

LCM Lesson Plan:

<p>Standards: A-7 Science B-1 Science A-4 Language B-1 Cultural</p> <p>Concept: The surface of the earth changes.</p>		<p>Name: Doug Noon</p> <p>Grade Level: 4th</p> <p>This lesson will work best if carried over 2-3 days' time.</p>
<p>Gear Up</p> <p>Demonstrate how sand is transported by wind. With a mixture of sand, soil, and lighter material such as baby powder or vermiculite, make several small hills on a sheet of tagboard. Draw a line to mark the edge of the hills. Place a box fan about 5 feet from the hills and turn it on low for 30 seconds. Draw a new line to show the new edge of the hills.</p> <p>Students record observations on record sheets.</p> <p>Repeat with fan on medium speed.</p>	<p>Process Skills</p> <p>Communication</p> <p>Observation</p> <p>Data Collection</p>	<p>Materials</p> <p>web reference: www.nasaexplores.com/show_k4_teacher_st.php?id=040105143635</p> <p>Box fan</p> <p>sand + soil mix</p>
<p>Explore</p> <p>Ask: How does moving water change the earth?</p> <p>Students will make predictions and record observations of sand movement in a baking pan with water used as the force. Students will work in groups. They will first spoon water and observe changes. They will then slowly pour water from plastic cup, and record new observations.</p>	<p>Observation</p> <p>Classification</p> <p>Prediction</p> <p>Data Collection</p>	<p>tagboard - to hold sand / soil</p> <p>marker - to outline dune migration</p> <p>aluminum baking pans, spoons, and cups for student exploration</p>
<p>Generalize</p> <p>How are sand dunes changed by wind?</p> <p>What did you notice about the movement of the sand as the wind speed increased?</p> <p>How was the sand changed by water?</p> <p>What did you notice about the movement of sand as water flow increased?</p> <p>What differences did you notice between wind and water?</p>	<p>Communication</p> <p>Inference</p>	<p>pencils and record sheets for student responses</p> <p>scoring guide</p>
<p>Apply/Assess</p> <p>Students will write a short story about the journey of a grain of sand being carried by wind and water, personifying the grain of sand.</p> <p>Students will read their stories in groups and create a brief drama enacting the "life of a grain of sand"</p>	<p>Communication</p>	<p>Vocabulary</p> <p>erosion</p> <p>weathering</p>
<p>Extensions</p> <p>Take a walk to a local river and observe the river bank for signs of erosion.</p> <p>Search Google images for "river bank erosion," and discuss.</p>	<p>Communication</p>	<p>soil</p> <p>dune</p>

Name: _____

Sand and Wind Demonstration Observations

**Watch as your teacher demonstrates how sand dunes are moved by wind.
Record your observations**

Prediction: _____

Observations—Fan on low Speed

Prediction: _____

Observations—Fan on medium Speed

Name: _____

Water Erosion Observations

Observe how sand is moved by water. Record your observations

Prediction: _____

Observations – dripping water

Prediction: _____

Observations— slowly running water

Erosion LCM Scoring Guide

	1	3	5
Prediction	None. Makes no prediction, and proceeds directly to explore.	Guesses. Does not demonstrate any prior knowledge or interest in understanding the observed event.	Prediction is logical. Makes a genuine attempt to understand the observed event.
Explore	Does not use the materials provided for science inquiry and does not interact with group members.	Initially explores the science concept but wanders off topic and obstructs group's progress	Explores the science concept and interacts cooperatively with group members.
Data Recording	Does not record data.	Data is incomplete and does not reflect student's observations.	Data is complete and accurately reflects student's observations.
Communication	Does not write story.	Story is very brief. Contains little information about science concept.	Story is complete. Contains rich detail about the science concept. Reflects student's observations.