



Earth Systems Curriculum Pacing Guide

Surface Processes on Earth

Cross-cutting Concepts: Patterns; Cause and Effect; Systems and System Models; Stability and Change

Topics: Weathering; Mass Movements; Surface Water Movement; Groundwater supply, movement, and storage mechanisms

Estimated Time: 4 weeks

Anchoring Phenomenon	Standard	Instructional Segment	Disciplinary Core Ideas	Science and Engineering Practices	Instructional Notes
<p>Flash Flooding Heavy Rains Cause Flooding in Yulin Heavy Rains Cause Flooding-- Roads close, crops damaged</p> <p><i>If there is a current event to use as a phenomenon, use it. An example includes pending landfall of a hurricane. A perfect example is Hurricane Harvey approaching Texas with anticipated 24+ inches of rainfall expected. A great resource for</i></p>	<p>SES3. a, b, c, d SES1. b</p>	<p><u>Predicting and Mapping Flooding</u></p> <ul style="list-style-type: none"> • Weathering <i>Weathering, Erosion and Deposition</i> • Mass movements <i>Wind activity and glacial activity</i> • Surface water movement <i>Primary focus on freshwater systems including streams, lakes, creeks, and rivers</i> • Groundwater supply, 	<p>Frameworks of K-12 Science Education: <i>By the end of 12th grade</i></p> <p>ESS2.C: THE ROLES OF WATER IN EARTH'S SURFACE PROCESSES</p> <ul style="list-style-type: none"> • The abundance of liquid water on Earth's surface and its unique combination of physical and chemical properties are central to the planet's dynamics. These properties include water's exceptional capacity to absorb, store, and release large amounts of energy; transmit sunlight; expand upon freezing; dissolve and transport materials; and lower the viscosities and melting points of rocks. 	<ul style="list-style-type: none"> • Asking questions and defining problems. • Developing and using models • Planning and carrying out investigations • Analyzing and interpreting data • Using mathematics and computational thinking • Constructing explanations (for science) and designing solutions (for engineering) • Engaging in argument from evidence • Obtaining, 	<p>By the end of this unit, students are using the following language in their speaking and writing during EXPLAIN or ELABORATE. Landscape, physical and chemical weathering, mass wasting, geologic hazards, surface water, groundwater, agents of erosion, deposition, sediment, flood and flood plains.</p>



<i>images and information will be your local emergency management agency, local meteorologists, local media on social media. Just watch and make sure the images are from the current storm and not recycled from a prior storm.</i>		movement, and storage mechanisms <i>Including weathering and deposition processes</i>		evaluating, and communicating information	
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This instructional segment will connect to the Geologic Processes unit.