GEORGIA
BURTON 4-H CENTER ON TYBEE ISLAND

Pollution Solutions
Pre-Post Trip Activities

Activity 1. Pollution Scavenger Hunt

Set up different "pollutions" either around your classroom or around the schools campus for a large scale scavenger hunt. If in the classroom, these can be pictures hung at different locations (such as a beach station, stream station, city station, etc.). Take the class around to "visit" each location and have them identify what they think is the pollution. To make it a little more challenging, you can mix in "solutions" to pollution such as examples of recycling, reducing, and reusing for the students to identify. If doing this activity around the schools campus, you can get a little more creative and use actual pollution props for the students to find. You can also mix in "solutions" with these pollutions.

Activity 2. Plant Pollution Uptake

Take a fresh stalk of celery, cut the top leaves off, and fill a glass halfway with clean water. Show the students the color of the cross section and explain how plants soak up water like a straw. Sometimes however the water has harmful chemicals in it. Add a few drops of food coloring to the water. This represents water pollution. When the water is polluted, it will affect the plants that grow in and around it. Place one end of the celery stalk in the water and let it sit overnight. The next day, take out the stalk of celery and cut into several sections so they can see how far up the food coloring was absorbed by the celery. This is how pollutants from the water get into plants and harm them. This is a good opportunity to discuss sources of water pollution and ask them what some solutions might be.

Activity 3. A Drop of Water

Discuss the difference between storm drains and sewage drains with your students. Then set up a pop-up play tunnel, that represents a storm drain. Place different objects (ex. cans, plastic bags, wrappers, etc.) inside the tunnel to represent pollution. The students should crawl through the tunnel; they are modeling rainwater that is moving through the pipes. As they move through, they should pick up one piece of pollution. Have each student discuss what they could do to prevent their object getting into a storm drain.

Activity 4. Biodegradability

Have the students bury some items (paper towels, a sock, plastic bag, etc.) in a small plot outside the school and mark where each item is buried with a popsicle stick. Choose a date (about a month after) to unearth the items and determine their level of degradation. Students should understand how items break down naturally. They can make guesses as to what will be the most degraded at the end of the month. Discuss why some items broke down more than others.

Activity 5. Ocean Pollution Sensory Bin

Fill a large plastic bin/tub filled halfway with fresh clean water. Take a sample of the clean water by filling a small glass or plastic bottle with a lid. Put a toy boat and plastic animals/seashells in the bin with water and let the kids play. This represents an ocean without pollution. Next, mix a bit of cocoa powder or coffee grounds and vegetable oil in a bowl. Then, drip vegetable oil into the water, on the boat, and on the animals. Let the kids see what is happening to the water. Take this time to talk about different kinds of pollution and what they do to the water/animals. For example, talk about what happens when oil spills into the ocean. Add a few more scoops of coffee grounds into the water to see how much darker it gets. Then, take the plastic bag and shred some pieces to pollute the water. Discuss what happens when an animal gets stuck in plastic waste. Take a sample of the polluted water by filling a small glass or plastic bottle with a lid. Set that bottle or glass next to the clean water bottle. Have students then clean the water. Use tweezers or scoops to remove the plastic from the water. Untangle any plastic from the animals. Use cotton balls and sponges to try and absorb the oil that has spilled into the water. Use dish soap and a small scrub brush to clean the oil off of the plastic animals. Discuss how you can prevent ocean pollution and efforts you can make to help clean up the pollution currently in the oceans.

Activity 6. Life on the Edge

Have students pick an animal they would like to portray. Students will compete for colored pieces of paper around them representing different resources. At the end, see which species were able to survive and which didn't. As an added twist, add colored paper representing pollution to see how it affects species. (Additional instructions can be found on page 3).

Activity 7. Threatened Species

Have students either with a partner or in groups find and research a species that has been harmed by pollution. Students should identify the type of pollution, how it affects the animal, and possible solutions to the problem. Students can present their findings to the class.

Activity 8. No Water Off a Bird's Back

Oil spills unfortunately impact many animals, including birds. Throughout this activity, students will examine how pollution, like oil spills, affect birds nesting and ability to fly. (More instructions found on page 4).

Additional Instructions

Activity 6. Life on the Edge

Materials:

- black square to stand on
- confetti sized blue, brown, purple and yellow squares
    - Blue squares- water
    - Brown squares- habitat
    - Purple squares- food
    - Yellow squares- plastic

*Limit the amount of resources during the initial spread out.

1. Tell each student to pick an animal species they would like to portray.
2. Give each student a colored piece of paper. Have the students stand on the paper four feet apart. One foot must stay on this spot at all times.
3. Scatter small square cut pieces of paper around the student so they are 1-2 apart.
4. Tell the students they will be playing a game called every species for themselves. Their goal is to get as many squares as they can. Explain what each color represents.
5. Give the signal to start. Tell students they have to reach and that they cannot move off their original spot (black square).
6. Give students 10 seconds to collect squares. Afterwards have students recorded how many of each of the squares they have. Ask the students:
    a. How many required materials did each animal get?
    b. Are any animals lacking a particular requirement?

After the discussion, play another and see what happens. Animals that don't have any or lacking requirements in this round will go extinct, so these animals have to lie down and play dead. The game can continue for as long as you would like. One thing to monitor is the competition among the students as the game goes on. This is expected to happen, as it mimics how animals in the wild have to compete due to human impacts affecting spacing, natural resources, or by contaminating the environment.

Additional Instructions

Activity 8. No Water Off a Bird's Back

Materials:

- Vegetable oil
- three hard boiled eggs
- water
- feathers
- small container
- shallow pan

Part 1:

1. Fill a shallow pan partially with water, add one teaspoon of oil. Observe the interaction between the oil and water.
2. Measure the area covered by the oil.
3. Add oil to a small container and submerge three shelled, hard boiled eggs.
4. Remove one egg after 5 minutes.
5. Peel off the shell. Make observations before, during, and after peeling off the shell.
6. Let the other two eggs sit in the oil; one for 15 minutes, and the other for 30 minutes. Repeat step 5 for each.
7. Discuss how oil can affect eggs of birds nesting near water.

Part 2:

1. Have students make observations about the feathers.
2. Dip a feather in water for two minutes and compare to the original observations.
3. Now dip the feather in oil and compare to the other observations.
4. Clean the feather in detergent, rinse, and then observe.
5. Discuss changes to the feather and what affects this could have on normal bird activity.