



Swamp Sweep

Focus/Overview

Students conduct a scientific investigation to determine amounts, types, and sources of debris found along a selected waterway within their community. Results are used to make a positive change towards the problem.

Learning Objective(s)

The learner will

- discuss adverse effects of debris on the wetland ecosystem
- identify common sources of debris in our wetlands
- collect, organize, and analyze data determining amounts and types of debris
- use the results of the data to identify possible solutions or action towards public awareness
- understand that students can make a positive contribution to our community and make a difference in the world

Louisiana Grade Level Expectations (Science)

7 INQ: GLE-22	
7: GLE 39	Use evidence and observations to explain and communicate the results of investigations (SI-M-A7)

Analyze the consequences of human activities on ecosystems (SE-M-A4)

Materials List

- trash bags (if separating recyclables, get two colors)
- gloves
- clipboard and pen for each group
- clean-up Data Card (obtained through Ocean Conservancy)
- first aid kit
- graph paper
- colored pencils or crayons
- overhead copy of data sheet
- whistle or megaphone (optional)

Background Information

Advanced Preparation

1. Copy enough data cards for each group (If you do not have a copy, contact the Ocean Conservancy or Louisiana DEQ to get some)
2. Purchase or order trash bags from Ocean Conservancy or Louisiana DEQ (If your area has a strong recyclable program, you may want different colored bags to separate recyclable materials collected.)
3. Ask students to bring work gloves from home or purchase enough so there is at least one pair per group (Many dollar stores stock work gloves)
4. If a wide area is being covered, you may want to bring a whistle, a megaphone, or two-way radios to communicate with other chaperones and students.
5. Students also enjoy using “Litter Gitters” which are long trash tongs. These are available at Home Depot and Forestry Suppliers for between \$10 and \$16 each.
6. Choose a clean-up site near your school and set clear boundaries for students. Scout out the area for hidden dangers such as ant piles and poison ivy so you can either mark the area or inform students to steer clear.

BTNEP Connection

Water Quality

Grade Level

7

Duration

- 1 period – fieldtrip
- 1 period – classroom

Subject Area

science

Setting

outdoors (nearby waterbody), classroom.

Vocabulary

debris, pollution

Original Source

V. Butler's Writing Team.



www.btnep.org



7. Predetermine a central drop off point for students to stack their garbage bags. Also, make sure that someone from your parish is alerted and will be able to collect the bags.
8. Constantly remind students of safety rules that include:
 - Students must not attempt to collect trash that includes medical waste, broken glass, or jagged metals. An adult must be alerted so that the trash is collected safely.
 - Students should not touch any dead animals that they may find. Dead animals can carry some diseases.
9. Depending on the area, students should wear jeans and old shoes, bring mosquito spray and sun block, and have water (or provide) water.

Procedures

1. Ask students to close their eyes and imagine that they are taking a trip through one of the most precious ecosystems in the entire world – the Barataria-Terrebonne Estuary System. Read the following guided imagery to the students, asking them to picture the scenes in their mind's eye.

Drifting slowly with the current, you are enveloped in silence from modern day noises. Above the soft breeze rustling through the leaves, you hear the twittering and whistles of countless colorful birds. Some live here year round, and some are just resting during their long migration. Murky bayou water meanders through ancient cypress trees adorned with long, gray, spiral strands of moss. You pass by a large hill built from thousands of small white clamshells. This long abandoned shell midden created by Native Americans serves as a lone reminder of a civilization that thrived here long ago. Surrounded by timeless wonder, you may be traveling down the same wondering waterway that some of Jean Lafitte's privateers navigated. Thriving cypress swamps and flourishing marshes provided perfect hideouts for these infamous pirates and their stolen loot. A bright flash of light sparkling in the sunshine catches your eye. Could it be a piece of forgotten treasure? As you cautiously near the bank, you see it is not the silver and gold doubloons you may have imagined. Instead, it is a discarded aluminum can trapped in the long marsh grass. Snapped back from the beautiful past, you take a closer look beyond the fallen limbs and purple swamp lilies. Hidden in the shallow waters are reminders that it is a much different time in which we live. Submerged potato chip bags, portions of a rusted crab trap, plastic water bottles, knotted fishing lines, and fast food wrappers are all visible upon closer scrutiny. (May open eyes)

Litter not only detracts from the beauty of this magical place, but it also affects the health. In many places, so much trash is discarded, tidal action has formed piles of it along the shore line. Modern plastics and other synthetic materials may take hundreds of years to degrade naturally. Some of the trash is mistaken as food by animals and ingested. They either choke on it or die soon after from internal injuries. In many cases, animals become entangled in the trash. This either limits their ability to breathe, hunt for food, or results in extreme body deformation. Floating debris clogs up waterways and limits the amount of sunlight needed for healthy aquatic systems.

For nearly 200 years, legends of Lafitte's treasure hidden in the Barataria-Terrebonne Estuary have stirred the imaginations of young and old. With the incredible amount of values provided by the Barataria-Terrebonne Estuary, it may have been considered as Jean Lafitte's most prized treasure. The Barataria-Terrebonne Estuary is one of the most productive ecosystems in the entire world. Times have changed. Unless we take action to do our part and encourage others to assist in the care of this valuable treasure, it may also become part of the folklore as another of Lafitte's lost treasures.

Travel to clean up area.

2. Gather students together in one group and remind them of the importance of what they are doing. Read over safety rules and stress the reasons behind each so there is a clear understanding. Point out the drop off point where bags will be collected.
3. Divide students into groups of 3 or 4 assigning the roles of recorder, bag carrier, and collectors. Distribute gloves, clipboards, pens, and data cards (**Blackline Master #1**) to each group. Review over the data cards, making sure there is a clear understanding of what each item is and how to fill it out correctly.
4. Ask students to look around the selected clean-up area and then look at the categories on their data card. Students must predict which activity they think resulted in the most trash left behind at this specific location.

5. All members of each group should sign their group's data card and their prediction after their name.
6. Allow students enough time for thorough coverage of the area. Motivate groups that do not seem to be putting forth much effort. (Some teachers provide prizes in many different categories such as, most trash collected, weirdest piece of trash collected, etc.)
7. Once complete, collect all data cards, clipboards, pens, and any gloves you may have provided. Reiterate to the students what an important service they are providing for their community and for the environment.
8. Take a picture of all of the students with all of the trash they collected.

Back at school: copy the data cards; call and remind parish officials about the collected trash and where you left it.

Back at school:

9. Divide class into groups of 2-3. Hand back to students a copy of their data cards.
10. Provide each group of students with a blank data sheet so that they can record the total tabulated results for each category as you tabulate the results on a blank data sheet on the overhead projector.
11. Have each group create a bar graph or a picot graph comparing the total number of items collected in each major category (Shoreline/Recreational, Ocean/waterway, Dumping, etc.). After students have had enough time to create a graph, ask volunteers to share their results.
12. Ask students to infer an explanation for the results. Would their data be different if they cleaned-up a different area? Why? Provide examples with their explanations.
13. Compare the results from your class with the online data card results from the Louisiana Department of Environmental Quality. Does the data you collected compare favorably with the percentages of the types of litter found? How does Louisiana compare with other states as far as volunteers for International Coastal Clean-up Day? How can we urge more people to participate?
14. Explain to students that littering and illegal dumping are widespread problems across our state and in many parts of the country. Based on the data they have collected which group of people would they have to target with an awareness campaign?
15. Brainstorm ideas of how the students could communicate the negative impact that littering has on our environment to the general public (brochures, fact sheets, signs, etc.). List student ideas on the board. As a class, choose one plan of action and follow up on it. Have students research more information on the internet or publications from local agencies.

Blackline Master

1. Swamp Sweep Data Card

Assessment

- Results of tabulated data
- Completed picot or bar graph
- Completed awareness project
- Completed pie chart

Extensions

Language Arts

Have students write a descriptive essay reflecting on their activities during the field experience. Ask them to picture the area in ten years. What would it look like if concerned citizens, such as themselves, did not pick up the litter and dumped junk?

Social Studies

Research laws and ordinances concerning littering and dumping in our community. Have a public official speak to the students about these laws and how they are enforced. How could they be stronger laws? Are the laws in place working? Where are the biggest trouble spots in the community?

Math

Have students create a pie graph comparing the amount of each item collected from the Shoreline/Recreational Activities section. This will provide even more specific information concerning the types of litter found in the area.

The Arts

Have students create posters concerning the importance of not littering and illustrating the negative impact that litter has on the ecosystem and the animals that reside there.

Technology

Use computer to create brochures, fact sheets, or signs to help spread awareness about the impact of littering on our community and environment.

Resources

Websites:

Ocean Conservancy, 2005, *The International Coastal Clean-up*, accessed July 22, 2005 at <http://www.coastalcleanup.org/>.

Information on beach sweep activities all around the world.

The Litter Reduction and Public Action Program, Louisiana Department of Environmental Quality, 2005, accessed July 22, 2005 at <http://www.deq.state.la.us/assistance/litter/index.htm>

Great site on litter abatement activities organized by DEQ around the state of Louisiana: Beach Sweep, Keep Louisiana Beautiful, Great American Cleanup results, Adopt a Road programs, Waste In Place Workshops and more.

Swamp Sweep Data Card

Modified from the International Coastal Cleanup™ Data Card

Cleanup Location

Type of Cleanup: Shoreline/Beach Underwater
 Zone or Parish Cleaned: _____ Beach or Site Name: _____
 Today's Date: Month _____ Day _____ Year _____ Name of Teacher: _____
 Number of People Working on this Card: _____ Distance Cleaned _____ miles or _____ km
 Number of Trash Bags Filled: _____ Total Estimated Weight: _____ lbs or _____ kgs

Names of Participants in Your Group

Entangled Animals

Dead Alive. List all entangled animals found during your cleanup. Tell us what they were entangled in (fishing line, rope, net, etc.)

What was the most peculiar item you collected?

SHORELINE AND RECREATIONAL ACTIVITIES	
Bags _____	Cups, Plates, Forks/Knives/Spoons _____
Balloons _____	Pull Tabs _____
Beverage bottles (plastic, 2 liter or less) _____	Food Wrappers/Containers _____
Beverage bottles (glass) _____	6-pack Holders _____
Beverage cans _____	Shotgun Shells/Wadding _____
Caps, Lids _____	Straws, Stirrers _____
Clothing, Shoes _____	Toys _____
OCEAN/WATERWAY ACTIVITIES	
Bait Containers/Packaging _____	Fishing Nets _____
Bleach/Cleaner Bottles _____	Light Bulbs/Tubes _____
Buoys/Floats _____	Oil/Lube Bottles _____
Crab/Lobster/Fish Traps _____	Pallets _____
Crates _____	Plastic Sheeting/Tarps _____
Fishing Line _____	Rope _____
Fishing Lures/ Light Sticks _____	Strapping Bands _____
SMOKING-RELATED ACTIVITIES	DUMPING ACTIVITIES
Cigarettes/Cigarette Filters _____	Appliances _____
Cigarette Lighters _____	Batteries _____
Cigar Taps _____	Building Materials _____
Tobacco Packaging/Wrappers _____	Cars/Car Parts _____
	55-Gallon Drums _____
MEDICAL/PERSONAL HYGIENE	DEBRIS ITEMS OF LOCAL CONCERN <i>(please list)</i>
Condoms _____	_____
Diapers _____	_____
Syringes _____	_____
Tampons _____	_____

Modified from the data card of the Ocean Conservancy.

