, and composition. f. Construct an explanation of how the movement of lithospheric plates, called plate tectonics, can cause major geologic events such as earthquakes and volcanic eruptions. g. Construct an argument using maps and data collected to support a claim of how fossils show evidence of the changing surface and climate of the Earth.	I can describe how Earth's layers are different from one another. I can create a model of the interior of the Earth. I can describe the three types of boundary movements. I can describe the process of sea-floor spreading. I can explain why older rocks and fossils are at the bottom of the geologic column.

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Unit: Astronomy **Estimated Teaching Time: 6 Weeks**	**S6E1. Obtain, evaluate, and communicate information about current scientific views of the universe and how those views evolved.** **S6E2. Obtain, evaluate, and communicate information about the effects of the relative positions of the sun, Earth, and moon.**	I can explain how the universe began according to the Big Bang Theory. I can describe the relative locations & sizes of planets and other objects in our solar system.	**S6E1.** a. Ask questions to determine changes in models of Earth's position in the solar system, and origins of the universe as evidence that scientific theories change with the addition of new information. b. Develop a model to represent the position of the solar system in the Milky Way galaxy and in the known universe. c. Analyze and interpret data to compare and contrast the planets in our solar system in terms of: •size relative to Earth, •surface and atmospheric features, • relative distance from the sun, and • ability to support life. d. Develop and use a model to explain the interaction of gravity and inertia that governs the motion of objects in the solar system. e. Ask questions to compare and contrast the characteristics, composition, and location of comets, asteroids, and meteoroids. **S6E2.** a. Develop and use a model to demonstrate the phases of the moon by showing the relative positions of the sun, Earth, and moon. b. Construct an explanation of the cause of solar and lunar eclipses. c. Analyze and interpret data to relate the tilt of the Earth to the distribution of sunlight throughout the year and its effect on seasons.	I can describe and illustrate the terms heliocentric and geocentric as they refer to how our knowledge of the solar system has changed over time. I can explain and demonstrate the difference between revolution and rotation. I can explain the difference between a planet and a dwarf planet. I can differentiate among comets, asteroids, and meteoroids, including their motion and composition. I can explain the difference between an equinox and a solstice. I can explain why the moon appears to change shape and identify different moon phases by name. I can construct a model of the Sun, Moon and Earth. I can use the model to demonstrate relative positions during tides, moon phases, and eclipses.

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Unit: Hydrology **Estimated Teaching Time: 4 Weeks**	**S6E3. Obtain, evaluate, and communicate information to recognize the significant role of water in Earth processes.**	I can explain the processes that occur during the water cycle.	a. Ask questions to determine where water is located on Earth's surface (oceans, rivers, lakes, swamps, groundwater, aquifers, and ice) and communicate the relative proportion of water at each location. b. Plan and carry out an investigation to illustrate the role of the sun's energy in atmospheric conditions that lead to the cycling of water. (Clarification statement: The water cycle should include evaporation, condensation, precipitation, transpiration, infiltration, groundwater, and runoff.) c. Ask questions to identify and communicate, using graphs and maps, the composition, location, and subsurface topography of the world's oceans. d. Analyze and interpret data to create graphic representations of the causes and effects of waves, currents, and tides in Earth's systems.	I can describe how the moon affects the water on Earth. I can describe and illustrate the major features of the ocean floor. I can describe the cause and effect of ocean currents. I can explain the causes and effects of waves.

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Unit: Meteorology **Estimated Teaching Time: 4 Weeks**	**S6E4. Obtain, evaluate, and communicate information about how the sun, land, and water affect climate and weather.**	I can list and explain various factors that determine the climate and weather of an area.	a. Analyze and interpret data to compare and contrast the composition of Earth's atmospheric layers (including the ozone layer) and greenhouse gases. (Clarification statement: Earth's atmospheric layers include the troposphere, stratosphere, mesosphere, and thermosphere.) b. Plan and carry out an investigation to demonstrate how energy from the sun transfers heat to air, land and water at different rates. (Clarification statement: Heat transfer should include the processes of conduction, convection, and radiation.) c. Develop a model demonstrating the interaction between unequal heating and the rotation of the Earth that causes local and global wind systems. d. Construct an explanation of the relationship between air pressure, weather fronts, and air masses and meteorological events such as tornados and thunderstorms. e. Analyze and interpret weather data to explain the effects of moisture evaporating from the ocean on weather patterns and weather events such as hurricanes.	I can name and describe weather instruments that meteorologists use to forecast weather. I can explain the formation of a thunderstorm I can explain how latitude and altitude affects the climate of an area. I can create a weather map using various weather symbols to illustrate current weather conditions.

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Unit: Conservation **Estimated Teaching Time: 2 Weeks**	**S6E6. Obtain, evaluate, and communicate information about the uses and conservation of various natural resources and how they impact the Earth.**	I can list and explain various reasons why we should conserve natural resources.	a. Ask questions to determine the differences between renewable/sustainable energy resources (examples: hydro, solar, wind, geothermal, tidal, biomass) and nonrenewable energy resources (examples: nuclear: uranium, fossil fuels: oil, coal, and natural gas), and how they are used in our everyday lives. b. Design and evaluate solutions for sustaining the quality and supply of natural resources such as water, soil, and air. c. Construct an argument evaluating contributions to the rise in global temperatures over the past century.	I can distinguish between renewable and nonrenewable natural resources. I can describe the causes and effects of Global Warming. I can help persuade others to impact Earth positively by creating and hanging conservation posters.