



Alignment Document
State of Montana and Aventa Learning Earth Science

Earth Science

Standards	Benchmarks	Unit Name	Course Topic Description
<p>1 Students, through the inquiry process, demonstrate the ability to design, conduct, evaluate, and communicate results and reasonable conclusions of scientific investigations.</p>	<p>1.1 generate a question, identify dependent and independent variables, formulate testable, multiple hypotheses, plan an investigation, predict its outcome, safely conduct the scientific investigations, and collect and analyze data</p>		
	<p>1.2 select and use appropriate tools including technology to make measurements (in metric units), gather, process and analyze data from scientific investigations using appropriate mathematical analysis, error analysis, and graphical representation</p>		
	<p>1.3 review evidence, communicate and defend results, and recognize that the results of a scientific investigation are always open to revision by further investigations. (e.g. through graphical representation or charts)</p>		
	<p>1.4 analyze observations and explain with scientific understanding to develop a plausible model (e.g., atom, expanding universe)</p>		
	<p>1.5 identify strengths, weaknesses, and assess the validity of the experimental design of an investigation through analysis and evaluation</p>		
	<p>1.6 explain how observations of nature form an essential base of knowledge among the</p>		

	Montana American Indians		
4 Students, through the inquiry process, demonstrate knowledge of the composition, structures, processes and interactions of Earth's systems and other objects in space.	4.1 understand the theory of plate tectonics and how it explains the inter-relationship between earthquakes, volcanoes, and sea floor spreading	Plate Tectonics, Volcanoes, Earthquakes, & Deformation	Plate Tectonics
	4.2 identify and classify rocks and minerals based on physical and chemical properties and the utilization by humans (e.g., natural resources, building materials)		
	4.3 explain scientific theories about how fossils are used as evidence of changes over time	Geologic Time, Relative Age Dating, and Absolute Age Dating	Rocks and Layers
	4.4 collect and analyze local and regional weather data to make inferences and predictions about weather patterns; explain factors influencing global weather and climate; and describe the impact on earth of fluctuations in weather and climate (e.g., drought, surface and ground water, glacial instability)		
	4.5 explain the impact of terrestrial, solar, oceanic, and atmosphere conditions on global climatic patterns		
	4.6 describe the origin, location, and evolution of stars and their planetary systems in respect to the solar system, the milky way, the local galactic group, and the universe		
	4.7 relate how evidence from advanced technology applied to scientific investigations (e.g., large telescopes and space-borne observatories), has dramatically impacted our understanding of the origin, size, and evolution of the universe	Astronomy	Looking into Space
5 Students, through the inquiry process, understand how scientific knowledge and technological	5.1 predict how key factors (e.g., technology, competitiveness, and world events) affect the development and acceptance of scientific		



developments impact communities, cultures and societies.	thought		
	5.2 give examples of scientific innovation challenging commonly held perceptions		
	5.3 evaluate the ongoing, collaborative scientific process by gathering and critiquing information		
	5.4 analyze benefits, limitations, costs, consequences, and ethics involved in using scientific and technological innovations (e.g., biotechnology, environmental issues)		
	5.5 explain how the knowledge of science and technology applies to contemporary Montana American Indian communities (e.g., natural resources development, management and conservation)		
6 Students understand historical developments in science and technology.	6.1 analyze and illustrate the historical impact of scientific and technological advances, including Montana American Indian examples		
	6.2 trace developments that demonstrate scientific knowledge is subject to change as new evidence becomes available		
	6.3 describe, explain, and analyze science as a human endeavor and an ongoing process		