

3rd grade SAMPLE Lesson Soil S3E1c

VOCABULARY SKILLS: (ELAGSE3L4d)

Write each vocabulary word next to the correct definition.

enormous	process	weathering	
wears	rough	evidence	expands

1. something that shows proof: _____
2. the action of the weather conditions that changes objects:

3. changes that lead towards a result: _____
4. not smooth: _____
5. very large: _____
6. damages or erodes: _____
7. widens: _____

MULTIPLE MEANING WORDS:

Some words have more than one meaning.

Choose the correct definition for each sentence.

wears: definition (A) puts on an article of clothing

wears: definition (B) erodes or changes

1. Wind **wears** on rocks over a period of time.
2. My sister **wears** her blue jeans every day. _____

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SENTENCES: Fill in each blank with the correct vocabulary word.
(ELAGSE3L4)

enormous	process	weathering	
wears	rough	evidence	expands

1. When wind and rain break down pieces of rocks this is called _____.
2. Many rocks on Earth are very large or _____.
3. Some rocks are smooth, but some rocks are _____.
4. The _____ that causes wind and rocks to break into smaller pieces is called weathering.
5. Broken rocks are _____ of weathering.
6. When water moves over a rock for a long period of time, it _____ the rock down.
7. Ice _____ and cause splits in rocks.

Circle the word that **DOES NOT** belong in the group of words.

enormous **large** **little** **gigantic**

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CONTEXT CLUES: (ELAGSE3L4a)

The water also moves the rocks around. As the rocks **bump** into one another, the rough edges of the rocks break off.

Bump means: A) hill B) turn C) knock

NOTES:

We learned that soil is made up of particles of rock. How did these tiny pieces of rock get there? Why are they so small? The particles that make up our soil came from larger rocks. **Enormous** rocks that sit on Earth's surface are pounded by wind and rain. Wind and rain break down rocks and the pieces become part of the soil. The **process** that causes rocks to break into smaller pieces is called **weathering**.

Weathering is the process by which rocks are broken down into smaller pieces. Weathering can be caused by water, wind, plant roots, or ice. When moving water flows over a rock, it slowly **wears** it down. The water also moves the rocks around. As the rocks bump into one another, the **rough** edges of the rocks break off. **Evidence** of this type of weathering can be seen in streams and rivers. The rocks in these places are usually very smooth.

Wind can cause weathering as well. Wind can pick up small particles of rock and smash them into larger rocks. This causes small pieces of the rock to break away. If you don't believe that small particles of rock can wear away something as strong as a rock, think about sandpaper. Sandpaper is used to smooth rough edges and is made of sand! Weathering uses the small particles of rock in soil in much the same way as a carpenter would use sandpaper.

Weathering can also occur when water or plant roots get into tiny cracks in the rock. Water can collect in these spaces and then freeze. As the ice **expands**, it splits the rock even more. Plant roots act in a similar way. Roots can grow into the cracks, grow larger over time, and force the crack in the rock to grow larger. No matter what method weathers rocks, it is a very slow process.

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EXTRACTING INFORMATION FROM THE TEXT:

1. Where do particles that make up soil come from? _____

2. What causes weathering? _____

3. How does wind cause weathering? _____

4. How do water and plant roots play a part in weathering? _____

MAKING REAL-WORLD SCIENCE CONNECTIONS:

If you found a sharp rock in a river or stream what could you conclude about that rock? Has the rock been there for a short time period or a long time period? Explain your answer.

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READING, LANGUAGE, AND INFORMATION PROCESSING

PARTS OF SPEECH: (ELAGSES3L1a)

NOUNS: A noun is a person, place, thing, or idea. Underline the nouns in each sentence. The number in () tells how many nouns there are in each sentence.

1. Rocks grow in the cracks. (2)

*What do rocks do? _____ (verb)

2. Rocks break into smaller pieces. (2)

*What do rocks do? _____ (verb)

3. Wind causes weathering. (2)

*What does wind do? _____ (verb)

PARTS OF SPEECH: (ELAGSE3L1a)

PRONOUNS: Pronouns take the place of a noun. Circle the pronouns in each sentence. The number in () tell how many pronouns there are in each sentence.

1. We learned that soil is made up of particles of rock. (1)

2. If you don't believe that small particles of rock can wear away something as strong as a rock, think about sandpaper. (2)

READING SKILLS PRACTICE: (Foundational Skill) Fact and Opinion: A Fact is something you can look up in an encyclopedia or book. An Opinion is what someone thinks or feels. Write **fact** or **opinion** beside each statement.

1. Wind causes weathering. _____

2. Wind is awful. _____

3. Weathering is a terrible thing. _____

4. Rocks can cause weathering. _____

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Experiment Alert! *Eye protection & adult supervision are required.*

To get an idea of how weathering works you can try this experiment. Remember that weathering takes years and years, so you will have to use your imagination.

Gather 5-10 sugar cubes and a large glass jar with a lid. Note the appearance of the sugar cubes before placing them in the jar.

Describe the appearance of the sugar cubes: _____

Place the sugar cubes in the jar. Next, put the lid on the jar and carefully shake the jar 10-20 times. Pour the contents of the jar onto a piece of dark paper (it's easier to see the sugar this way).

Describe the appearance of the sugar cubes after shaking: _____

Finally, place the sugar cubes back into the jar and shake 10-20 more times.

Are the sugar cubes more worn than they were after the first shaking? _____

Where might you find this sort of weathering? _____

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Experiment Alert!



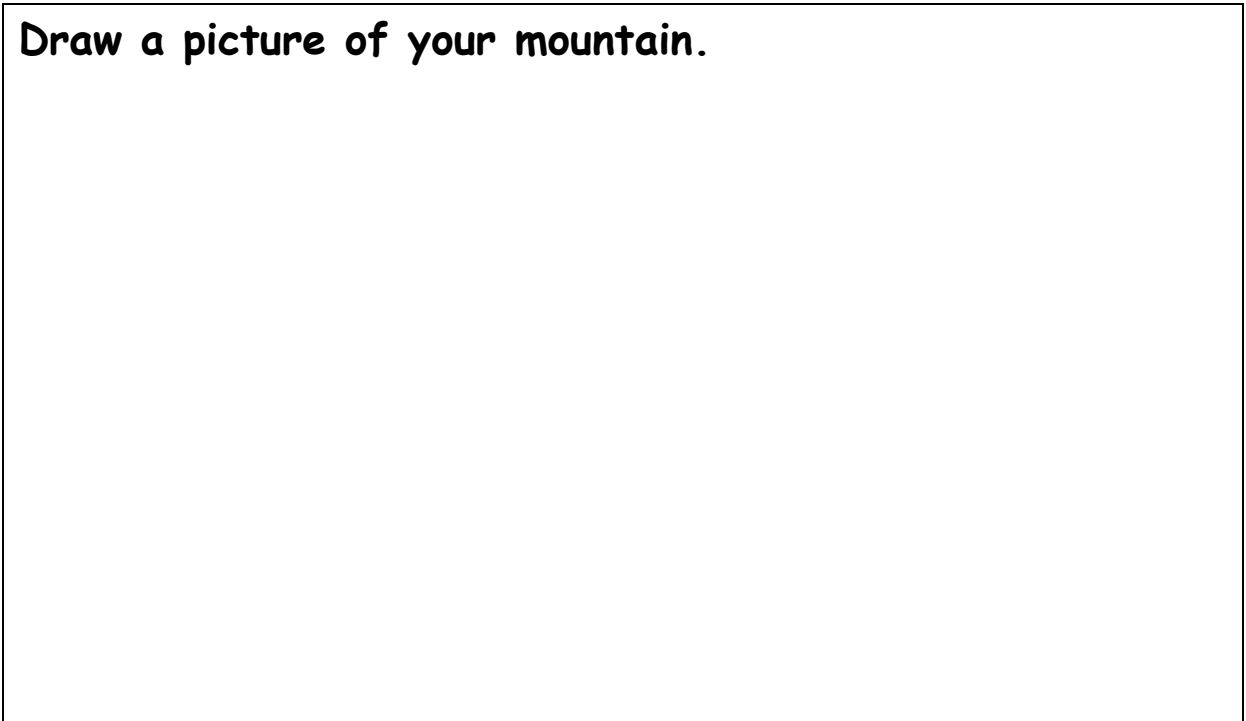
This experiment can be done as a class or on the individual level.

Create a mountain of soil in an area of the school grounds that will leave it undisturbed. Pile up your sediment so that the mountain is between two and three feet high (potting soil works nicely).

Measure the height of the mountain and the width of the mountain at its base. Record the information in a notebook or chart. Observe the mountain once a week for three months. Record your findings.

What forces do you think will affect your mountain? _____

Draw a picture of your mountain.



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MAKE OBSERVATIONS AND CONSTRUCT AN EXPLANATION:

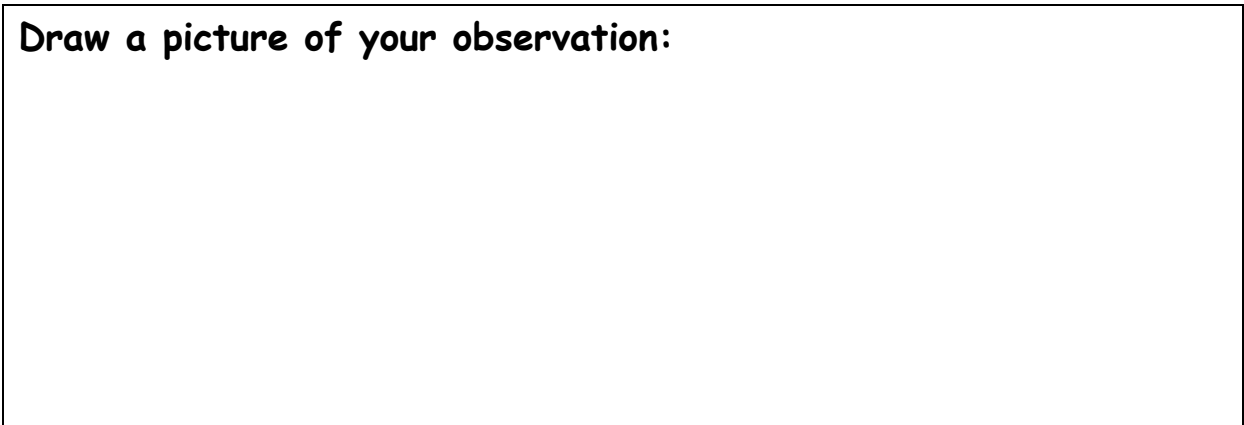
Make observations of the local environment to construct an explanation of how water and/or wind have made changes to soil and/or rocks over time.

Local Environment Location #1 _____

Observations:

Explanation of how these changes occurred:

Draw a picture of your observation:



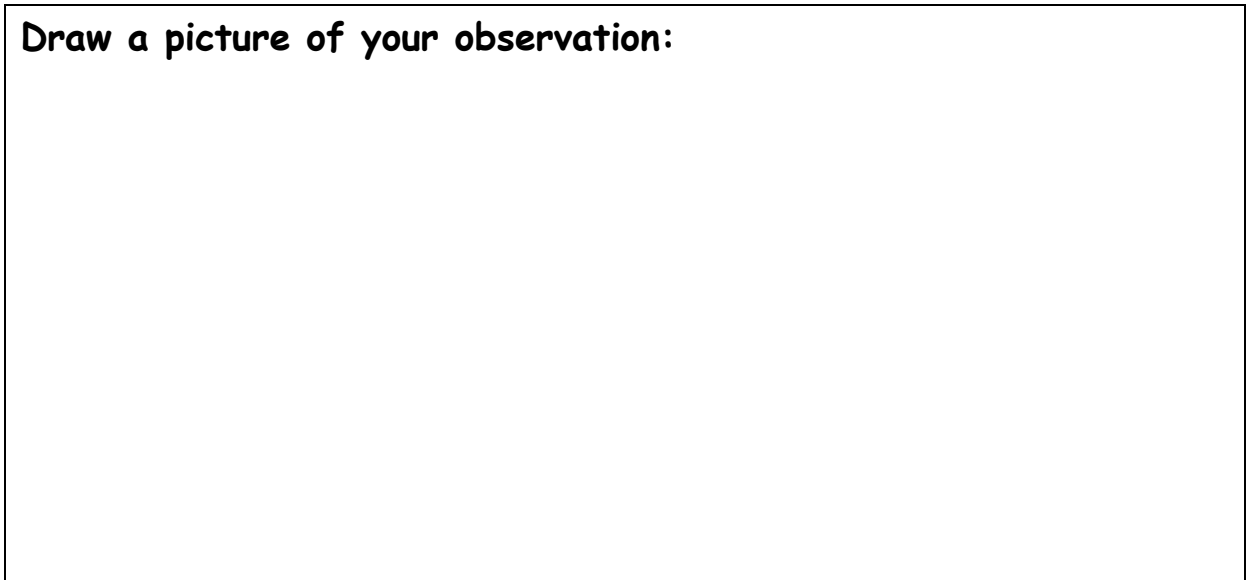
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Local Environment Location #2 _____

Observations:

Explanation of how these changes occurred:

Draw a picture of your observation:



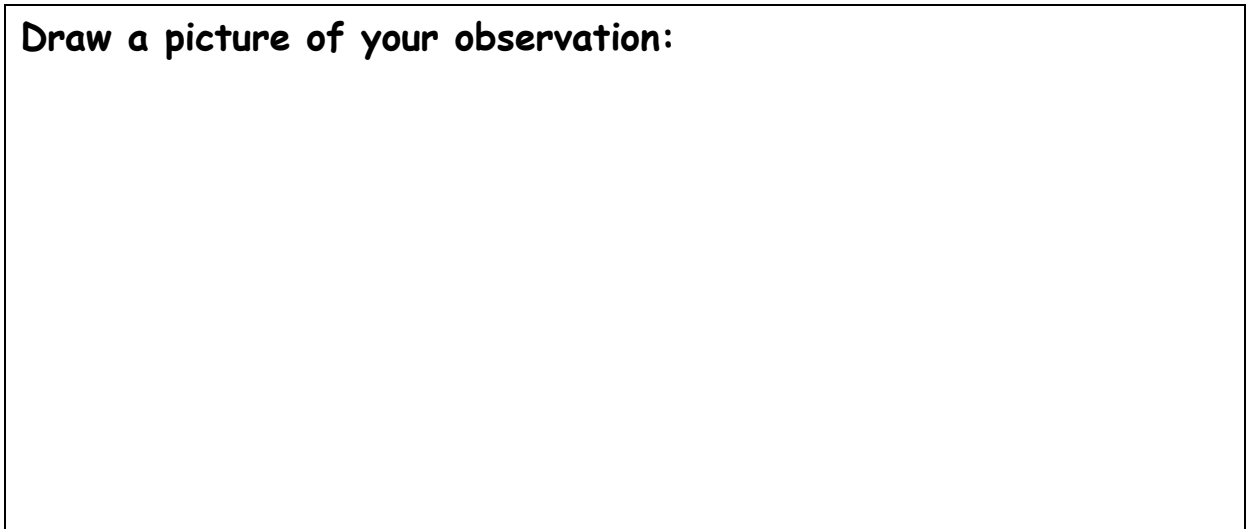
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Local Environment Location #3 _____

Observations:

Explanation of how these changes occurred:

Draw a picture of your observation:



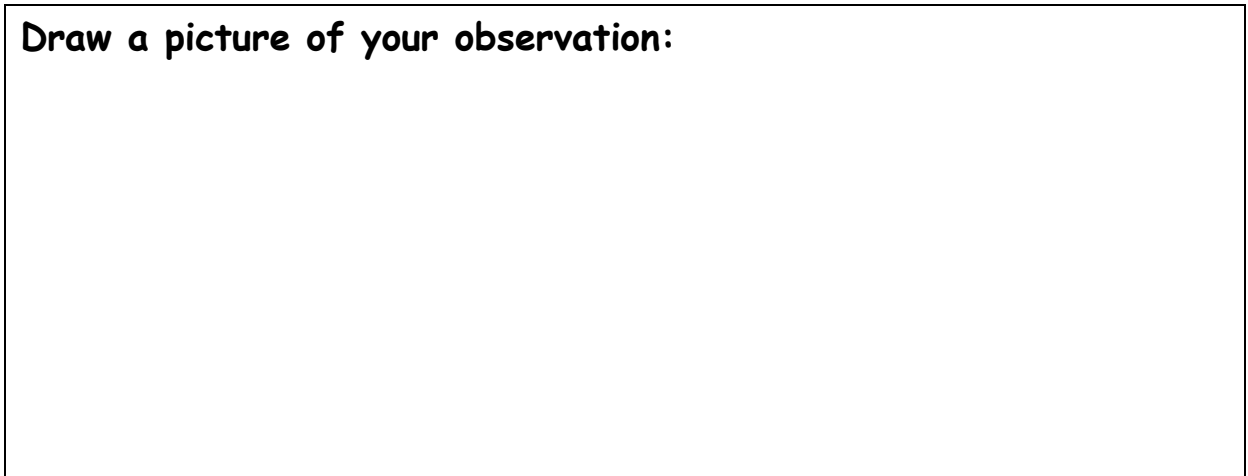
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Local Environment Location #4 _____

Observations:

Explanation of how these changes occurred:

Draw a picture of your observation:



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STEM Activity: Water Erosion

In the lesson you will create a beach. The forces of nature will erode your beach unless you can find a way to stop it.

You Will Need...

- *Plastic container or baking dish
- *Measuring cup
- *Pieces of fabric
- *Scissors
- *Small rocks
- *Cotton balls
- *Pieces of cardboard
- *Sand
- *Wide spatula



What to Do

- *Place $\frac{1}{2}$ of your sand to your container.
- *Pile it up against one side of the container so that it forms a slope. This is your beach.
- *Pour 2 cups of water into the container. This will be your ocean.
- *Use your spatula to create waves.
- *Note how the beach reacts to the waves.
- *When you are done, reset your container.
- *Use your supplies to design a way to prevent or slow down beach erosion.

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STEM Activity: Wind Erosion

In the lesson you will create a sand dune. The forces of nature will erode your sand dune unless you can find a way to stop it.

You Will Need...

- *Plastic container or baking dish
- *Pieces of cardboard
- *Pieces of fabric
- *Scissors
- *Cotton balls
- *Drinking straw
- *Sand
- *Small rocks



What to Do

- *Pile your dry sand on one side of your container so that it forms a dune.
- *Place several small rocks on your sand dune.
- *Stand so that you are looking “down” the dune, from the rear.
- *Use your straw to create wind. Blow on different areas of your dune.
- *Notice the effect that the wind has on the sand dune.
- *Use your gathered materials to see if you can prevent or slow down the wind erosion of your sand dune.

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