AVENTA LEARNING

Alignment Document
State of South Dakota and Aventa Learning Earth Science

Earth Science

Goals	Indicators	Standards	Unit Name	Course Topic Description
1 Students will explore, evaluate, and communicate personal and scientific investigations to understand the nature of science.	**1.1** Understand the nature and origin of scientific knowledge.	**9-12.N.1.1** Students are able to evaluate a scientific discovery to determine and describe how societal, cultural, and personal beliefs influence scientific investigations and interpretations.		
		9-12.N.1.1.a Recognize scientific knowledge is not merely a set of static facts but is dynamic and affords the best current explanations.		
		9-12.N.1.1.b Discuss how progress in science can be affected by social issues.		
		9-12.N.1.2 Students are able to describe the role of observation and evidence in the development and modification of hypotheses, theories, and laws.	Planet Earth	Think Like an Earth Scientist
		9-12.N.1.2.a Research, communicate, and support a scientific argument.		
		9-12.N.1.2.b Recognize and analyze alternative explanations and models.		
		9-12.N.1.2.c Evaluate the scientific accuracy of information relevant to a specific issue (pseudo-science).		
	1.2 Apply the skills necessary to conduct scientific investigations.	**9-12.N.2.1** Students are able to apply science process skills to design and conduct student investigations.		
		9-12.N.2.1.a Identify the questions and	Planet Earth	Think Like an Earth Scientist

		concepts to guide the development of hypotheses.		
		9-12.N.2.1.b Analyze primary sources of information to guide the development of the procedure.		
		9-12.N.2.1.c Select and use appropriate instruments to extend observations and measurements.		
		9-12.N.2.1.d Revise explanations and models based on evidence and logic.		
		9-12.N.2.1.e Use technology and mathematic skills to enhance investigations, communicate results, and defend conclusions.		
		9-12.N.2.2 Students are able to practice safe and effective laboratory techniques.		
		9-12.N.2.2.a Handle hazardous materials properly.		
		9-12.N.2.2.b Use safety equipment correctly.		
		9-12.N.2.2.c Practice emergency procedure.		
		9-12.N.2.2.d Wear appropriate attire.		
		9-12.N.2.2.e Practice safe behaviors.		
4 Students will analyze the composition, formative processes, and history of the universe, solar system, and Earth.	**4.1** Analyze the various structures and processes of the Earth system.	**9-12.E.1.1** Students are able to explain how elements and compounds cycle between living and non-living systems.	Planet Earth	Earth as a Complex System
		9-12.E.1.1.a Diagram and describe the N, C, O and H2O cycles.		
		9-12.E.1.1.b Describe the importance of the N, C, O and H2O cycles to life on this planet.		
		9-12.E.1.2 Students are able to describe how atmospheric chemistry may affect global climate.	Atmosphere and Climate	Structure of the Atmosphere

		9-12.E.1.3 Students are able to assess how human activity has changed the land, ocean, and atmosphere of Earth.		
	4.2 Analyze essential principles and ideas about the composition and structure of the universe.	**9-12.E.2.1** Students are able to recognize how Newtonian mechanics can be applied to the study of the motions of the solar system.		
		9-12.E.2.1.a Given a set of possible explanations of orbital motion (revolution), identify those that make use of gravitational forces and inertia.		
5 Students will identify and evaluate the relationships and ethical implications of science upon technology, environment, and society.	**5.1** Analyze various implications/effects of scientific advancement within the environment and society.	**9-12.S.1.1** Students are able to explain ethical roles and responsibilities of scientists and scientific research.		
		9-12.S.1.2 Students are able to evaluate and describe the impact of scientific discoveries on historical events and social, economic, and ethical issues.		
	5.2 Analyze the relationships/interactions among science, technology, environment, and society.	**9-12.S.2.1** Students are able to describe immediate and long-term consequences of potential solutions for technological issues.		
		9-12.S.2.1.a Describe how the pertinent technological system operates.		
		9-12.S.2.2 Students are able to analyze factors that could limit technological design.		
		9-12.S.2.3 Students are able to analyze and describe the benefits, limitations, cost, and consequences involved in using, conserving, or recycling resources.		