

Earth Science UbD – 9th Grade – Weathering & Erosion: January/February

Stage 1 - Desired Results					
<p>ESTABLISHED GOALS (CCSS)</p> <p>RST 9.2 - Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.</p> <p>RST 9.3 - Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.</p> <p>RST 9.4 - Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to <i>grades 9-10 texts and topics</i>.</p> <p>RST 9.7 - Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.</p> <p>RST 9.9 - Compare and contrast findings presented in a text to those from other sources (including their own</p>	Transfer				
	<p><i>Students will be able to independently use their learning to...</i></p> <p>Recognize changes in landforms and the landscape caused by the forces of weathering and erosion.</p> <p>Identify the conditions that caused different types of weathering and erosion and their effects over time.</p> <p>Describe the different agents of weathering and erosion and where each will primarily occur.</p>				
	Meaning				
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: left; background-color: #e0e0e0;">UNDERSTANDINGS <i>Students will understand that...</i></th> <th style="width: 50%; text-align: left; background-color: #e0e0e0;">ESSENTIAL QUESTIONS:</th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top;"> <p>There is a difference between weathering & erosion.</p> <p>Most weathering & erosion involves water.</p> <p>Weathering involves both physical and chemical changes.</p> <p>Types and rates of weathering are determined by climate, rock type, and other factors.</p> <p>Soil, an important resource, is a product of weathering and erosion.</p> <p>Besides natural cycles, humans have also played a role in weathering and erosion.</p> </td> <td style="vertical-align: top;"> <p>What is weathering?</p> <p>What is the difference between weathering and erosion?</p> <p>What are the 2 types of weathering?</p> <p>What is the most damaging weathering process?</p> <p>What compound is always associated with chemical weathering?</p> <p>What are some examples of chemical weathering?</p> <p>How does the amount of surface area exposed relate to the rate of weathering?</p> <p>Under what conditions will rock weather more quickly?</p> <p>Under what conditions will rock take longer to weather?</p> <p>Why is good soil important?</p> <p>What are the 3 main parts of soil?</p> <p>What does a mature soil profile look like?</p> <p>What is the main factor affecting soil type?</p> <p>What is a Mass Movement?</p> <p>What is the fastest type of mass movement? The slowest?</p> <p>How is earth's total water supply distributed?</p> <p>What processes make up the Water Cycle?</p> <p>Under what conditions does each section of a water budget exist?</p> <p>What are some characteristics of running water as an agent of erosion?</p> <p>What features of a stream indicate that it is young? Older?</p> <p>Why do people build homes and have farms in a flood plain?</p> <p>Under what conditions will a river lose carrying power and deposit sediment?</p> <p>What can cause a flash flood?</p> </td> </tr> </tbody> </table>	UNDERSTANDINGS <i>Students will understand that...</i>	ESSENTIAL QUESTIONS:	<p>There is a difference between weathering & erosion.</p> <p>Most weathering & erosion involves water.</p> <p>Weathering involves both physical and chemical changes.</p> <p>Types and rates of weathering are determined by climate, rock type, and other factors.</p> <p>Soil, an important resource, is a product of weathering and erosion.</p> <p>Besides natural cycles, humans have also played a role in weathering and erosion.</p>	<p>What is weathering?</p> <p>What is the difference between weathering and erosion?</p> <p>What are the 2 types of weathering?</p> <p>What is the most damaging weathering process?</p> <p>What compound is always associated with chemical weathering?</p> <p>What are some examples of chemical weathering?</p> <p>How does the amount of surface area exposed relate to the rate of weathering?</p> <p>Under what conditions will rock weather more quickly?</p> <p>Under what conditions will rock take longer to weather?</p> <p>Why is good soil important?</p> <p>What are the 3 main parts of soil?</p> <p>What does a mature soil profile look like?</p> <p>What is the main factor affecting soil type?</p> <p>What is a Mass Movement?</p> <p>What is the fastest type of mass movement? The slowest?</p> <p>How is earth's total water supply distributed?</p> <p>What processes make up the Water Cycle?</p> <p>Under what conditions does each section of a water budget exist?</p> <p>What are some characteristics of running water as an agent of erosion?</p> <p>What features of a stream indicate that it is young? Older?</p> <p>Why do people build homes and have farms in a flood plain?</p> <p>Under what conditions will a river lose carrying power and deposit sediment?</p> <p>What can cause a flash flood?</p>
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<p>experiments), noting when the findings support or contradict previous explanations or accounts.</p> <p>RI 9.4 - Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.</p>		<p>How is porosity and permeability related?</p> <p>What conditions would cause the water table to be high?</p> <p>How does one draw upon groundwater as a source of fresh water?</p> <p>What affects the temperature of groundwater?</p> <p>What features are created when groundwater is heated?</p> <p>What is hard water?</p> <p>What features are created when groundwater dissolves limestone?</p> <p>What is a glacier and how does one form?</p> <p>How are the two main types of glaciers different?</p> <p>What are some possible causes for ice ages, and how have glaciers left evidence of them?</p> <p>How does wind act as an agent of both weathering and erosion?</p> <p>Describe the different types of dunes and how they form.</p> <p>What part of a coastline is eroded first?</p> <p>Describe some coastal features created by wave erosion and what factors affect the amount of coastal erosion or deposition that takes place?</p>
Acquisition		
	<p><i>Students will know...</i></p> <p><i>Weathering agents break rock down, while agents of erosion relocate it.</i></p> <p><i>How both surface water and groundwater act as an agent of both weathering and erosion.</i></p> <p><i>How glaciers form and the land features left by its weathering and erosional effects.</i></p> <p><i>Weathering and erosion along the coast is primarily caused by waves.</i></p>	<p><i>Students will be skilled at...</i></p> <p>Identifying agents of weathering & erosion, where they most often occur, the resulting landforms, and impacts on humans.</p> <p>Testing soil fertility.</p> <p>Simulating stream evolution.</p> <p>Identifying coastal features that result from wave erosion and deposition.</p>

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Stage 2 - Evidence				
Evaluative Criteria	Assessment Evidence			
PERFORMANCE TASKS	CURRICULUM EMBEDDED PERFORMANCE ASSESSMENT (PERFORMANCE TASKS): Create a map that illustrates the locations of the 5 largest river systems in the U.S., and the divides between them.			
	Test a sample of soil for its level of pH, Nitrogen, Potassium, and Phosphorus, and identify plants that would respond well in that soil.			
	Complete a water budget for various cities in different climate zones in the U.S.			
	Create a map and graph that illustrate glacial rebound of the past 6000 years in the Hudson Bay area.			
CLAIMS	<u>CLAIM 1</u>	<u>CLAIM 2</u>	<u>CLAIM 3</u>	<u>CLAIM 4</u>
DEPTH OF KNOWLEDGE LEVELS	<u>DOK 1</u>	<u>DOK2</u>	<u>DOK 3</u>	<u>DOK4</u>
ACHIEVEMENT LEVEL DESCRIPTORS	<u>ALD 1</u>	<u>ALD 2</u>	<u>ALD 3</u>	<u>ALD 4</u>

Stage 3 – Learning Plan
Notes/discussion on agents of weathering & erosion including surface water, groundwater, glaciers, waves, wind, and gravity.
Soil Test Lab
Water Budget activity
River System map activity
Stream lab
Glacial Rebound activity
Other review assignments