

## UNIT OVERVIEW

STAGE ONE: Identify Desired Results			
Established Goals/Standards	2.1 p	Long-Term Transfer Goal	
	2.1 q	<i>At the end of this unit, students will use what they have learned to independently...</i>	
	2.1 r	Apply their understanding of surface processes through a poster presentation and written report to the "US Olympic Committee" explaining suitability of 2 chosen U.S. cities as sites for the Summer Olympic Games.	
	2.1 s	<i>At the end of the school year, students will use what they have learned to independently...</i>	
	2.1 t	Apply their cumulative understandings to design and carry out an investigation, then create a presentation to the community sharing their findings that either support or debunk scientists' claim that Rochester, NY was once underneath water.	
	2.1 u	Meaning	
	2.1 v	Enduring Understandings <i>Students will understand that...</i>	Essential Questions <i>Students will consider such questions as...</i>
	2.1 w	<b>U1.</b> Earth may be considered a huge machine driven by two engines, one internal and one external. These heat engines convert heat energy into mechanical energy.	1. How does variation in density create change on Earth's surface?
	3.1 c	<b>U2.</b> Precipitation resulting from the external heat engine's weather systems supplies moisture to Earth's surface that contributes to the weathering of rocks.	2. How do humans impact Earth's processes and vice versa?
		<b>U3.</b> Running water erodes mountains that were originally uplifted by Earth's internal heat engine and transports sediments to other locations, where they are deposited and may undergo the processes that transform them into sedimentary rocks.	
		<b>U4.</b> Rocks and minerals help us understand Earth's historical development and its dynamics. They are important to us because of their availability and properties. The use and distribution of mineral resources and fossil fuels have important economic and environmental impacts. As limited resources, they must be used wisely.	
Acquisition			
		<i>What knowledge will students learn as part of this unit?</i>	<i>What skills will students learn as part of this unit?</i>
		1. Landforms are the result of the interaction of tectonic forces and	1. Students will be able to construct a topographic map.

	<p>the processes of weathering, erosion, and deposition.</p> <ol style="list-style-type: none"> <li>Topographic maps represent landforms through the use of contour lines that are isolines connecting points of equal elevation.</li> <li>Gradients and profiles can be determined from changes in elevation over a given distance.</li> <li>Climate variations, structure, and characteristics of bedrock influence the development of landscape features including mountains, plateaus, plains, valleys, ridges, escarpments, and stream drainage patterns.</li> <li>Weathering is the physical and chemical breakdown of rocks at or near Earth's surface.</li> <li>Soils are the result of weathering and biological activity over long periods of time.</li> <li>Natural agents of erosion, generally driven by gravity, remove, transport, and deposit weathered rock particles.</li> <li>Each agent of erosion produces distinctive changes in the material that it transports and creates characteristic surface features and landscapes.</li> <li>In certain erosional situations, loss of property, personal injury, and loss of life can be reduced by effective emergency preparedness.</li> <li>The natural agents of erosion include: <ul style="list-style-type: none"> <li>Streams (running water): Gradient, discharge, and channel shape influence a</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>Students will be able to draw a cross-section of a landscape based on the information provided on a topographic map.</li> <li>Students will be able to use classification charts to identify sedimentary rocks.</li> <li>Use models to represent and revise their thinking overtime.</li> <li>Making qualitative and quantitative observations</li> <li>Making predictions</li> <li>Asking questions based on observation and data</li> <li>Use and become proficient with certain tables and diagrams in the Earth Science Reference Tables</li> </ol>
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	<p>stream's velocity and the erosion and deposition of sediments. Sediments transported by streams tend to become rounded as a result of abrasion. Stream features include V-shaped valleys, deltas, flood plains, and meanders. A watershed is the area drained by a stream and its tributaries.</p> <ul style="list-style-type: none"><li>• Glaciers (moving ice): Glacial erosional processes include the formation of U-shaped valleys, parallel scratches, and grooves in bedrock. Glacial features include moraines, drumlins, kettle lakes, finger lakes, and outwash plains.</li><li>• Wave Action: Erosion and deposition cause changes in shoreline features, including beaches, sandbars, and barrier islands. Wave action rounds sediments as a result of abrasion. Waves approaching a shoreline move sand parallel to the shore within the zone of breaking waves.</li><li>• Wind: Erosion of sediments by wind is most common in arid climates and along shorelines. Wind-generated features include dunes and sand-blasted bedrock.</li><li>• Mass Movement: Earth materials move downslope under the influence of gravity.</li></ul> <ol style="list-style-type: none"><li>11. Patterns of deposition result from a loss of energy within the transporting system and are influenced by the size, shape, and density of the transported particles.</li><li>12. Sediment deposits may be sorted or unsorted.</li><li>13. Sediments of inorganic and organic origin often accumulate in depositional environments.</li><li>14. Sedimentary rocks form when sediments are compacted and/or cemented after burial or as the result of chemical precipitation from seawater.</li><li>15. Rocks are classified by their origin, mineral content, and texture.</li></ol>	
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		<p>16. Conditions that existed when a rock formed can be inferred from the rock's mineral content and texture</p> <p>17. The properties of rocks determine how they are used and also influence land usage by humans.</p>	
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### STAGE TWO: Determine Acceptable Evidence

	Assessment Evidence
<p>Criteria for/to assess understanding: <i>(This is used to build the scoring tool.)</i></p> <p><b>Rubric attached</b></p>	<p>Performance Task focused on Transfer:</p> <p>For this performance task students will work in groups of two to collect information about the geology of two US cities and the area around them. The teams will need to make a report on the suitability of the two cities as potential sites for the Summer Olympics. They will also need to consider that new roads, bridges, and buildings may be necessary. As the students determine the suitability, they need to evaluate bedrock geology, relief and slopes, drainage basin geometry, rivers, flow conditions, and potential for flooding, mass movements, and other factors that might make building risky.</p>
	<p>Other Assessment Evidence:</p> <ul style="list-style-type: none"> <li>• Daily bridge activities</li> <li>• Daily summary narratives</li> <li>• Ticket out the door, daily closure questions</li> <li>• Two formal NYS style assessments.</li> </ul>

	<ul style="list-style-type: none"><li>• Other formative assessment practices</li><li>• Gallery Walks</li></ul>
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T, M, A (Code for Transfer, Meaning Making and Acquisition)	STAGE THREE: Plan Learning Experiences	
	Learning Events:	Evidence of learning: (formative assessment)

<p>Meets the standard of excellence.</p> <p><b>5</b></p>	<p><u>Significant</u> information is presented about <u>all</u> of the following:</p> <ul style="list-style-type: none"> <li>• Surface landforms and the processes that form them.</li> <li>• The geologic conditions at each site that are potentially hazardous to the development of Olympic Games facilities.</li> <li>• Maps showing the suitability of the land surface at each site for the development of Olympic Games facilities.</li> <li>• Steps that can be taken to reduce the exposure of the Olympic Games facilities to potentially hazardous geologic conditions.</li> </ul> <p><u>All</u> of the information is accurate and appropriate. The writing and maps are clear and interesting.</p>
<p>Approaches the standard of excellence.</p> <p><b>4</b></p>	<p><u>Significant</u> information is presented about <u>most</u> of the following:</p> <ul style="list-style-type: none"> <li>• Surface landforms and the processes that form them.</li> <li>• The geologic conditions at each site that are potentially hazardous to the development of Olympic Games facilities.</li> <li>• Maps showing the suitability of the land surface at each site for the development of Olympic Games facilities.</li> <li>• Steps that can be taken to reduce the exposure of the Olympic Games facilities to potentially hazardous geologic conditions.</li> </ul> <p><u>All</u> of the information is accurate and appropriate. The writing and maps are clear and interesting.</p>
<p>Meets an acceptable standard.</p> <p><b>3</b></p>	<p><u>Significant</u> information is presented about <u>most</u> of the following:</p> <ul style="list-style-type: none"> <li>• Surface landforms and the processes that form them.</li> <li>• The geologic conditions at each site that are potentially hazardous to the development of Olympic Games facilities.</li> <li>• Maps showing the suitability of the land surface at each site for the development of Olympic Games facilities.</li> <li>• Steps that can be taken to reduce the exposure of the Olympic Games facilities to potentially hazardous geologic conditions.</li> </ul> <p><u>Most</u> of the information is accurate and appropriate. The writing and maps are clear and interesting.</p>
<p>Below acceptable standard and requires remedial help.</p> <p><b>2</b></p>	<p><u>Limited</u> information is presented about the following:</p> <ul style="list-style-type: none"> <li>• Surface landforms and the processes that form them.</li> <li>• The geologic conditions at each site that are potentially hazardous to the development of Olympic Games facilities.</li> <li>• Maps showing the suitability of the land surface at each site for the development of Olympic Games facilities.</li> <li>• Steps that can be taken to reduce the exposure of the Olympic Games facilities to potentially hazardous geologic conditions.</li> </ul> <p><u>Most</u> of the information is accurate and appropriate. Generally, the writing does not hold the reader's attention and the maps do not accurately represent the conditions at each Olympic Games site.</p>
<p>Basic level that requires remedial help or demonstrates a lack of effort.</p> <p><b>1</b></p>	<p><u>Limited</u> information is presented about the following:</p> <ul style="list-style-type: none"> <li>• Surface landforms and the processes that form them.</li> <li>• The geologic conditions at each site that are potentially hazardous to the development of Olympic Games facilities.</li> <li>• Maps showing the suitability of the land surface at each site for the development of Olympic Games facilities.</li> <li>• Steps that can be taken to reduce the exposure of the Olympic Games facilities to potentially hazardous geologic conditions.</li> </ul> <p><u>Little</u> of the information is accurate and appropriate. The writing is difficult to follow and the maps do not accurately represent the conditions at each Olympic Games site.</p>