

Chemical Weathering-Lab

Name:

Background: Chemical weathering occurs when chemical reactions (with water or substances dissolved in water) disintegrate or wear down rocks and other materials.

Activity 1:

Question: What effect does the size of the matter have on weathering?

Hypothesis: Predict if the whole tablet or the crushed tablet will dissolve faster.

Materials: Clear cup, stopwatch, room temperature water, 2 Alka Seltzer tablets, baggie, glass stir stick

Procedure:

1. Crush one antacid tablet in the baggie. Empty contents into a clear cup.
2. Pour in 100ml of water and stir. Start the stopwatch.
3. Wait and watch the tablet dissolve completely (no solid) keeping an eye on the stopwatch.
4. As soon as the last solid bit dissolves, record that time.
5. Dump clear cup in sink.
6. Repeat steps 1-5 with the whole antacid tablet.

Data/Observations:

Crushed Tablet	Whole Tablet

Activity 2:

Question: What effect does temperature have on weathering?

Hypothesis: Predict which will dissolve the antacid faster, cold water or warmer water.

Materials: Clear cup, stopwatch, ice water, warmer water, 2 Alka Seltzer tablets, glass stir stick

Procedure:

1. Fill the clear cup with 100mL with ice cold water.
2. Place one whole tablet into water and start stirring. Start the stopwatch.
3. Wait and watch the tablet dissolve completely (no solid) keeping an eye on the stopwatch.
4. As soon as the last solid bit dissolves, record that time.
5. Dump the clear cup in the sink.
6. Repeat steps 1-5 with 100ml of warmer water.

Data/Observations:

Cold Water	“Hot” Water

Activity 3:

Question: What effect does acid have on weathering?

Hypothesis: Predict what will happen when chalk is submerged in acid for multiple minutes.

Materials: Red cup, stopwatch, vinegar, small chunk of chalk

Procedure:

1. Make observations about the piece of chalk prior to vinegar.
2. Place a chunk of chalk into the red cup.
3. Fill the red cup with vinegar just enough to cover the chalk (you may need to hold chalk down with a glass stir stick).
4. Start the stopwatch until 5 minutes pass.
5. Empty cup into sink and rinse chalk with water to stop the reaction.
6. Make observations about the piece of chalk after vinegar.

Data/Observations:

Pre-Acid Chalk	Post Acid Chalk

Activity 4: Observation

Question: What effect does acid have on weathering?

Hypothesis: Predict what will happen with the three samples of steel wool.

Materials: Baggies, Steel wool, water, vinegar

Condition	Initial Observations	24 hr Observations
Dry		
Water		
Vinegar		

Post Lab Questions: (in complete sentences)

1. In which condition did the antacid tablet dissolve quickest?
2. In which condition did the antacid tablet dissolve slowest?
3. What does this tell us about the effect of different conditions on chemical weathering?
4. Based on this conclusion, in which climates/environments would we see chemical weathering to be most pronounced? Name at least one specific environment.
5. Which activity did you find most interesting and why?