

## Weathering Stations Activity

In the weathering stations the following activities are used (one station for each activity). Lab sheets for each station are attached at the end of the lesson.

**Station 1:** Test to show that water expands as it freezes. Mark on a cup the water level before freezing and after freezing.

**Station 2:** Test the effects of vinegar (acid rain) on copper (pennies). Here you should record observations initially and then after 5 minutes.

**Station 3:** Compare and record the reaction of antacid tablets in water. The comparison is a whole tablet vs. crushed tablet.

**Station 4:** Compare and record the reactions of chalk (limestone) in water and vinegar.

**Station 5:** Test and record the effects of sugar cubes and gravel shaken together in a jar.

## Station 1 – Effects of Freezing Water

Name \_\_\_\_\_

Question: *How does freezing affect water?*

Hypothesis:

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Materials: water, clear plastic beaker, permanent marker.

Procedure:

1. Pour beaker about half full of water.
2. On the outside of the beaker, use the marker to mark the water level.
3. Freeze.
4. Observe and mark water level after freezing.

Data/Results:

Water Level Before Freezing	Water Level After Freezing

Conclusion: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.

**Station 2 – Effects of Acid Rain (Vinegar) on Copper (Pennies)**

Name \_\_\_\_\_

Question: *How does vinegar affect copper pennies?*

Hypothesis: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.

Materials: 2 pennies, 2 clear plastic cups, white and brown vinegar, beaker or measuring cup, clock or timer.

Procedure:

1. Place a penny in each cup.
2. Pour white vinegar over the penny in one cup and brown vinegar in the other (be sure to use the same amount of each).
3. Observe and record initial observations below.
4. Make and record further observations after 5 minutes.

Data/Results:

Type of Vinegar	Initial Observations	After 5 Minutes
Brown Vinegar		
White Vinegar		

Conclusion: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.

**Station 3 – Effects of Water on Antacid Tablets**

Name \_\_\_\_\_

Question: *How does size affect the rate of weathering?*

Hypothesis: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.

Materials: 2 antacid tablets, 2 clear plastic cups, water, beaker or measuring cup, mortar and pestle, timer or clock, permanent marker.

Procedure:

1. Use permanent marker to label one cup “crushed” and the other “whole”.
2. Use the mortar and pestle to crush one of the antacids.
3. Put the crushed antacid in the cup marked crushed and the whole table in the other cup.
4. Record initial observations in the table below.
5. Let sit for 10 minutes and record final observations.

Data/Results:

Tablet Composition	Initial Observations	After 10 Minutes
Crushed Tablet		
Whole Tablet		

Conclusion: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.

**Station 4 – Effects of Water & Vinegar on Limestone**

Name \_\_\_\_\_

Question: *How do water and vinegar affect limestone?*

Hypothesis: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.

Materials: 2 limestone or chalk samples, 2 clear plastic cups, water, vinegar, beaker or measuring cup, permanent marker, clock or timer.

Procedure:

1. Use permanent marker to label one cup “water” and the other “vinegar”.
2. Place one piece of limestone or chalk in each cup.
3. Pour vinegar over the rock in the vinegar cup and water in the other. Be sure to use the same amount of each liquid.
4. Record initial observations in the table below.
5. Let stand for 10 minutes and record final observations.

Data/Results:

Solution	Initial Observations	After 10 Minutes
Water		
Vinegar		

Conclusion: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.

**Station 5 – Effects of Gravel on Sugar Cubes**

Name \_\_\_\_\_

Question: *How does gravel affect sugar cubes?*

Hypothesis: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.

Materials: 2 sugar cubes, gravel, plastic spoon, baby food jar with lid, clock or timer.

Procedure:

1. Place 2 sugar cubes in jar.
2. Using plastic spoon, put 2-3 spoons of gravel in jar.
3. Put lid on jar and shake for 2 minutes. Record observations below.
4. Shake jar for 3 more minutes and record observations.
5. Shake jar for an additional 3 minutes and record final observations.

Data/Results:

After 2 Minutes	After 5 Minutes	After 8 Minutes

Conclusion: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.