

WETLAND MODELS

Ages 9+

Learning Objectives

Students will be able to:

- construct a model of a wetland
- flood the model to show how wetlands hold water
- answer questions about how wetland water retention helps people.

Summary: Students will learn that wetlands have waterlogged soil or are covered with a relatively shallow layer of water.

Subject Area: Science, Art

Time: 1-2 hours

Background: This activity demonstrates the value of mangroves in water filtration and pollution reduction. For more information on other related wetland functions, please see the 'Mangrove Functions and Benefits' document for supporting material.

Before the Lesson

- Ensure all necessary resources (or alternatives) are available.
- Prepare an area for the activity to take place that can get wet, water may spill out of containers during this activity.
- Explain to students what a wetland is and have them write down some ideas on what they think wetlands do for people, the environment and wildlife.

Materials

- Large, shallow pans (e.g., aluminum pans, greenhouse germination flats, or plastic trays), one for every five students
- Modeling clay, Styrofoam or cornstarch cooked with water and allowed to harden. Florist's green Styrofoam, large sponges, or indoor/outdoor carpeting
- A variety of model-building materials: toothpicks, cheesecloth, cleaners, cotton swabs, glue, poster paint
- Natural materials including pine needles, twigs, grass, weeds, and soil
- Glass container of muddy water



Activity - Wetland Models

Procedure

1. Explain that wetlands are very complicated natural systems, and scientists are still learning more about how they work. One important thing that we do know about wetlands is that they help to reduce flood damage by soaking up excess water and then releasing it slowly into lakes, rivers, and the ocean.

2. This can be a class project, or you can divide the class into groups of five and give each group a pan, some florist's Styrofoam or sponge or indoor/outdoor carpeting, modeling clay, and other building materials.

3. Instruct each group to build a wetland model according to the following instructions:

- Spread a layer of modeling clay in half the pan to represent land. Leave the other half of the pan empty to represent a lake or other body of water such as a river or the ocean.
- Shape the clay so it gradually slopes down to the body of water (see diagram on following page).
- Smooth the clay along the sides of the pan to seal the edges. You can also form meandering streams in the clay that lead to the body of water.
- Cut a piece of the florist's Styrofoam, sponge, or indoor/outdoor carpeting to completely fill the space across the edge of the clay (see diagram). The Styrofoam represents the wetland buffer between dry land and open water.
- Have students add the final touches to their models by attaching plants (natural materials) and animals (molded from additional clay) with toothpicks. Show students pictures of different wetlands as a guide. Here are some ideas: for cattails, use cotton swabs painted brown, pieces of grass, or toothpicks painted green with bits of brown clay stuck on the tops. Use long pine needles for reeds. Make trees by gluing pieces of green sponge onto twigs. For mangroves, use upside-down twigs with green sponge glued onto the main stem.

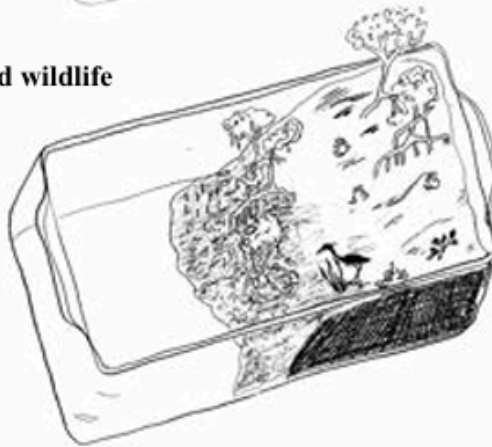


Wetland Model

Step 1—Build wetland



Step 2—Add plants and wildlife



Step 3—Add water



4. Tell the students they are going to simulate a rainstorm by slowly pouring water onto a model (use the one you made). Pour the container of muddy water on the land as shown. Have students describe what happens. (The water should soak into the “wetland” and slowly drain into the body of water.) Have students pour water on their models.

5. Now look at the water in the water body of the model. Is it still dirty? Discuss the value of the marsh in water filtration and pollution reduction. (Through a variety of processes, wetlands help to purify water).

6. Ask students what would happen if the wetland weren't there. Remove the wetland from one of the models and pour the same amount of water on it. Have the students note any difference. (The water should fill the body of water much more quickly, and it should be dirtier because the water body is no longer buffered by a wetland.) Explain that most wetlands are shallow basins that collect water and slow its rate of flow. This slowing helps reduce flooding and allows sediments to settle.

7. Change the size of the wetlands in the model. Repeat the experiment. Have the students note any changes.

Discussion/Reflection

- Ask the students the following questions:
 - What would happen if the marsh were paved over or destroyed? [The water wouldn't soak in.]
 - What would happen to areas downstream? [Could result in flooding.]
 - Why are wetlands important to people? [They can reduce flooding, prevent erosion, and help to clean our water.]

References

- Mangrove Action Project, Marvellous Mangroves - A Wetlands Education Resource Book for the West Indies

