



## Model Shorelines Filter Experiment

### Materials

- Three 2-liter bottles
- Scissors
- Loose soil
- Small rocks or stones
- Soil with vegetation (a plant)
- Water
- Pitcher or measuring cup

### Procedure

1. With the help of an adult, use scissors to cut each of the 2-liter bottles in half laterally.
2. Place the top of each bottle upside-down in its corresponding bottom end.
3. Each bottle will be used to represent a type of shoreline. You will be testing each model shoreline in its resilience to water erosion. In each of your three model shorelines, place the following:
  - a. *Shoreline 1*: Soil containing a rooted plant, such as a patch of grass.
  - b. *Shoreline 2*: Soil mixed with and covered by small rocks or stones.
  - c. *Shoreline 3*: Only soil.
4. Once your models have been made, make predictions about how each will do. Which model will allow the most soil to erode? Which model will hold on to the most soil?
5. One model at a time, use a pitcher or measuring cup to slowly pour water on top of each shoreline. Try to pour the same amount of water through each model at the same rate.
6. Examine the bottom end of each model. They should all contain about the same amount of water. Make observations about the color and make-up of each model's water.
  - a. Completely clear water at the bottom of the model would mean that all of the soil was maintained, and none was eroded by the flow of water.
  - b. Dark or muddy water would mean that a significant amount of soil was pulled from the model shoreline and eroded by the flowing water.
7. Compare your observations to your predictions. Consider why one model may have performed better or worse than another. Reflect on how your experimental results might be applied to real shorelines.

Coastal Land Loss - Interactive Video  
Accompanying Material

Email us at [education@scienceforourcoast.org](mailto:education@scienceforourcoast.org) to share  
your experiment and results!

