

Jefferson County Educational Service Center  
Virtual Learning Academy  
SCIENCE 180: Unit 14

**CHEMICAL WEATHERING ACTIVITY**

**Materials Needed**

- Plastic coffee can lid or Frisbee
- Two pieces of sandstone and two pieces of limestone

These rock types can most likely be found in your neighborhood. Here is a picture of each:



- Small bottle of vinegar with dropper
- Dirt and small rocks
- An assortment of leaves, rocks, shells, twigs
- Small plastic containers with holes punched in the bottom (to form a “rain cloud”). Note: Containers from frozen lunches or small plastic margarine containers make excellent clouds.
- Water
- Paper and pencil

## **Procedure:**

### 1. As a demonstration of **chemical weathering**:

- Place several drops of vinegar on the sandstone and observe the action of acid on the rock. Record your observations.
- Place several drops of vinegar on the limestone and observe the action of the acid on the rock. Record your observations.

Which type of rock is most affected by **chemical weathering** by an acid like vinegar?

Which type of rock produced the most new soil?

Which type of rock took longer to erode?

- Place one cup of dirt into the middle of your container. This will represent the amount of dirt it would take to grow a plant. Estimate the amount of time that it would take you to erode a full cup of each rock type.
- Write down your theory on how long it takes nature to produce one cup of soil.
- What is the difference between your procedure to make soil and nature's processes to make soil?
- Now take your leaves, twigs, and small rocks and stabilize your land form that you have in your container. This means to make the formation stronger by pressing the materials into the dirt.
- Place a small amount of water into the container with holes. Then slowly pass the container over your land formation. Record your results and answer the following questions:
  - Did any erosion occur?
  - Which type of matter (rocks, twigs, leaves) did the best in preventing erosion?

If you were to do this again, would you change the arrangement of the matter that you added to your landform?

***Why/Why not?***

Was there a relationship between the amount of rain water poured on your landform and the amount of erosion that took place? Describe your results.