

# ***From the Mountains to the Estuary: From the Schoolyard to the Bay***

**Meaningful Watershed Experiences  
for Grade 6 Students**

**Created by:**



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**In partnership with:**



**Occoquan Bay National Wildlife Refuge  
Manassas Battlefield National Park**



## ***Modeling***

### A Drop in the Bucket

#### **Overview**

In this activity adapted from *WOW: The Wonders of Wetlands*, students discover that fresh water is a renewable resource but that it is available in limited amounts so conservation of this resource is important.

#### **Teacher Background**

- 71 percent of the planet earth is covered with water.
- Only 3 percent of the water is fresh; only 0.6% is non-frozen.
- Only 0.00003 percent is not polluted, trapped in soil or groundwater too far underground.
- On a global scale only a small percentage of water is available for use.
- Geography, climate, and weather effect water distribution.
- Land and water use for agriculture, industry, and homes affect the quantity and quality of available fresh water. This in turn affects our watersheds and wetlands.

#### **Materials**

- 2 colors of construction paper
- scissors
- markers
- water
- 1000 mL beaker
- 100 mL graduated cylinder
- Small dish
- Salt
- globe
- large sheet of white paper
- bucket

#### **Setting the Stage**

Tell students they are going to estimate the proportion of potable (drinkable) and non-potable water.

## Acquisition of Learning

1. Have students work in small groups. Each group should draw a large circle on the white paper.
2. Give each group two sheets of construction paper of two different colors. One color represents potable water; the other, non-potable water (the rest of the water on the planet).
3. Have the students tear the construction paper into 100 small pieces.
4. Have the students estimate how many will represent potable water and how many will represent non-potable- place those pieces within the circle.
5. Show the class 1000 mL of water. This represents all of the water on earth.

Question: Where is most of the water on earth located? (*About 97percent of all water is in the ocean.*) Use the globe to demonstrate.

6. Pour 30 mL of water into the 100mL cylinder. Add salt to the 1000 mL beaker to show that this is unsuitable for human consumption.

Question: Where is most of the fresh water on the planet? (*About 80 % frozen in ice caps or glaciers.*)

7. Pour 6 ml of water into a dish. This is the only non-frozen fresh water.
8. Remove a single drop of water from the dish using an eye dropper. This water, about 1.5 mL is surface water- the rest is groundwater.
9. Drop that drop of water into bucket- represents 0.00003% of total!

## Closure

Ask students about their initial estimates of potable water to non-potable water. Was anyone close to the true amount? Since there is so little fresh water that can be consumed by humans it is very important to conserve and protect the water we have.