

# Lesson Plan Template

Date: \_\_\_\_\_

<b>Grade: 4</b>	<b>Subject: Science</b>
<b>Materials:</b> 2-liter bottles, spray bottles, baking trays, wood or other material to elevate surface, soil	<b>Technology Needed:</b> Internet connection
<b>Instructional Strategies:</b> <input type="checkbox"/> Direct instruction <input type="checkbox"/> Guided practice <input type="checkbox"/> Socratic Seminar <input type="checkbox"/> Learning Centers <input type="checkbox"/> Lecture <input type="checkbox"/> Technology integration <input type="checkbox"/> Other (list) <input type="checkbox"/> Peer teaching/collaboration/cooperative learning <input type="checkbox"/> Visuals/Graphic organizers <input type="checkbox"/> PBL <input type="checkbox"/> Discussion/Debate <input type="checkbox"/> Modeling	<b>Guided Practices and Concrete Application:</b> <input type="checkbox"/> Large group activity <input type="checkbox"/> Independent activity <input type="checkbox"/> Pairing/collaboration <input type="checkbox"/> Simulations/Scenarios <input type="checkbox"/> Other (list) Explain: <input type="checkbox"/> Hands-on <input type="checkbox"/> Technology integration <input type="checkbox"/> Imitation/Repeat/Mimic
<b>Standard(s)</b> 4-ESS2-1 Make observations and metric measurements to provide evidence of the effects of weathering and the rate of erosion by water, ice, wind, or vegetation.	<b>Differentiation</b> Below Proficiency: Instructional aid and peer support as needed.  Above Proficiency: may identify more types of erosion.  Approaching/Emerging Proficiency: Should be able to come up with questions based on previous knowledge.  Modalities/Learning Preferences: <ul style="list-style-type: none"> <li>• Visual:</li> <li>• Auditory:</li> <li>• Kinesthetic:</li> <li>• Tactile:</li> </ul>
<b>Objective(s)</b> By the end of the lesson, students will discover the rate of soil erosion by experimenting and observing patterns with soil, spray bottles filled with water, and an elevated surface.	Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.) Students are expected to perform the experiments as directed and work as a group to make observations.
<b>Classroom Management-</b> (grouping(s), movement/transitions, etc.) Students will stay seated at their desks for initial instruction, then will work in groups to conduct experiments.	Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.) Students are expected to perform the experiments as directed and work as a group to make observations.
<b>Minutes</b>	<b>Procedures</b>
1	Set-up/Prep: Needed materials available and ready to distribute
3-7	Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.) Show picture of Bismarck landslide. “This is a picture of River Road in Bismarck. What do you notice? Why do you think this happened?” Generate student ideas and discuss. “Take out your science notebooks and write down at least one I wonder statement.” Guide students to think of how long it took for the dirt to fall down the hill or how much water it took to make it fall.
3-5	Explain: (concepts, procedures, vocabulary, etc.) “This is a landslide; it was caused by snow melting and making the soil in the ground move down the hill. Another word for the wearing away of land is erosion. Erosion is the wearing away of the Earth’s surface by forces such as wind, water, and ice.” “In this instance, the snow melted and turned to water, which caused the soil to move and wear away.” Show picture of Grand Canyon. “Look at this picture of the Grand Canyon, how did this part of the Earth get carved out?” “Take a moment to write down at least one I wonder statement about the river and how erosion occurred.” Discuss students I wonder statements. “We are going to think of a testable question from our I wonder statements. A testable question is one that we can investigate in the classroom and discover the answer for. Write down a testable question based off your I wonder statement(s).” Have class come up with two agreeable variables to test in the experiment such as the amount of water. “You are going to work in a group to test your question and determine how erosion occurs with certain amounts of water. Today we will focus on making a prediction.” Hand out student packets for the experiment and complete page one. (attached below, double-click to see entire document).
15-20	Explore: (independent, concrete practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions) (Typically the next day.) Have students find their groups. Show students how to adjust the pressure of water coming out of the spray bottle. “Today we are going to experiment the effect of different amounts of water on soil. We will observe the rate of erosion with different amounts of water by using spray bottles to represent rain. Each group has a spray bottle filled with water and a boat-like container of soil. You will draw a picture diagram of the soil before the experiment, and a picture diagram after the experiment. Let’s do page two together.” Complete page two with students.

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	<b>"Now you will complete page three on your own and record your observations. Be sure to include the drawing of the soil before your experiment, if you sprayed the soil with a mist or a strong shot of water, and a drawing of the soil afterwards."</b> <i>Give students time to work, monitor and provide assistance as needed.</i>	
5-8	Review (wrap up and transition to next activity): <i>Discuss student findings and compare observation results.</i> <b>"Take out your science notebooks and write a conclusion for your experiment. Did your prediction match your results? How did your results compare with your classmates?"</b>	
	Formative Assessment: (linked to objectives, during learning) <ul style="list-style-type: none"><li>• Progress monitoring throughout lesson (how can you document your student's learning?)</li></ul> Exit ticket asking "what is erosion? And what other questions do you have about erosion." (attached below, double-click to view entire document).	Summative Assessment (linked back to objectives, END of learning) Will be given after other forms of erosion have been covered within the unit (wind and ice). (attached below, double-click to view entire document).
Reflection (What went well? What did the students learn? How do you know? What changes would you make?): Students showed in their formative assessment exit tickets that they had questions about other types of erosion. This showed me that they were ready to explore other ways erosion can occur, and we can begin talking about weathering. Throughout the lesson, students needed to be in groups that would best suit their engagement. I found that they were able to complete the experiments without much redirection, and students were able to help their peers fill out the observation sheets. If I taught this lesson again, I would add more explanation about the scientific process of experimenting.		



erosion rubric.pdf

Rubric:

Name \_\_\_\_\_

## Exit Ticket

1. What is erosion?

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2. What question(s) do you have about erosion?

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Name \_\_\_\_\_

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Name \_\_\_\_\_

## Exit Ticket

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2. What question(s) do you have about erosion?

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Erosion Unit Post-Assessment

Look at each word and mark the box that best describes your understanding of the word.

	I've never heard this word before.	I've heard this word but don't know what it means.	I know what the word means and can teach someone else about it.
erosion			
weathering			
deposition			
glacier			
sediment			
acid rain			

What is the difference between weathering and erosion?

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Give two examples of weathering or erosion you can see near your house, school, or another place.

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## Erosion Experiment

**Directions:** How will the amount of water affect the amount of erosion in the soil?

Write or draw your predication below.