

## Earth Science CR

State Standard Number	State Standard Area/Description	Unit Name	Course Topic Description
0	Scientific processes.		
112.49.1	The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices.		
112.49.1.A	demonstrate safe practices during field and laboratory investigations;		
112.49.1.B	make wise choices in the use and conservation of resources and the disposal or recycling of materials.		
112.49.2	The student uses scientific methods during field and laboratory investigations.		
112.49.2.A	plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology;	Introduction to Earth Science	Scientific Method
112.49.2.B	collect data and make measurements with precision;	Introduction to Earth Science	Scientific Method Measurement
112.49.2.C	organize, analyze, evaluate, make inferences, and predict trends from data;	Introduction to Earth Science	Scientific Method
112.49.2.D	communicate valid conclusions.	Introduction to Earth Science	Scientific Method
112.49.3	The student uses critical thinking and scientific problem solving to make informed decisions.		
112.49.3.A	analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information;		

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112.49.3.B	draw inferences based on data related to promotional materials for products and services;		
112.49.3.C	evaluate the impact of research on scientific thought, society, and the environment;	Introduction to Earth Science	Downsides to Technology
112.49.3.D	describe the connections between geology, meteorology, oceanography, and future careers;	Introduction to Earth Science	What is Earth Science? Branches of Earth Science
112.49.3.E	research and describe the history of geology, meteorology, oceanography, and contributions of scientists.	Introduction to Earth Science	Geology Oceanography Meteorology Branches of Earth Science
0	Science concepts.		
112.49.4	The student knows the Earth's unique characteristics and conditions.		
112.49.4.A	research and describe the Earth's unique placement in the solar system;	Introduction to Earth Science	A Unique Earth

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112.49.4.B	analyze conditions on Earth that enable organisms to survive.	Introduction to Earth Science	A Unique Earth
112.49.5	The student knows about the formation and history of the Earth.		
112.49.5.A	research and describe the historical development of scientific theories of the Earth's formation;		
112.49.5.B	use current theories to design and construct a geologic time scale.	Geologic Time, Relative Age Dating, and Absolute Age Dating	Relative Time, Fossils, Rocks, and Faunal Succession
112.49.6	The student knows the processes of plate tectonics.		
112.49.6.A	research and describe the historical development of the theories of plate tectonics including continental drift and sea-floor spreading;	Interior of the Earth	Plate Tectonics
112.49.6.B	analyze the processes that power the movement of the Earth's continental and oceanic plates and identify the effects of this movement including faulting, folding, earthquakes, and volcanic activity;	Interior of the Earth	Plate Tectonics
112.49.6.C	analyze methods of tracking continental and oceanic plate movement.	Interior of the Earth	Plate Tectonics

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112.49.7	The student knows the origin and composition of minerals and rocks and the significance of the rock cycle.		
112.49.7.A	demonstrate the density, hardness, streak, and cleavage of particular minerals;	Earth's Minerals	Identifying Minerals: Luster and Hardness Color, Streak, Cleavage and Fracture, and Other Properties
112.49.7.B	identify common minerals and describe their economic significance;	Earth's Minerals	The Importance of Minerals
112.49.7.C	classify rocks according to how they are formed during a rock cycle;	Earth's Minerals	Igneous Rocks Sedimentary Rocks Metamorphic Rocks
112.49.7.D	examine and describe conditions such as depth of formation, rate of cooling, and mineral composition that are factors in the formation of rock types.	Earth's Minerals	Igneous Rocks Sedimentary Rocks Metamorphic Rocks
112.49.8	The student knows the processes and end products of weathering.		
112.49.8.A	distinguish chemical from mechanical weathering and identify the role of weathering agents such as wind, water, and gravity;	The Surface of the Earth	Mechanical Weathering Chemical Weathering Erosional Forces
112.49.8.B	identify geologic formations that result from differing weathering processes;	The Surface of the Earth	Mechanical Weathering Chemical Weathering Erosional Forces

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112.49.8.C	illustrate the role of weathering in soil formation.	The Surface of the Earth	Soil Formation
112.49.9	The student knows the role of natural energy resources.		
112.49.9.A	research and describe the origin of fossil fuels such as coal, oil, and natural gas;	Earth's Environment	From Fossil Fuels to Renewable Energy
112.49.9.B	analyze issues regarding the use of fossil fuels and other renewable, non-renewable, or alternative energy resources;	Earth's Environment	From Fossil Fuels to Renewable Energy
112.49.9.C	analyze the significance and economic impact of the use of fossil fuels and alternative energy resources.		
112.49.10	The student knows the interactions that occur in a watershed.		
112.49.10.A	identify the characteristics of a local watershed such as average annual rainfall, run-off patterns, aquifers, locations of river basins, and surface water reservoirs;		
112.49.10.B	analyze the impact of floods, droughts, irrigation, and industrialization on a watershed;		

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112.49.10.C	describe the importance and sources of surface and subsurface water.	The World's Water	Surface Runoff Groundwater
112.49.11	The student knows characteristics of oceans.		
112.49.11.A	identify physical characteristics of ocean water including salinity, solubility, heat capacity, colligative properties, and density;	The World's Water	Characteristics of Ocean Water
112.49.11.B	evaluate the effects of tides, tidal bores, and tsunamis;		
112.49.11.C	compare the topography of the ocean floor to the topography of the continents.	The Word's Water	Introduction
112.49.12	The student knows the characteristics of the atmosphere.		
112.49.12.A	identify the atmosphere as a mixture of gases, water vapor, and particulate matter;	Atmosphere and Climate	Structure of Atmosphere
112.49.12.B	analyze the range of atmospheric conditions that organisms will tolerate including types of gases, temperature, particulate matter, and moisture;		

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112.49.12.C	determine the impact on the atmosphere of natural events and human activity.	Atmosphere and Climate	Greenhouse Effect
112.49.13	The student knows the role of energy in governing weather and climate.		
112.49.13.A	describe the transfer of heat energy at the boundaries between the atmosphere, land masses, and oceans resulting in layers of different temperatures and densities in both the ocean and atmosphere;	Atmosphere and Climate The World's Water	Structure of Atmosphere Heat and Energy Density
112.49.13.B	identify, describe, and compare climatic zones;		
112.49.13.C	describe the effects of phenomena such as El Niño and the Jet Stream on local weather.		