Earth Science - Year-at-a-Glance

Unit 1: Earth's Structure and Mapping	Unit 2: Rocks and Minerals	Unit 3: Earthquakes and Volcanoes
Essential Learning: a. TSW describe the compositional and structural composition of the Earth's b. TSW apply their knowledge of latitude and longitude to locate places on Earth c. TSW analyze and interpret the topography of landscapes while utilizing map scales and keys **Missouri Learning Standards Aligned:** ● ESS2.A.3: Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection.	**Essential Learning:** a. TSW compare the parts of the atom and use these to explain their arrangement on the periodic table b. TSW compare the main groups of minerals and use physical characteristics to differentiate between them c. TSW Explain the process of formation of the 3 major rock types. d. TSW Analyze and classify the major rocks types according to their composition and texture. **Missouri Learning Standards Aligned:** ● PS1.A.1: Use the organization of the periodic table to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms. ● ESS1.C.1: Evaluate evidence of the past and current movements of continental and oceanic crust, the theory of plate tectonics, and relative densities of oceanic and continental rocks to explain why continental rocks are generally much older than rocks of the ocean floor.	**Essential Learning:** a. TSW analyze the evidence behind the theories of plate tectonics and continental drift b. TSW Identify and describe the 3 plate boundaries and recognize the features or events that occur at each. c. TSW Compare and contrast the 3 types of seismic waves and analyze how scientists use them to determine the epicenter of an Earthquake d. TSW Differentiate between the 3 types of volcanoes, including where they form, the type of lava associated with each, and their composition. **Missouri Learning Standards Aligned:** ● ESS1.C.1: Evaluate evidence of the past and current movements of continental and oceanic crust, the theory of plate tectonics, and relative densities of oceanic and continental rocks to explain why continental rocks are generally much older than rocks of the ocean floor. ● ESS2.A.1: Develop a model to illustrate how Earth's interior and surface processes (constructive and destructive) operate at different spatial and temporal scales to form continental and ocean-floor features. ● ESS2.A.3: Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection.
Unit 4: Surface Processes	**Unit 5: Earth's Atmosphere**	**Unit 6: Space**
Essential Learning: a. TSW Compare the processes of weathering and erosion and recognize the factors that affect these processes b. TSW Describe the formation of a stream, how it erodes, and the features that are formed from it c. TSW recognize erosional processes and depositional features of wind and glaciers **Missouri Learning Standards Aligned:** ● ESS2.C: Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.	**Essential Learning:** a. TSW compare the composition and properties of the atmospheric layers b. TSW explain how moisture affects the atmosphere and processes of weather c. TSW compare the formation and conditions necessary of thunderstorms, tornadoes, and hurricanes **Missouri Learning Standards Aligned:** ● ESS2.D: Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.	**Essential Learning:** a. TSW Evaluate the effects of the relative positions of the Earth, moon, and sun on observable phenomena, e.g. phases of the moon, eclipses, seasons, and diurnal cycles. b. TSW Evaluate the types of telescopes used by astronomers for examining different frequencies of electromagnetic radiation and compare and contrast the uses and advantages of each (e.g. radio, visible, gamma ray, reflector, and refractor). c. TSW Describe the life cycle of a star and explain the role gravity and mass play in the brightness, lifespan, and end-stages of stars. d. TSW Compare and contrast the major properties of the components of our solar system. **Missouri Learning Standards Aligned:** ● ESS1.B.1: Use Kepler's Law to predict the motion of orbiting objects in the solar system. ● ESS1.A.2: Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe. ● ESS1.A.3: Communicate scientific ideas about the way stars, over their life cycle, produce elements.

Bolded Missouri Learning Standards are Essential Standards. Students not proficient will participate in additional interventions to help student master the standard.

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Approved by Harrisonville Cass R-IX School District Board of Education on: