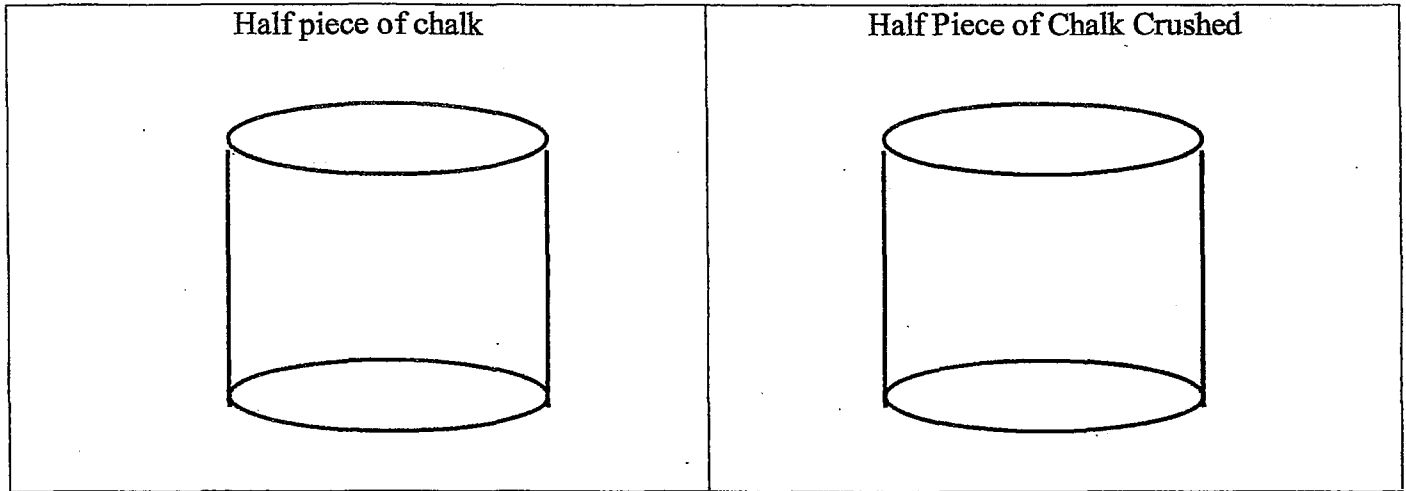


Name _____ Date _____ Period _____

Lab # _____ – Chemical Weathering Rates

Part I - Effect of particle size on Rate of Weathering

Watch the demonstration using chalk and Hydrochloric Acid (HCl). Record your observations as drawings in the boxes provided below



Questions

1. Which piece of chalk reacted faster?
2. What happens to the surface area of the chalk when it is crushed?
3. Which would react faster, 100 grams of silt sized chalk or 100 grams of chalk pebbles?
4. What type of relationship exists between particle size and rate of weathering?

Part II - Effect of Temperature on Rate of Weathering

Materials

Alka-Seltzer Tablets
Thermometer

Triple beam balance
Stopwatch

400 ml beaker

Watch the demonstration of the procedure using room temperature water. Record the collected data on the table on the back. Repeat the experiment using warm tap water and then ice water.

Data Table

| Water Temperature (°C) | Mass (mg) | Weathering Time (seconds) | Rate of Weathering (mg/sec) |
|------------------------|-----------|---------------------------|-----------------------------|
| Cold Water °C | | | |
| Room Temp °C | | | |
| Warm Water °C | | | |

Questions

1. What type of relationship exists between the water temperature and the time needed for weathering?
2. What type of relationship exists between water temperature and the rate of weathering?
3. Considering these relationships, how much chemical weathering occurs to rocks near the poles?
4. The rate of chemical weathering is greatly increased by the presence of water. In an arid climate very little chemical weathering can occur. Predict what would happen when Cleopatra's Needle, a monument made out of limestone, was moved from Egypt to New York City. Describe what would happen to the rate of weathering of the hieroglyphics on the surface of Cleopatra's Needle.

