

Name: \_\_\_\_\_

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

# Surface Processes

The Physical Setting: Earth Science

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## Lab Activity: Abrasion

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### INTRODUCTION:

Running water wears down Earth's surface and breaks up sediments along the way. The weathering of rock fragments causes the edges to be rounded as they roll and bounce along a stream channel. Running water also can dissolve some minerals in solution.

### OBJECTIVE:

You will determine some factors that control the rate of weathering in a moving stream.

### VOCABULARY:

Abrasion -

Weathering -

Sediment -

Erosion -

Hardness -

Soluble -

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# Lab Activity: Abrasion

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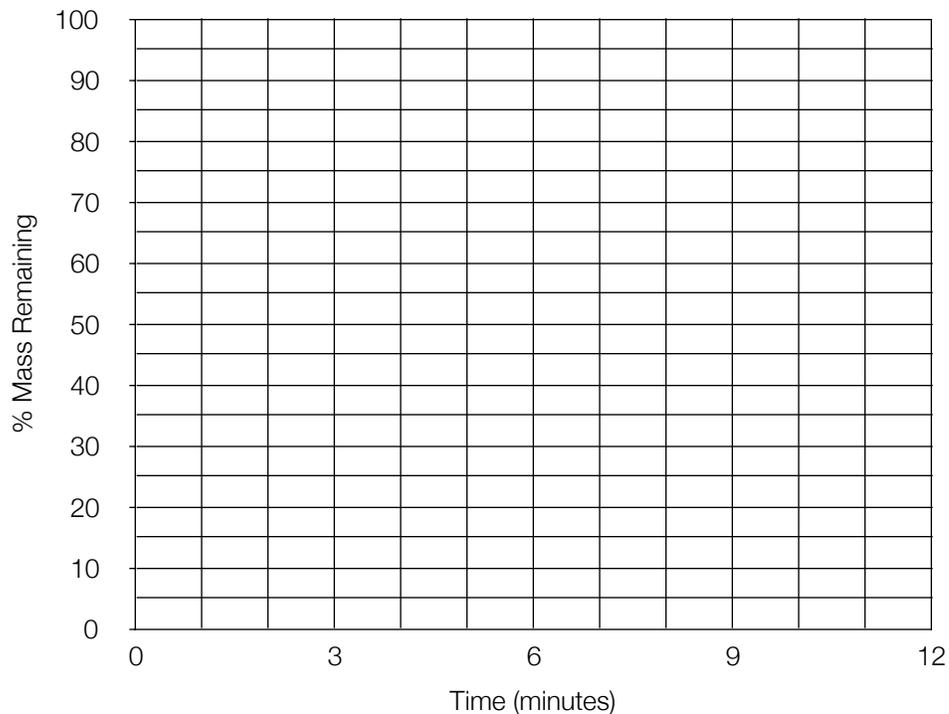
## PROCEDURE A:

1. Weigh 100 grams of limestone chips and place the chips in the clear plastic container.
2. Add 200 mL of water, tightly secure the cap, and shake at an even tempo for three minutes.
3. Drain the limestone chips and dry with a paper towel. Be sure not to lose any of the limestone.
4. Weigh all the chips to the nearest tenth. Be sure to record the new mass at "Time 3".
5. Return the limestone chips to the container and repeat 3 more times until the chips have been shaken for a total of 12 minutes.
6. Calculate the percent of mass remaining after each 3 minute interval and graph your results.

### LIMESTONE CHIPS DATA

Weathering Time	Mass Remaining	% Mass Remaining
0	100 grams	100%
3		
6		
9		
12		

### LIMESTONE CHIPS GRAPH



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# Lab Activity: Abrasion

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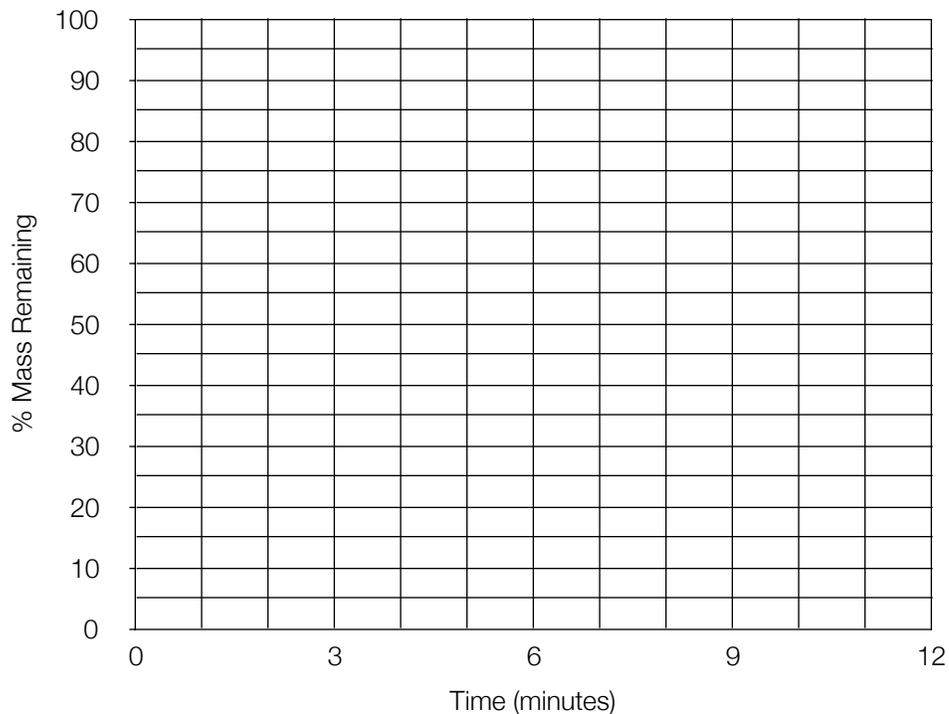
## PROCEDURE B:

1. Weigh 100 grams of halite and place the pieces in the clear plastic container.
2. Add 200 mL of water, tightly secure the cap, and shake at an even tempo for three minutes.
3. Drain the quartz and dry with a paper towel. Be sure not to lose any of the quartz.
4. Weigh all the pieces to the nearest tenth. Be sure to record the new mass at "Time 3".
5. Return the quartz to the container and repeat 3 more times until the pieces have been shaken for a total of 12 minutes.
6. Calculate the percent of mass remaining after each 3 minute interval and graph your results.

### HALITE DATA

Weathering Time	Mass Remaining	% Mass Remaining
0	100 grams	100%
3		
6		
9		
12		

### HALITE GRAPH



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# Lab Activity: Abrasion

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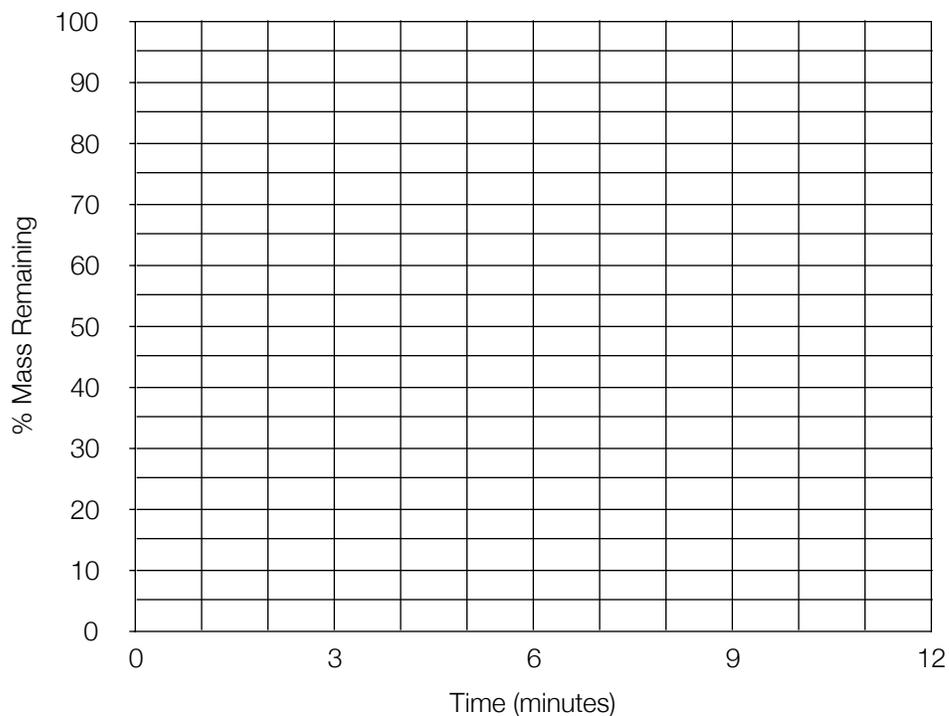
## PROCEDURE C:

1. Weigh 100 grams of sugar and place the pieces in the clear plastic container.
2. Tightly secure the cap, and shake at an even tempo for three minutes.
3. Drain the halite and dry with a paper towel. Be sure not to lose any of the halite.
4. Weigh all the pieces to the nearest tenth. Be sure to record the new mass at "Time 3".
5. Return the halite to the container and repeat 3 more times until the pieces have been shaken for a total of 12 minutes.
6. Calculate the percent of mass remaining after each 3 minute interval and graph your results.

### SUGAR DATA

Weathering Time	Mass Remaining	% Mass Remaining
0	100 grams	100%
3		
6		
9		
12		

### SUGAR GRAPH



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# Lab Activity: Abrasion

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## DISCUSSION QUESTIONS:

1. What effect does increased time of abrasion have on the shape?
2. What effect does increased time of abrasion have on the size?
3. What percent of limestone remained after three minutes?
4. What percent of halite remained after three minutes?
5. Based on questions 3 and 4, what characteristic of halite is responsible for your results.
6. What effect does hardness have on the rate at which rock abrades?

**CONCLUSION:** What are some factors that affect the rate at which rocks abrade in a stream?