Activity: Wetland in a bottle trio

In the description we talked about how mangroves filter out pollutants. Mangroves are trees and trees are plants! In this activity you will create three different wetlands in three different bottles. The first will just be soil, the second will be soil, leaves, rocks, and sticks, and the last milk jug will have soil and grass that you grow. You will then determine which wetland filters water better! Let's get started.

Materials

- 3 pop bottles, any size, empty and clean
- 3 coffee filters
- 3 strong rubber bands
- Soil
- Leaves and sticks
- Grass seeds
- Scissors
- Markers
- Water
- Measuring cup

Instructions

1. Take the cap off each pop bottle and then cut the bottles in half.
2. On the first pop bottle, place a coffee filter over the tip of the bottle and secure it with a rubber band. For the second bottle, fold the coffee filter in half and place over the tip and secure with a rubber band. Lastly fold a coffee filter in fourths and place over the last bottle and secure with a rubber band.

3. Next place the top of the pop bottle inside the bottom of the bottle, as shown.
4. Label the bottles 1 – 3 with a marker
5. In bottle one, fill with soil.
6. Fill bottle 2 with a layer of soil then on top off that with a layer of sticks, rocks, and leaves.
7. For bottle 3, fill with soil, spread a small layer of grass seeds over top, and cover with more soil.
8. Place bottle 3 in the sun and wait a couple weeks for your grass to grow, watering often.
9. Once the grass is about 3 inches long, using a measuring cup, pour 1 cup, for smaller sized bottle, or 2 cups, for larger sized bottle, of water over each wetland.
    a. Based on the clarity of the water, which wetland filtered the water better?

Discussion Questions:

1. In the discussion we talked about how the mangrove prop roots keep soil from eroding. How do they do this?
2. There was a long list of animals who utilize mangroves. Do some research and find another animal who lives in mangrove forests.
3. What is one way you can help protect mangrove forests?
4. Do you think the coffee filters used in the activity helped filter the water? What could the coffee filters replicate out in the natural environment?
5. Why do you think the wetland that filtered the clearest water was able to filter so much better?