

Wetlands Ecology – Wetlands and Water Resources

Group Activity – 6 to 10 students, 20 minutes

Theme: Ponds and wetlands in Boulder County provide sites for water storage, water purification, and control of run-off during storms and floods.

Activities: Exploring the functions of wetlands in water resources.

Supplies:

- Bucket of pond water
- 2 plastic cups with handles
- 2 large sponges
- 2 large cookie sheets
- Paper (coffee) filters and/or paper towels
- Sieve
- Clear bucket to receive filtered pond water. A white or light colored bucket may also be used in this activity
- Hand sanitizer

These supplies are available at the Walden Ponds resource center in the plastic container marked *Water Resources*.

Introduction:

The majority of ponds - on the plains today are human-made reservoirs and not natural bodies of water. Reservoirs were constructed to hold water for agriculture (both crops and farm animals) and to supply water to towns and cities on the Front Range. Many of the ponds were formed as the result of gravel mining alongside creek beds to build roads and highways on the plains and in mountain areas.

Part A: Sources of water in the ponds of Boulder County Parks & Open Space

Ask students: Where does water come from to fill these ponds?

Give them time to respond to your question. If they answer *mountain snow* have them think a little more about how the snow melt gets to the ponds.

Here are some sources of pond water:

- Precipitation directly into ponds.
- Water transported to the ponds in ditches from the creek. Which creek supplies the ponds at Walden? (*Boulder Creek*) Pella Crossing? (*St. Vrain Creek*) Stearns Lake? (*Rock Creek*)
- Water seeping into the ponds from ground water supplies.

Part B: Functions of wetlands in water absorption and release

Wetland ponds absorb and store water, gradually releasing it downstream. This is especially important to prevent flooding in times of a large run-off from melting snow or prolonged rain storms. Capture and storage of water by wetlands is demonstrated in this activity with cookie sheets and sponges.

Activity:

Set up the cookie sheets – upright & vertical at a 45 degree angle – on the side of the boardwalk or up against a wall.

Moisten and wring out the sponges, placing them at the bottom of one cookie sheet.

Have students pour a cup of water simultaneously on the top of both cookie sheets, one with the sponges and the other without, and observe the run-off. Demonstrate the gradual release of water by pressing on the saturated sponges.

Discussion:

Suggested questions for VNs to ask kids to facilitate discussion:

What do the cookie sheets and sponges represent?

What happens to the water flowing down each cookie sheet?

Part C: The wetlands as a filter in water purification

Wetlands purify our water supply. They allow silt to settle out on the bottom of the pond. They trap particles such as toxins, pollutants, and wastes as the water filters through the plants and silt in the pond.

Activity:

Fill a large bucket with (unfiltered) pond water.

Set up:

- A sieve with a paper coffee filter and/or paper towel in it.
- A smaller clear or white bucket to receive and view the filtered water.

Have the students, one at a time, fill a plastic cup with pond water and pour it into the coffee filter strainer.

- Observe the buildup of silt in the filter.
- Observe the color of and sediment in the filtered water.

Discussion:

Suggested questions to ask kids to facilitate discussion:

1. What does the coffee filter represent? What happens to the water after it is poured through the filter? The deposits trapped in this filter represent what in a pond? (*silt*)
2. Notice that the water in the receiving bucket gets clearer as you (students) pour more pond water through the filter. Why does this happen?
3. Which container would you rather drink from or take a bath in? Is this filtered water safe to drink? What could you do to make it safe?

Conclusion:

Besides providing habitat for plants and animals, ponds and wetlands help people by controlling flooding and cleaning our water.

Tips for water resources activities:

1. There is an interpretive panel titled *Wetlands Control Flooding* on the boardwalk at Walden Ponds. It is an excellent illustration of these concepts.
2. From this interpretive panel looking at the north side of Cottonwood Marsh you can see the City of Boulder wastewater treatment plant. This treatment plant represents the natural function of wetlands in cleaning and purifying water.

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2020