

## Erosion

Andy Harter – Riceville Schools, Riceville IA

Grade Level (Req.): 7th-12th grade	Content Area (Req.): Human Geography, Physical Geography	Unit (Opt.):
Connections to Other Disciplines (Opt.):		
<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> </ul>		
Time Frame (Req.): 1-2 class periods	Goal (Req.): To understand what affects soil and how it changes it.	
	Objective (Req.): Students will be able to identify the causes and effects of erosion. Students will hypothesize ways to help curb erosion. Students will be able to identify ways being used now to curb erosion.	
Materials Needed (Req.):	New Vocabulary (Opt.):	
<ul style="list-style-type: none"> <li>• Two ice cream buckets full of soil</li> <li>• Tongue depressors; Toothpicks</li> <li>• Pipe cleaners; Clear plastic cups</li> <li>• Pop can flat, with one side cut off</li> <li>• Paint roller tray</li> <li>• 1 gallon of water</li> <li>• Hair dryer</li> </ul>	<ul style="list-style-type: none"> <li>•</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>	
Anticipatory Set/Introduction [Inquiry Question is required] (Req.): What are things that humans do that affect the soil? How does erosion affect humans?		
Instructional Sequence/Procedure (Req.):		
<ol style="list-style-type: none"> <li>1. Show students the two different types of erosion, by putting some of the dirt in the box lid and some more in the paint tray. In the box spread the dirt out and using the blow dryer at a low speed blow across the top of the dirt. Have the students take note of the amount of dirt that has blown away. Then mound the dirt in the paint tray so it represents a hill. Pour a little water over the top of the mound of soil. Then spread it out a little and have the students watch to see how much run off there is.</li> <li>2. Place students into groups of three and give each group either a box lid with dirt or a paint tray. Tell them that they are soil conservationists and have been hired to solve the erosion problem. Give them the depressors, toothpicks, and pipe cleaners and let them go to work. Also tell them when they are done they have to write a paper and give an oral report showing what they have done.</li> <li>3. After they have worked on the soil (use your own judgment on time) let the students prepare their reports. Have the students present their solutions to the class. After every group has presented their findings test each groups model to see if it really works.</li> <li>4.</li> <li>5.</li> <li>6.</li> <li>7.</li> <li>8.</li> <li>9.</li> </ol>		

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Formative Evaluation (Req.): Class participation

Assessment (Req.): Paper and oral report.

Iowa Core Curriculum Standards Used (Req.):

- Geography, grade 9-12: Understand how physical and human characteristics create and define regions.
- Geography, grade 9-12: Understand how physical and human processes shape the Earth's surface and major ecosystems.
- Geography, grade 9-12: Understand how human actions modify the environment and how the environment affects humans.
- Geography, grade 9-12: Understand how cultural factors influence the design of human communities.
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Common Core Curriculum Standards Used (Opt.):

- Speaking and Listening, grade 6-12: Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; make sure the organization, development, substance, and style are appropriate to purpose, audience and task.
- Writing, grade 6-12: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
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NGS Standards Used (Req.):

- The physical and human characteristics of places
- The physical processes that shape the patterns of Earth's surface
- How human actions modify the physical environment
- The changes that occur in the meaning, use, distribution, and importance of resources
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Five Themes of Geography Used (Req.): <ul style="list-style-type: none"><li>• Place</li><li>• Human-Environmental Interaction</li><li>• Movement</li><li>•</li><li>•</li></ul>	School District Standards and Benchmarks (Opt.): <ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li></ul>
21 <sup>st</sup> Century Universal Constructs (Opt.): Collaboration	
Other Disciplinary Standards (Opt.): <ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li><li>•</li><li>•</li></ul>	
Other Essential Information (Opt.):	
Other Resources (Opt.): <ul style="list-style-type: none"><li>•</li><li>•</li><li>•</li><li>•</li></ul>	