

**Telluride School District
Sixth Grade Science**

Fertile Questions:							
Standard		Student Outcomes		Process Skills	Activity/Lesson/Lab	Resources	Assessment
1. Physical Science	1. All matter is made of atoms, which are far too small to see directly through a light microscope. Elements have unique atoms and thus, unique properties. Atoms themselves are made of even smaller particles	<p>Students can:</p> <p>a. Identify evidence that suggests there is a fundamental building block of matter</p> <p>b. Use the particle model of matter to illustrate characteristics of different substances</p> <p>c. Develop an evidence based scientific explanation of the atomic model as the foundation for all chemistry</p> <p>d. Find and evaluate appropriate information from reference books, journals, magazines, online references, and databases to compare and contrast historical explanations for the nature of matter</p>			<p>1a., 1b. Vocab activities</p> <p>1a., 1b. Guided notes</p> <p>1a., 1b. CPO investigation 18.2</p> <p>Atoms Family</p> <p>1c. not yet</p> <p>1d. not yet</p>	<p>CPO gear</p> <p>Prentice-Hall texts</p> <p>CPO text</p> <p>6th grade team</p> <p>Jeremy Voytko</p> <p>Unitedstreaming</p> <p>Molecule models</p>	<p>Tests</p> <p>Quizzes</p> <p>Atom game</p>
	2. Atoms may stick together in well-defined molecules or be packed together in large arrangements. Different arrangements of atoms into groups compose all substances.	<p>Students can:</p> <p>a. Explain the similarities and differences between elements and compounds</p> <p>b. Identify evidence suggesting that atoms form into molecules with different properties than their components</p> <p>c. Find and evaluate information from a variety of resources about molecules</p>		<p>Invention: Students will synthesize information from multiple sources and apply new ways to solve problems for their cognitive process</p> <p>Critical Thinking and Reasoning: Students will: argue a point; justify reasoning; evaluate for purpose; infer to predict and draw conclusions; problem solve; understand and use logic</p>	<p>2 - Vocab activities</p> <p>Guided notes</p> <p>Digestion jigsaw</p> <p>Macronutrient lab</p> <p>Macronutrient posters</p> <p>USDA Mypyramid</p> <p>webquest</p> <p>Lunch menu analysis</p> <p>Thanksgiving analysis</p>	<p>Food Lab</p> <p>chemicals – Sudan</p> <p>Red, Biuret solution, Iodine, blended food</p> <p>USDA materials</p>	<p>Tests</p> <p>Quizzes</p> <p>Classroom activities</p> <p>Food PBL project</p> <p>B</p>
	3. The physical characteristics and changes of solid, liquid, and gas states can be explained using the particulate model	<p>Students can:</p> <p>a. Explain how the arrangement and motion of particles in a substance such as water determine its state</p> <p>b. Distinguish between changes in temperature and changes of state using the particle model of matter</p>		<p>Invention: Students will synthesize information from multiple sources and apply new ways to solve problems for their cognitive process</p> <p>Collaboration: Students will participate in peer review; respectfully discourse; mediate opposing perspectives; understand and apply knowledge of culture; seek other's ideas</p> <p>Critical Thinking and Reasoning: Students will: argue a point; justify reasoning; evaluate for purpose; infer to predict and draw conclusions; problem solve; understand and use</p>	<p>3 - Phase/temperature note chart</p> <p>Making Ice Cream</p>	<p>Unitedstreaming</p> <p>half –n-half, ice, rock salt, vanilla, chocolate chips, mint, plastic bags</p>	<p>Tests</p> <p>Quizzes</p> <p>Classroom activities</p> <p>Making Ice Cream explanation</p>

			logic			
	4. Distinguish among, explain, and apply the relationships among mass, weight, volume, and density	<p>Students can:</p> <p>a. Explain that the mass of an object does not change, but its weight changes based on the gravitational forces acting upon it</p> <p>b. Predict how changes in acceleration due to gravity will affect the mass and weight of an object</p> <p>c. Predict how mass, weight, and volume affect density</p> <p>d. Measure mass and volume, and use these quantities to calculate density</p> <p>e. Use tools to gather, view, analyze, and report results for scientific investigations about the relationships among mass, weight, volume, and density</p>	<p>Invention: Students will synthesize information from multiple sources and apply new ways to solve problems for their cognitive process</p> <p>Critical Thinking and Reasoning: Students will: argue a point; justify reasoning; evaluate for purpose; infer to predict and draw conclusions; problem solve; understand and use logic</p>	4 -Measurement packets 4c – 4e Density columns 4c – 4e Soap Float 4c – 4e Gummy Bear density lab	<p>Rulers</p> <p>Balances</p> <p>Calculators</p> <p>Soap</p> <p>Gummy bears</p> <p>Liquid soap</p> <p>Food coloring</p> <p>Corn syrup</p> <p>Vegetable oil</p> <p>Vials</p> <p>Random objects</p> <p>Graduated cylinders</p>	
Earth Systems Science	1. Complex interrelationships exist between Earth's structure and natural processes that over time are both constructive and destructive	<p>1. Students can:</p> <p>a. Gather, analyze, and communicate an evidence-based explanation for the complex interaction between Earth's constructive and destructive forces</p> <p>b. Gather, analyze and communicate evidence from text and other sources that explains the formation of Earth's surface features</p> <p>c. Use or create a computer simulation for Earth's changing crust</p>	<p>Collaboration: Students will participate in peer review; respectfully discourse; mediate opposing perspectives; understand and apply knowledge of culture; seek other's ideas</p> <p>Critical Thinking and Reasoning: Students will: argue a point; justify reasoning; evaluate for purpose; infer to predict and draw conclusions; problem solve; understand and use logic</p>	1. Not yet, but used to do it in 8 th grade. Maybe create a unit on plate tectonics – webquest to find out about plates, then learn about mountains, earthquakes and volcanoes. Add a tech component to simulate the creation of one of those.		
	2. Water on Earth is distributed and circulated through oceans, glaciers, rivers, ground water, and the atmosphere	<p>2. Students can:</p> <p>a. Gather and analyze data from a variety of print resources and investigations to account for local and world-wide water circulation and distribution patterns</p> <p>b. Use evidence to model how water is transferred throughout the earth</p> <p>c. Identify problems, and propose solutions related to water quality, circulation, and distribution – both locally and worldwide</p> <p>d. Identify the various causes and effects</p>	<p>Invention: Students will synthesize information from multiple sources and apply new ways to solve problems for their cognitive process</p> <p>Collaboration: Students will participate in peer review; respectfully discourse; mediate opposing perspectives; understand and apply knowledge of culture; seek other's ideas</p> <p>Critical Thinking and Reasoning: Students will: argue a point; justify reasoning; evaluate for purpose; infer to predict and draw conclusions; problem solve; understand and use</p>	2. Didn't get to this. I will need to find out what happens in 4/5, build on that, and make sure I do not step on MS toes.		

		of water pollution in local and world water distributions e. Describe where water goes after it is used in houses or buildings		logic Information Literacy: Students will: Evaluate information critically and competently; accessing appropriate tools to synthesize information distinguish fact/fiction/opinion/ point of view				
	3. Earth's natural resources provide the foundation for human society's physical needs. Many natural resources are nonrenewable on human timescales, while others can be renewed or recycled	Students can: a. Research and evaluate data and information to learn about the types and availability of various natural resources, and use this knowledge to make evidence-based decisions b. Identify and evaluate types and availability of renewable and nonrenewable resources c. Use direct and indirect evidence to determine the types of resources and their applications used in communities d. Research and critically evaluate data and information about the advantages and disadvantages of using fossil fuels and alternative energy sources		Invention: Students will synthesize information from multiple sources and apply new ways to solve problems for their cognitive process Collaboration: Students will participate in peer review; respectfully discourse; mediate opposing perspectives; understand and apply knowledge of culture; seek other's ideas Critical Thinking and Reasoning: Students will: argue a point; justify reasoning; evaluate for purpose; infer to predict and draw conclusions; problem solve; understand and use logic Information Literacy: Students will: Evaluate information critically and competently; accessing appropriate tools to synthesize information distinguish fact/fiction/opinion/ point of view		3. Currently modifying my unit from 8 th grade. See below, Life Science #1.		
Life Science	1. Changes in environmental conditions can affect the survival of individual organisms, populations, and entire species	Students can: a. Interpret and analyze data about changes in environmental conditions – such as climate change – and populations that support a claim describing why a specific population might be increasing or decreasing b. Develop, communicate, and justify an evidence-based explanation about how ecosystems interact with and impact the global environment c. Model equilibrium in an ecosystem, including basic inputs and outputs, to predict how a change to that ecosystem such as climate change might impact the organisms, populations, and species within it such as the removal of a top predator or introduction of a new species d. Examine, evaluate, question, and		Invention: Students will synthesize information from multiple sources and apply new ways to solve problems for their cognitive process Collaboration: Students will participate in peer review; respectfully discourse; mediate opposing perspectives; understand and apply knowledge of culture; seek other's ideas Critical Thinking and Reasoning: Students will: argue a point; justify reasoning; evaluate for purpose; infer to predict and draw		1. Environmental Research project: Students are exposed to three issues (biodiversity, climate change and consumption), choose one to research and then write a persuasive essay in response to a prompt. - webquest - skits - renewable energy activities - recycling workshop - research - persuasive essay	Eco packets Computers Webquest Books Mrs. Hubbard Ms. Jacquie TNCC Renewable energy kits	Webquests Project assignments -note -outline -rough draft -final paper -experimental design

		ethically use information from a variety of sources and media to investigate how environmental conditions affect the survival of individual organisms					
	2. Organisms interact with each other and their environment in various ways that create a flow of energy and cycling of matter in an ecosystem	<p>Students can:</p> <p>a. Develop, communicate, and justify an evidence-based explanation about why there generally are more producers than consumers in an ecosystem</p> <p>b. Design a food web diagram to show the flow of energy through an ecosystem</p> <p>c. Compare and contrast the flow of energy with the cycling of matter in ecosystems</p>				2. Haven't yet developed this one, but it will be the lead-in to the research project described in Life Science #1.	
Scientific Method	No longer exists, but this foundation still needs to be				Think Like a Scientist Only Queens . . . Scenarios Simpsons	Prentice-Hall texts Simpsons sheet Bouncy balls Gummy Bears	Tests Quizzes Classroom activities Science fair project

	established.				Bouncy Ball lab Science Fair Gummy Bears Experimental Design		
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