

**TEACHING KATE
TEACHING KIDS ABOUT THE ENVIRONMENT**

SPLASH IT! DON'T TRASH IT!

Grade Level: 6-8

Time Required: 5 class periods

SC Science Standards

This lesson plan was correlated with only the grade level specified unless otherwise noted.

Grade 6:

- I. A. 1. a 1
- I. A. 1. b 2
- I. A. 1. c 1
- I. A. 1. d 1
- I. A. 7. a, b, c

Grade 7:

- I. A. 1. a 1
- I. A. 1. b 2
- I. A. 1. c 1
- I. A. 1. d 1
- I. A. 7. a, b, c
- II. B. 1. a
- III. A. 7. f, g

Grade 8:

- I. A. 1. a 1
- I. A. 1. b 2
- I. A. 1. c 1
- I. A. 1. d 1
- I. A. 7. a, b, c
- II. A. 3. b

Purpose

Students will identify major sources of marine debris. They will research the potential effects of this debris on marine life. Students will describe specific actions people can take to reduce or eliminate these dangers to marine life.

Skills

Analyzing, data collecting, comparing, discussing, graphing, predicting, problem solving, re-searching.

Concepts

A person's actions affect the environment; seemingly harmless objects when not disposed of properly can be dangerous or deadly to wildlife.

Materials Needed

paper
pencils
colored pencils
calculators
protractors

US Beach Clean-Up statistics
data table worksheet
Beach Clean-Up data cards
protective gloves
rubber bands

Definition of Terms

<u>Litter</u>	Waste materials thoughtlessly discarded in an inappropriate place.
<u>Marine Debris</u>	Litter in the water.
<u>Plastic</u>	A man-made material, made from hydrocarbons, known for its light weight and durability.
<u>Pollution</u>	Harmful substance deposited in the air, water or on land, leading to the contamination of the environment.
<u>Styrofoam</u>	An expandable rigid polystyrene plastic.

Before the Session

Write the Center for Marine Conservation, 1725 DeSales St. NW, Washington, D.C. 20036, requesting the most recent information on total number of debris items collected in beach clean-up. Also, request standardized beach data cards and clean-up guides.

Background Information

Environmental pollution affects all forms of life. Our marine wildlife is no exception. It is estimated that over fourteen billion pounds of litter are dumped into the ocean every year, 60% of this marine debris being plastic.

Plastic debris is deadly to many animals in the ocean. There are estimates that plastics are killing up to 1,000,000 seabirds and over 100,000 sea mammals per year.

Many marine animals get entangled in six-pack rings, plastic nets or fishing line. Gulls and terns sometimes catch one loop around their necks while fishing. Then they snag another loop on a stationary object. This results in them drowning or strangling. Pelicans occasionally dive

straight into a six-pack ring. The bird ends up with the ring stuck around its bill. Unable to open its mouth, it starves to death.

Entanglement is only part of the problem. Marine debris is often mistaken for food. Seabirds die from eating plastic pellets and beads which they mistake for fish eggs or plankton. Sea turtles die when they eat plastic bags which look like jelly fish. These animals do not eat because their stomachs are full and they starve to death.

Marine debris has become such a concern that beach litter sweeps are held each year on the third Saturday in September. This nationwide three hour beach clean-up is sponsored by the Center for Marine Conservation. In the 1992 South Carolina Beach Sweep/River Sweep alone approximately 8,000 volunteers removed more than 83 tons of debris from South Carolina beaches.

Suggested Lesson Plan

Day 1

1. Discuss with students the problem of marine debris in the ocean. consider the following questions: What type of marine debris is found? Where does it originate? How does it affect our beaches and wildlife?
2. Place students in groups of four. Each group will choose a marine animal and research how various types of marine debris adversely affect it. This information will be presented to the class. Each group has the freedom to present this in any original format: videos, slides, song, play, overhead, etc.

Day 2

1. Have students predict the number of total debris items collected in a U.S. Beach Sweep. Give each student a copy of the U.S. Beach Clean-Up statistics received from the Center for Marine Conservation. Compare predictions with actual statistics.
2. Students will use the U.S. Beach Clean-Up statistics to create a circle graph using plastic, styrofoam, glass, rubber, metal, paper, wood and cloth as categories.
 - a. Add total number of plastic debris items and record in data table #1. Repeat for each category and record.
 - b. Total all categories and record in data table #1.
 - c. Calculate percentage for each category (number of debris items/total debris items) and record in data table #2.

- d. Calculate number of degrees (number of debris items/total debris items X 360) and record in data table #2.
- e. Use a protractor to construct a circle graph. Label with category identification and percent of circle represented by each category.

Day 3

1. Students will go on a field trip to a nearby beach area and collect marine debris. Using data cards from the Center for Marine Conservation, students will record information requested. Caution students to wear protective gloves when handling debris and to notify the teacher—so he or she can pick it up—if any potentially hazardous debris (such as hypodermic needles) are found.

Day 4

1. Using the data collected, students will construct a circle graph (see Day 2 for procedure). Compare the data on the two graphs. Discuss the results and possible reasons for them.

Day 5

1. Place students in groups of four. Have them brainstorm on possible ways to decrease marine litter. Remind them to focus on actions that they can do.
2. Each group will then choose one method and create an action plan for implementation. They will need to describe the method of implementing their plan and the time frame involved. Estimated cost of plan must also be included.

Application

Responsible human actions are necessary to ensure the survival of our wildlife and environment. Students need to be made aware that their actions directly impact both of these. Students' awareness needs to be raised so that they realize that littering of any kind can be dangerous to all types of wildlife not just those in the marine environment. A can thrown out will attract a hungry or curious animal which may get its head caught in the can. Six-pack rings can get caught around the necks of animals scavenging at landfills. Six-pack rings should always be cut up so no enclosed ring is left. Burning cigarette butts tossed out can start wildfires which may drive off or kill the wildlife in that area. More convenience food results in more packaging. Packaging such as plastic wraps may be consumed and plug up the stomach or intestine of an animal leading to death. Students should be encouraged to spread the word and make sure debris is properly disposed of in their environment.

Extension

Write an article for the school newspaper detailing the findings in the beach clean-up. Decorate metal trash cans with environmental designs and place them at various local beaches. Implement student action plans (if feasible).

Resources Available

Action for a Cleaner Tomorrow. 1994. South Carolina Department of Health and Environmental Control.

Aquatic Project Wild. 1992. Western Regional Environmental Education Council.

Center for Marine Conservation. 1725 DeSales St. NW, Washington, D.C. 20036.

Coastal Rescue. 1989. Christina Miller and Louise Berry. Atheneum.

50 Simple Things You Can Do to Save the Earth. 1989. Earthworks Press.

Our Endangered Planet: Oceans. 1991. Mary Hoff and Mary Rodgers. Lerner Press.

Save Our Oceans and Coasts. 1993. Ron Hirshi. Delacorte Press.

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DATA TABLE #1 WORKSHEET

Name:

Date:

Data Table #1

Type of Debris	Number of Items	Total
Plastic		
Styrofoam		
Glass		
Rubber		
Metal		
Paper		
Wood		
Cloth		
Other		
Total		

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DATA TABLE #2 WORKSHEET

Name:

Date:

Data Table #2

Type of Debris	Percentage = $\frac{\text{\# of debris items}}{\text{total debris items}}$	Number of Degrees = $\frac{\text{\# of debris items}}{\text{total debris items}} \times 360$
Plastic		
Styrofoam		
Glass		
Rubber		
Metal		
Paper		
Wood		
Cloth		
Other		

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ACTION PLAN

Name:

Date:

Procedures	Time Frame	Cost