



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

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

		<p>9-12.E.1.3 Students are able to assess how human activity has changed the land, ocean, and atmosphere of Earth.</p>		
	<p>4.2 Analyze essential principles and ideas about the composition and structure of the universe.</p>	<p>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.</p>		
		<p>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.</p>		
<p>5 Students will identify and evaluate the relationships and ethical implications of science upon technology, environment, and society.</p>	<p>5.1 Analyze various implications/effects of scientific advancement within the environment and society.</p>	<p>9-12.S.1.1 Students are able to explain ethical roles and responsibilities of scientists and scientific research.</p>		
	<p>5.2 Analyze the relationships/interactions among science, technology, environment, and society.</p>	<p>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.</p>		
		<p>9-12.S.2.1 Students are able to describe immediate and long-term consequences of potential solutions for technological issues.</p>		
		<p>9-12.S.2.1.a Describe how the pertinent technological system operates.</p>		
<p>9-12.S.2.2 Students are able to analyze factors that could limit technological design.</p>				
<p>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.</p>				