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UNL MESOWHEELS Program: *What are Wetland Ecosystem Services?*[1]

BACKGROUND:

Nebraska is home to four diverse and important wetland systems: saline, riverine, playa, and sandhill. Wetlands provide several benefits to our environment including[2]: improving water quality, providing habitat for wildlife, reducing flooding and soil erosion, supplying water storage, and providing recreational and education opportunities. The state of Nebraska contained around 2,910,500 acres of wetlands in 1867, but now only has around 1,905,500 areas (35% loss)[2]. Therefore, efforts to preserve and restore this important ecosystem is critical for improving water quality and providing habitat for sensitive wildlife and plants.

OBJECTIVE:

The objective of this exercise is to

1. Understand how wetlands can reduce sediment and contaminants (i.e., pesticides and phosphorus) attached to sediment from entering rivers
2. Observe how water is slowed down and stored in wetlands

MATERIALS NEEDED PER 20 STUDENT CLASS WORKING IN PAIRS:

Material	Cost per Item	Total
"The Water Princess" by Sudan Verde	$0 (public library)	$0
Laminated Ecosystem Services (e.g., animals, canoes, clean water, flood control)	$5	$5
10 plastic cup	$5	$5
10 sponges that fit in cup	$5	$5
Food coloring	$3	$3
Pitcher of Water	$3	$3
Rinse Bucket	$5	$5
Straws	$3	$3
Total		**$29**

PROCEDURE:

1. Ask what do children think a wetland is? Provide definition

[1] Adapted from United States Environmental Protection Agency *Thistin Builds an Aquifer* https://www3.epa.gov/safewater/kids/pdfs/activity_grades_k-3_aquiferinacup.pdf

2. Ask what do children think wetlands provide?
3. Have children construct a wetland in a cup by pouring water to fill the cup half full
4. Add the sponge on top of the water
5. Pierce a straw through the middle of the sponge (sometimes this is easier to do with the sponge prior to putting it on top of the water)
6. Pour clear water in a cup with sponge and straw floating on top
7. Have children make observations
8. Ask children to hypothesize what will happen once you had food coloring to the cup
9. Drop food coloring on top of sponge (observe how the pollutant is not entering the well water.
10. Drop food coloring diluted in water into well (straw) using syringe and allow children to make observations.
11. Discuss how groundwater wells become polluted (i.e., leaching of chemicals, flooded conditions overtop wells and put pollutants into drinking water, etc.).
12. Have children pick out examples of other wetland ecosystem services and put up on the board and discuss.
13. Also use the “Water Princess” book to discuss challenges with clean access to water from an international perspective.