

# Wetlands In A Pan

## INTRODUCTION

Think about what happens when rain hits the land. What happens to the water after it falls to the ground? Imagine a rainstorm in a wetland. Grass, reeds, soil, and vegetation act like a sponge, soaking up the water into the floor of the wetland. Now imagine the same rainstorm on a road or in a parking lot. These surfaces are solid and water has nowhere to go. As it flows along, it gains speed and is able to pick up and carry nutrients or chemicals that might be on the land. Soil not protected by vegetation is easily eroded or washed away by fast moving water. In this activity you will work in small groups to build a model of a wetland and test how wetlands act as a buffer and filter as they trap pollutants from city runoff flowing towards the Estuary.

## MATERIALS

*Your group will need:*

- Modeling Clay
- Long shallow pan: a sturdy metal or glass pan with a smooth, flat bottom works well or a rolling metal or plastic paint pan
- Sponges (enough to span the width of pan)
- Cup of soil
- Spray bottle with water
- Q-tips
- Colored drink mix
- Optional: items to represent wetland plants or animals, such as pine needles, clay for animals, toothpicks and marshmallows for cattails

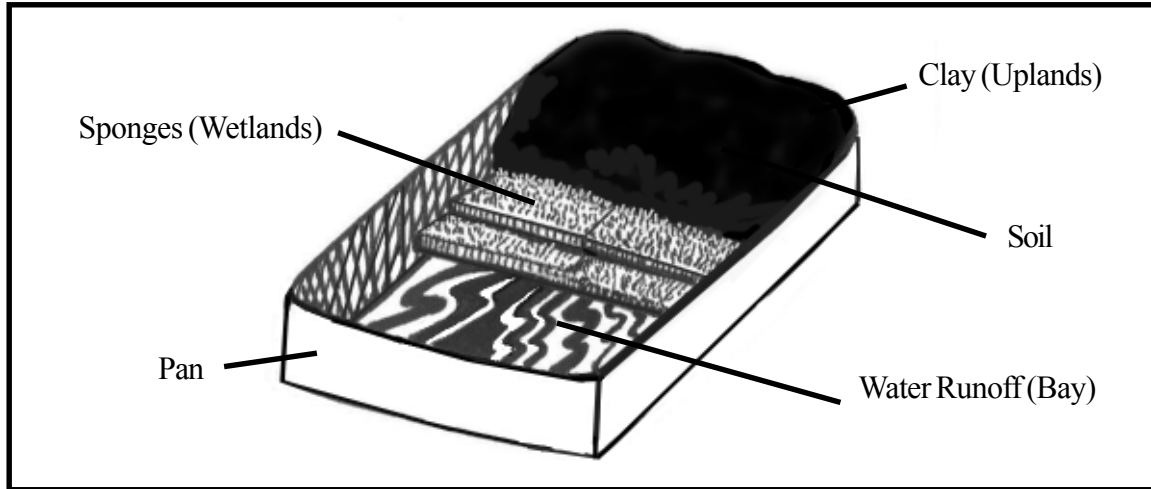


Tara Reinertson

## PROCEDURE

1. In the first part of this activity you and your partner will build a watershed with the supplies provided. Spread the modeling clay over half of the pan. Leave half of the pan empty to represent San Francisco Bay. Shape the clay so that it slopes down to the Bay. Smooth the clay along the sides of the pan to seal the edges. You can also form meandering rivers or creeks in the clay that lead into the Bay. Be creative!

2. Next, you will create a wetland along the low edges of land. To do this use the pieces of cut sponges to completely fill the space across the pan along the edge of the clay (Make sure the wetland fits well - the model won't work if there are spaces under the wetland or at the sides).
3. Make sure the sponges aren't completely dry - wet them with the spray bottle to moisten them.



**Experiment I - Rain on land with wetland**

1. Predict what will happen to the water when it rains.

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2. Create rain on the land by spraying water on the upland area.
3. Record your observations: What happened to the water as it hit the wetland?

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**Experiment II - Rain on land with wetland removed.**

1. Predict what will happen to the water when it rains on the upland.

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2. Remove the sponges from your model and spray water in the upland area. Record your observations.

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**Experiment III - Rain on land with sediment / pollution (with wetland).**

1. Put sponges back in place and then sprinkle the soil on top of upland areas (clay).
2. Place about 1 tsp. of colored flavored drink mix somewhere on the upland above the wetland.  
This simulates pollution.
3. Predict what will happen to the sediment and pollution when rain hits the land.

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4. Predict what will happen to the sediment and pollution when it reaches the wetland.

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5. Spray water on the land of your model. Record your observations. What happened to the sediment and pollution?

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**Experiment IV: Rain on land with sediment (wetland removed).**

1. Pour the water out from the last experiment into a sink and rinse out sponges. Replace a new layer of soil on top of the land surface. Do not replace the wetland (sponges).
2. Predict what you think will happen to the sediment and pollution as the rain hits the land.

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**Conclusions:**

A “wetland buffer” is an area of wetland habitat that acts as a transition between the urban development around the San Francisco Bay and the water in the Bay. Thinking about your experiments, what functions does a “wetland buffer” serve?

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