

Name: _____

Period: _____

Weathering and Erosion Lab

The purpose of this lab is to demonstrate weathering and erosion. Remember, **weathering** breaks it and **erosion** moves it! **Physical weathering** breaks down rocks into smaller pieces called **sediment**. **Chemical weathering** changes the rocks in a chemical reaction.

Pre-lab Questions:

1. What is the purpose of this lab? _____
2. What is the difference between weathering and erosion? _____

3. What is the difference between physical and chemical weathering? _____

At your table, you have a kit with a variety of materials to complete all the stations of this lab. This lab will take two days to complete. Some of these things will need to be checked and observed tomorrow.

Part 1: PHYSICAL WEATHERING (Rocks break other rocks)

In your box, there is a container of rock salt with a lid on it. There are also pieces of COLORED chalk. Find these items. *The salt represents harder rocks and the chalk represents softer rocks.*

1. What is represented by the salt and chalk? _____

Observe your chalk pieces, especially the edges. Are they round or sharp? How big are they?

3. Put the chalk in with the salt, close the lid tightly, and shake for one minute. Open the lid and observe. What has happened to the chalk? _____

4. Close the lid back up and shake everything for another minute. Open the lid and observe. Now, what has happened to the chalk? _____

4. Is the shape of the salt different after shaking? _____

7. How do you think something similar could happen in nature? _____

Part 2: PHYSICAL WEATHERING (Abrasion by sand)

1. In your box, you have a container of rough rocks. Select two different rocks. Have everyone in your group pass the rock around and feel it. What does it feel like? _____

You will be using sandpaper to simulate *abrasion by sand in the water or the wind*.

2. What does the sandpaper represent? _____

3. Have two members of your group each take a rock and “weather” it by rubbing with the sandpaper for one minute. Pass it around the group and feel it now. How has the rock changed? _____

4. How do you think rocks could get weathered like this in nature? _____

Part 3: CHEMICAL WEATHERING (Carbonation dissolving- creates caves)

In your box, please find the white chalk pieces and the vinegar. *The vinegar represents acidic groundwater. The chalk represents limestone rocks underground.*

1. What does the vinegar represent? _____

2. What does the chalk represent? _____

3. Place two chunks of chalk in an empty beaker. Then, pour the vinegar over it until it is covered. Observe for one minute. What happens with the chalk? _____

4. How does acidic groundwater affect limestone rocks? _____

5. How could something like this happen in nature?

Part 4: CHEMICAL WEATHERING (Oxidation of copper rocks) **TWO DAY STATION**

This part will take two days to complete. We will set this up today and check on it tomorrow.

1. In your box, please find a penny, vinegar, salt and a Petri dish. *The penny represents rocks that contain copper.* Pass the penny around and observe it. What color is it, is it shiny or dull? _____
2. What is represented by the penny? _____
3. Put a folded napkin in the bottom of the Petri dish. Place the penny in the dish. Pour vinegar over the penny until the napkin is wet, but not soaked. Sprinkle salt over the penny. Leave the dish open so that the air gets in.
3. Use tape and a marker to put your initials on the side of the Petri dish. Set this aside for now.

Part 5: CHEMICAL WEATHERING (Oxidation of iron in rocks) **TWO DAY STATION**

This part will take two days to complete. We will set this up today and check on it tomorrow.

1. In your box, there is iron wool. It looks like fuzzy grey stuff. *This represents a rock that contains iron.* Pass it around your group and touch it. What do you observe? _____
2. What is represented by the iron wool? _____
3. Fill the little cup halfway with water. Add a chunk of iron wool to the water. Set this aside for now with your petri dish, we will observe how it changes tomorrow.

***** WE WILL DO THE REST TOMORROW *****

DAY 2: DON'T FORGET TO OBSERVE YOUR PENNY!

1. How does the penny look compared to yesterday? _____
2. How do copper rocks react to oxidation? _____
3. How could something like this happen in nature? _____

DAY 2: DON'T FORGET TO OBSERVE YOUR IRON "ROCKS"!

1. How did the iron wool change overnight? _____
2. How does oxidation affect rocks that contain iron? _____
3. How could something like this happen in nature? _____

DAY 2/Part 6: Erosion by Waves (Beaches!)

1. You have a tray of sand. Using dry sand make a "beach" at one end of the pan. Pack the sand down, smooth it out, and then record your observations of what your beach looks like. _____

2. Add an inch of water to the pan and then slowly slosh the water back and forth to make waves. Watch what happens to the beach the longer you do this. Record your observations after a few minutes. How does your beach look different? _____
3. How does erosion by waves affect the beach?

Part 7: Erosion by Rain (Sandcastles)

1. Pour the extra water out of your beach. Use the wet sand and cups to make a sandcastle (however you want it).
2. Now, ERODE IT! Spray your sandcastle with the water bottle. *This represents the rain.* What does the water represent? _____
3. How does the rain affect your sandcastle? _____
4. Now, fill a cup with water (heavy rain!) and pour it over your castle. How does this affect it? _____

5. What was the difference in erosion between the light and heavy rain? _____

6. How could this happen in nature?
