

INVESTIGATION DIRECTIONS

Lesson Focus Questions: *Where does the soil and rock in a delta come from, and where does it go? Does the rock and soil ever change?*

While doing investigations A, B, and C, think about how they might help you answer the Lesson Focus Questions.

INVESTIGATION A

- Find the pictures of a tree growing out of a crack in a boulder.
- Talk about the pictures that were taken in 1999 and in 2014. What differences do you see?

In your science notebook

- 1) Describe what has happened to the tree and the boulder in the years between 1999 and 2014.
- 2) Predict what will happen to the boulder in another 50 years. Explain why you think so.

INVESTIGATION B

- Look at the two cans of soda. One can is frozen and the other is not.
- Talk about how the frozen soda can is different from the soda can that is not frozen.

In your science notebook

- 3) Why was the frozen soda can deformed? What will happen to the can when the soda inside thaws?
- 4) Describe what you think happens over time when water freezes and then thaws in a crack in a rock.

INVESTIGATION C

- Find the small plastic bottle and the bag of rocks.
- Count the rocks. Write this number in your science notebook.
- Place the rocks in the plastic bottle. Put the top on the bottle. Shake the jug vigorously for 2 minutes while holding the cap on the bottle. Pour out the rocks and count them. Write this number in your science notebook.

In your science notebook

- 5) Describe what differences occurred to the rocks after the jug was shook.
- 6) Thinking back on what happened to the rocks in the bottle, explain what might happen to a large piece of rock that rolls down a mountain slope.

“Earth’s Changing Surface”

Lesson 5 Analogy Chart

Lesson Focus Questions: *Where does the soil and rock in a delta come from, and where does it go? Does the rock and soil ever change?*

Part of model	... is/are like ...	Part of real world	Process:
Soda can			
Soda in the can			
Frozen soda in the can			
<p align="center">Pictures of a tree root growing in a crack in a rock</p>			

Tree in Rock Photos

Picture was taken in 1999.



Picture was taken in 2014.



photos courtesy of Dr. Christopher Woltemade; adapted from RESPeCT ©2014 CPP and BSCS Science Learning

Soda Cans Photo



Two soda cans. The soda can on the right was left in the freezer.

“Earth’s Changing Surface” Card Sort Set 1

Make one card set for each pair.

<p>3</p> <p>A map of the Mississippi delta over time shows the amount of land growing and then shrinking.</p>	<p>A</p> <p>Earth’s surface changes over time.</p>
<p>2</p> <p>In our stream table, the flow of water carried sand and rocks down the stream table and deposited it along the sides of the river or at the bottom.</p>	<p>D</p> <p>Water can pick up soil and rock and carry it downstream and deposit the soil and rock in other places.</p>
<p>1</p> <p>The amount of water, vegetation, and slope of the land affected how fast rock and soil moved and where rock and soil were deposited.</p>	<p>B</p> <p>Erosion and deposition can change Earth’s surface quickly or slowly.</p>
<p>4</p> <p>After adding a dam, we saw sand get trapped behind the dam and less sand was deposited at the bottom of our stream table.</p>	<p>C</p> <p>Humans can change how fast rock is eroded and where rock and soil are deposited.</p>

“Earth’s Changing Surface” Card Sort Set 2

Make one card set for each pair.

6

As a tree grew, its roots split a rock into two pieces. Frozen liquid caused a soda can to change shape and split open. Rocks tumbling and crashing into each other in a bottle caused the rocks to break apart.

5

There are land and mountain ranges on either side of the Mississippi River. Smaller rivers that flow into the Mississippi River can carry smaller pieces of rock and soil from one place and deposit them in another.

7

A sea arch forms over time out of a sea cliff.
Over time, sand dunes form between a windy, sandy area and a mountain range.
Over time, mountains become shorter and rounder.

8

F

Smaller rocks come from larger rocks. Water (rain, waves, ice), wind, or plants can cause rock to fragment, crack, and crumble into smaller pieces over time.

G

Earth’s surface is building up in some places and wearing down in others at the same time.

E

Weathering, erosion, and deposition are happening all the time all over Earth and continue to shape Earth’s surface.

H