

Field Investigation: Manassas

Wetlands Investigation Group Challenge Activity

Overview:

Through a series of group challenges, students will see how it takes a lot of individuals cooperating to restore a wetland once it has been removed/destroyed. In addition, they will learn about some of the important functions of wetlands.

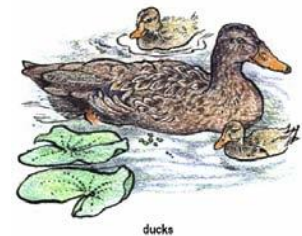
Teacher Background:

Information about the history of the wetlands restoration at Manassas Battlefield can be found at the Smithsonian web page listed below:

http://www.nasm.si.edu/Museum/UdvarHazy/bts/bts_wetlands.cfm

Setting the Stage:

Have students visit the sign that shows the area before the wetlands mitigation was complete. Ask how many people do they think were involved in the project. Have them name some of the organizations that might have helped (*National Park Service personnel, Scientists from the Smithsonian, Wetlands specialist, Biologists, construction workers*)



Explain that this project involved a lot of organizations working well together. This is similar to a healthy ecosystem. Have the students make some observations about the wetlands area. Name some factors that are present. Be sure they include the biotic and abiotic components. In a healthy wetland the different components, organisms, water, soil, sun, interact with each other to form a balance.

Today's group challenges have this same theme... you are all different, unique people coming together to achieve a common goal.

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Acquisition of Learning:

Activity 1: Yurt Circle

1. For the first challenge have all of the students form a large circle. Have the students count off "1", "2" around the circle.
2. Have the students hold hands.
3. Tell the students that when you count to 3 you want to people who are #2 to lean forward and the people that are #1s need to lean back. The challenge is to hold the circle as long as possible.
4. Count to three and have the students lean.
5. Once the students are steady, start timing to see how long the group can hold this position.
 - If the circle immediately breaks, have the students problem solve to see if they can figure out what happened. Try again.
 - Continue until the students are successful. (they can hold the circle for at least 20 seconds)
 - Did it take everyone to make the circle? Did one person out of place make a difference?

Activity 2: Wetlands Metaphors

Materials: pillow case containing bar of soap, can of tuna, strainer, coffee filter, baby bottle or pacifier, sponge, bottle of antacid tablets, whisk

1. Begin by asking what a metaphor is (a comparison that does not use *like* or *as*).
2. Explain that there are items in the pillowcase that are metaphors for the functions (i.e. jobs) of the wetlands. For example, the pillowcase represents how the wetlands are resting areas for migrating birds, just like we rest our heads on a pillow.
3. Depending on group size, have students work in pairs or groups of three. Distribute one item to each group and instruct the students to talk to their team about the possible connection to a wetland function.
4. Allow several minutes for discussion, then bring whole group back together and have each team share out their ideas.

soap = how wetlands help to keep water clean

tuna = how wetlands provide food

strainer = how wetlands strain out pollutants and sediments

coffee filter = how wetlands filter out toxins and other pollutants

baby bottle = how wetlands provide nurseries for many different species of fish, birds, turtles, frogs, etc.

sponge = how wetlands absorb flood waters

antacid = how wetlands can bring pH back to neutral

whisk = how wetlands mix in nutrients

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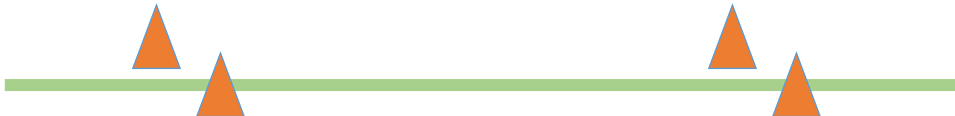
Activity 3: All Tied Up

1. For this challenge divide your group into teams of no more than 8 (**even numbers work best** for this activity) Explain that sometimes ecosystems like the Chesapeake Bay face a multitude of problems that have to be addressed so solving them can get complicated.
2. Have the students form a circle.
3. Each student should hold out their right hand and grab another student's right hand, but they can't grab the person next to them.
4. Now have the students put out their left hand, they need to grab a different students hand.
5. Their challenge is to see if they can untangle themselves from this knot to form a perfect circle. **Note: they need to exercise caution and be careful not to twist the other persons arm.**
6. Have the students try to untangle themselves. Most groups will be able to after a little time, but some will not. If a team is stuck, let them break hands.
7. After the teams are done ask the question- was it easy to get untangled? How did the situation get so bad so quickly?
8. Make the connection between their situation and the issues that face the Chesapeake like sediments, nutrients, pollutions, storm water runoff- it can make a pretty big knot pretty quickly. *Is it impossible to fix?* No, but it takes cooperation and hard work. *Are there any knots that can't be undone?* (Extinction, the loss of a wetland to construction)

Activity 4: Migration Challenge

Materials:

- Three planks 7' long, one shorter plank
- Four Cones, two at each end of a 30' stretch of ground



The next challenge has to do with some of the functions of wetlands. Unfortunately wetlands are disappearing across the world. Wetlands are very important, especially for birds that use them as resting and feeding places during migration. They filter pollutants in water before they can flow into larger rivers, bays or oceans.

1. Set out the two pairs of cones parallel to each other but about 60 feet apart.
2. Explain that these cones represent South America and the other is North America, and they are separated by the Gulf of Mexico.
3. The boards represent the path and wetlands that are necessary for the birds to migrate South for the winter.
4. Explain that the birds only have a month to migrate, so that is enough for **three trips** across. There is no need to jump – the challenge can be solved without jumping, and they should never throw the planks.
5. The challenge is to get all of your flock down to South America, but you must stay on the three boards. If you fall off, unfortunately you are killed by a hunter or pollution and

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your whole flock has to head back.

6. Have students problem solve to see how they can get all their flocks over. (*They will need to line up the three boards and send half of the team, and then one team member will have to come back for the others.*)

Modifications: If there is a large group (20 students), you'll need to use the 3 long planks. If there is a smaller group, use 2 long planks and one shorter plank.

Closure:

Have the students talk about if the challenges were difficult or easy. Is it hard to work with so many different people? Did you have to work together to be successful? Were some problems harder to solve than others? Did you solve the problem on your first try or did you have to change the way you were looking at the problem? How does this relate to some of the problems the Chesapeake Bay faces?