



“Beach” Cleanups in Your School Yard

Many students do not live close enough to the beach to participate in beach cleanups however, cleanups along waterways and in your neighborhood or local park are a good way to help prevent litter from entering waterways and ultimately to the ocean. Raising awareness, prompting behavior changes and taking action is a big part of the litter problem and reducing the amount of trash that enters and remains in the ocean. This activity uses beach cleanup data collected by kids on Grand Isle, LA and Teachers on Grand Terre, LA during 2011 WETSHOP to simulate a beach cleanup in your classroom or school yard.

Objectives:

Students will...

- predict types of debris they would expect to find during a beach cleanup.
- analyze and compare data from the 2010 Beach Cleanup in Louisiana and the United States.
- collect and classify data during a simulated beach cleanup in the school yard or classroom.
- compare and contrast their data with the data collected in 1987 and 2010 in Louisiana.

Materials:

Beach cleanup cards or numerous items that you can broadcast in the school yard

Blackline # 1 Debris cards of real debris from the Grand Isle data if needed

Blackline #2 Beach Cleanup Data Sheet for Students

Blackline #3 1987 Louisiana Beach Cleanup

Blackline #4 2010 Beach Cleanup Data for Louisiana and U.S. (Ocean Conservancy)

Engage:

Ask students to define a watershed and marine debris. Discuss the causes and the problems for fish and wildlife and people and emphasize to them that we all live in a watershed that is connected to the ocean. Anything that is carelessly disposed of can be transported by wind or water to the ocean. Discuss with them what kinds of trash are found along beaches and streams. Make a list on the board of what they would expect to find if they were to participate in a beach cleanup in Louisiana or their area. Show them pictures of debris.

Explore/Explain

- If possible, take your students on a beach cleanup and collect data, or arrange a school yard or park cleanup or use the debris cards (*Blackline #1*) and broadcast them around the school yard or in your room. You can also use real items.

- Divide students into groups of two or three. Students will record their data on the Student Data sheet (*Blackline #2*). One person will be the recorder and the other(s) will collect “trash” and call out the item.
- When the “Beach Cleanup” is complete students will tabulate and categorize their data into groups and determine the top 10 items on their “beach”
- Once your students have collected their own data have them categorize the debris in groups of their choosing. Report back to the class the results of their cleanup.

Expand

Use the 1987 and 2010 data sheets (*Blackline #3&4*) for Louisiana to evaluate and compare different data sets about marine debris data and to answer the following questions.

- What percent of the total U.S. trash was collected in Louisiana?
- How many of the top 10 items were made of plastic in Louisiana? Calculate percent.
- How many of the top 10 items in 1987 were made of plastic? Calculate percent.
- List some differences in the marine debris collected in 1987 and 2010.
- What items do you see in the 1987 data that is not in the 2010 data? What could be the cause of these changes? (*Data cards were slightly different, 1987 data card could have been designed specifically for Louisiana or the gulf coast, the international card has to be very general because different coastlines are included*)
- How does your data collected compare to these two data sets?
- Compare the data in another way that you are curious about.

Using the 2010 data sheets (*Blackline #4*) from the Ocean Conservancy’s International Beach Cleanup for Louisiana and the United States compare the relative abundances (percent of total) of five items of your choice.

Extend

#1 Derelict Crab Traps

Marine debris is not just for shorelines and garbage patches in the Pacific Ocean. Debris is deposited on any low lying areas during heavy rain, floods, storms and high water. Because high water levels flood Louisiana’s low marshes, debris of all kinds is deposited over huge areas in our marshes. Fishing gear such as nets and traps are some of the more noticeable and can be harmful to fish and wildlife. Thousands of crab traps are lost in our marshes each year. Fish and shell fish will continue to enter these derelict traps and are trapped indefinitely and often die inside them.



To clear marshes of derelict traps Louisiana Sea Grant and the Louisiana Department of Wildlife and Fisheries organized a crab trap rodeos in February and March 2012 for two weekends in the Delacroix area. Volunteers helped collect 1,950 derelict crab traps in a 366 sq. mile area. How many crab traps per square mile were collected? ($1,950/366=5.3$).

The rodeo was held in Plaquemines Parish which has an area about of 2,429 square miles. Use the results of this rodeo to estimate the number of derelict crab traps that could remain in the parish. ($5.3 \times 2,429 = 12,874$).

#2 Stewardship

Work with your students to develop a stewardship project relating to litter and marine debris. Many students will not live near a beach however a cleanup can be conducted along lakes, rivers, streams, or in your neighborhood. Have students collect data and compare with the items found on the beach cleanups. Remember the data sheets focus on generally common items. Expect to find some interesting things!

#3 Home Data Collection

Students can spend one day to a week collecting data at home as items are thrown into the trash can. Student tally their data and compile the data as a class. The class will discuss the differences in their trash and how each can reduce what they are using and throwing away.

#4 Neighborhood Data Collection. Students can survey their neighborhood for debris and litter. Choose a street or two to walk down both sides and record or collect kind and numbers of litter. Think about ways to present that data. Conduct the survey a month later to look at changes.

GLEs

Grade 8

Science and the Environment

50. Illustrate possible point and non-point source contributions to pollution and natural or human-induced pathways of a pollutant in an ecosystem (SE-M-A3)

51. Analyze the consequences of human activities on global Earth systems (SE-M-A4)

Environmental Science

Science and the Environment

Ecological Systems and Interactions

12. Give examples and describe the effect of pollutants on selected populations (SE-H-A11)

Environmental Awareness and Protection

20. Relate environmental quality to quality of life (SE-H-C2)

Personal Choices and Responsible Actions

24. Identify the advantages and disadvantages of using disposable items versus reusable items (SE-H-D1)

25. Discuss how education and collaboration can affect the prevention and control of a selected pollutant (SE-H-D2) (SE-H-D3)

26. Determine local actions that can affect the global environment (SE-H-D4)

Marine Debris Website Sources

-NOAA Marine Debris Program www.marinedebris.noaa.gov

NOAA Marine Debris Program: Education

<http://marinedebris.noaa.gov/outreach/welcome.html>

-US EPA – Marine Debris <http://water.epa.gov/type/oceb/marinedebris/>

-Encyclopedia of Earth – Marine Debris www.eoearth.org/article/marine_debris

-Marine Debris Tracker App <http://marinedebris.engr.uga.edu>

-Ocean Conservancy’s International Coastal Cleanup

www.oceanconservancy.org/our-work/marine-debris/international-coastal-cleanup-11.html

-Marine Debris Science Kits

http://cmore.soest.hawaii.edu/education/teachers/science_kits/marine_debris_kit.htm

-National Geographic Marine Debris: A Legacy of Litter Lesson

<http://education.nationalgeographic.com/education/activity/marine-debris-a-legacy-of-litter/?ar a=1&ar r=999>

-NOAA: Ocean Today—Marine Debris <http://oceantoday.noaa.gov/marinedebris/>

Video

SchoolTube: The Great Pacific Garbage Patch—Good Morning America

<http://www.schooltube.com/video/c412e0e5292291dbd194/The-Great-Pacific-Garbage-Patch-Good-Morning-America>

-Ocean Conservancy: It's Time to Stop Trashing Our Beaches Video

<http://www.youtube.com/watch?v=Ysaa64XBbcQ&lr=1&user=oceanconservancy>

-NOAA: Ocean Today—Marine Debris <http://oceantoday.noaa.gov/marinedebris/>

NOAA Marine Debris Program: Education

<http://marinedebris.noaa.gov/outreach/welcome.html>

Links to

Understanding Marine Debris: Activity Book

NOAA Marine Debris Coloring Book

NOAA Protect Our Oceans Activity Book

Turning the Tide on Trash (has classroom activities and lessons) grade 1-12

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