

Effects of Plants on Erosion Procedure

SETUP

Gather Materials:

Materials Manager brings materials to group area: tub with grass or dirt, bucket, large and small pad, 2 spoons, and graduated cylinder.

Water Filler fills rain jar with 1000 milliliter (ml) of water and screws on lid.

Set up materials:

- Cover a book with the large pad with slick plastic side down (absorbent side up).
- If needed, create soil block between the line and edge with no hole (20 cm long x 5 cm deep).
- Place the tub with dirt end of the tub on stack of books.
- Top of soil in tub should be 10 cm above the table (adjust book size as needed).
- Make sure the drain hole sticks over the edge of the table.
- Place the small pad on the floor with the plastic side down and put the bucket on the pad under the drain hole so that the bucket will catch any water that comes out of the hole.
- Remove the drain plug from the tub and place it on the table next to the tub.

GROUP ROLES

1. **Materials Manager:**
Brings materials and clears drain blocks
2. **Tub Holder:** Keeps tub from sliding off books
3. **Water Filler:** Fills rain jar
4. **Water Shaker:** Shakes all of water evenly across tub
5. **Water Collector:** Collects 50 ml runoff

PROCEDURE

1. **Make it rain.**
 - a. Water collector holds the graduated cylinder under the tub's drain hole until it fills (remainder can go in bucket).
 - b. Water shaker shakes the jar over the soil to make it rain on the soil (don't squeeze). Move it around so all areas of the soil block get equal amounts.
 - c. If the drain hole plugs, materials manager clears the blocking material.
 - d. Once jar is mostly empty and most of the water has drained, plug the hole.
2. **Sketch Observations on your worksheet:**
 - a. Sketch the contents of your graduated cylinder and the changes in the tub on your data sheet. Label the drawing. Pay attention to where the water went in the tub and how it changed the soil.
 - b. Then sketch a cylinder and tub from a group that was different than yours (with plants if you had bare soil).
3. **Measure and record erosion on your worksheet** (after everybody is done sketching):
 - a. Use your trowel and spoons to separate all the dirt that moved past the 20 cm line and put it in your rain jar.
 - b. Use the ml markings on side of jar to measure to top of solids in the jar (not water) and write amount in the data table.

Be prepared to share your data with the class for the class data table.