

Activity Title: I Am/Who Has: A litter Matching Game

Learning Objectives

Ocean Literacy Principles

#1 -- The Earth has one big ocean with many features

- g. The ocean is connected to major lakes, watersheds and waterways because all major watersheds on Earth drain to the ocean. Rivers and streams transport nutrients, salts, sediments and pollutants from watersheds to estuaries and to the ocean.

#6 -- The ocean and humans are inextricably interconnected

- d. Much of the world's population lives in coastal areas.
- e. Humans affect the ocean in a variety of ways. Laws, regulations and resource management affect what is taken out and put into the ocean. Human development and activity leads to pollution (such as point source, non-point source, and noise pollution) and physical modifications (such as changes to beaches, shores and rivers). In addition, humans have removed most of the large vertebrates from the ocean.
- g. Everyone is responsible for caring for the ocean. The ocean sustains life on Earth and humans must live in ways that sustain the ocean. Individual and collective actions are needed to effectively manage ocean resources for all.

#7 -- The ocean is largely unexplored.

- c. Over the last 40 years, use of ocean resources has increased significantly, therefore the future sustainability of ocean resources depends on our understanding of those resources and their potential and limitations.

National Science Education Standards: NS. 5-12.1, NS. 5- 12.6

Supplies and Materials

For Teacher Prep:

- Print Marine Debris from Land to Sea Poster:
<http://www.cosee-se.org/ForEducators/EducatorResources/humanimpactsandstewardship/>
- Create and print a set of "I Am/Who Has" cards based on Figure 1.
- Collect a sample or image of the items listed on the "I Am/Who Has" cards

Suggestions:

- glass bottle
- aluminum can

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- fast food wrapper
 - shoe
 - metal pull tab
 - straw or stirrer
 - paper towels
 - plywood
 - newspaper
 - apple core
 - cardboard box
 - cotton gloves
 - waxed milk carton
 - washing machine
 - bucket
 - oil bottle
 - foamed plastic cup
 - cotton rope
 - tire
 - inflatable raft
 - battery
 - diaper
 - plastic grocery bag

Background

Each year, thousands of pounds of litter are discarded inland and along the coast. Bacteria decompose, or decay, types of natural litter that include paper, leather, wool, and cotton. Sunlight or ultraviolet light rays degrade more persistent materials, such as wax carton and plastic grocery sacks. The time for an item to degrade depends greatly on exposure to sun, oxygen, and water. A marine debris time line is given on the Marine Debris from Land to Sea Poster.

Metals such as aluminum cans, steel, or iron appliances are not affected by bacteria but undergo a process known as oxidation or rust. Salt in coastal waters actually increases the rate at which metals will oxidize. Glass and plastic do not decompose, degrade, or oxidize. These items break into smaller pieces, but may remain in the coastal environment for many lifetimes. Glass actually breaks down in tiny quartz pieces like those naturally found in some sands; yet small plastic pieces have no natural equivalent.

Duration

20-30 minutes

Audience

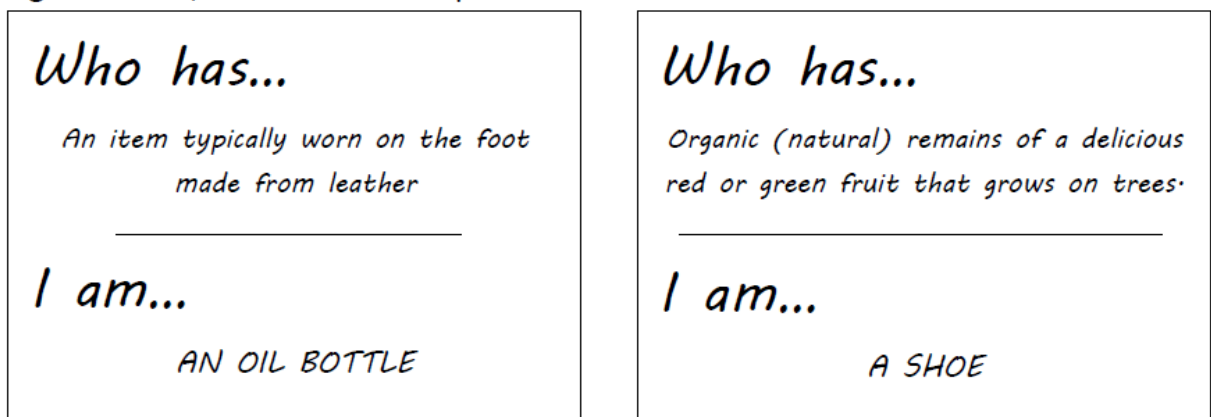
Grades 5-Adult

Procedure

Procedure:

1. Arrange the marine debris items or images so that each item or image can be clearly seen by the students.
2. Distribute at least one "I Am/Who Has" card to each student.
3. Begin the activity by reading the "Who has" portion of your card. Note: You will be the last one to read the "I am" portion.
4. The student, Student A, that holds the name of the item you just described calls out "I AM", then proceeds to show the class the item or picture from the collection of items on display.
5. Have the class discuss this item further. For example, the decomposition time, source, or danger to the environment.
6. Student A then reads the "Who has" portion of their card,
7. Student B, that holds the name of the item read by Student A, calls out "I AM", then proceeds to show the class that items or picture from the collection of items and read the "Who has" portion of their card.
8. The game continues until full circle is made and it comes back to the teacher or the first person that read the "Who has" portion of their card.

Figure 1. I Am/Who Has card samples



Assessment

Inquiry questions that can be asked during or after this activity:

1. Other than littering, what else can be done with the items in the collection?
2. How could you reduce litter in your neighborhood or the amount of trash collected in your house?

Additional Resources

- <http://marinedebris.noaa.gov/>

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- <http://water.epa.gov/type/oceb/marinedebris/index.cfm>
 - <http://www.marinedebris.engr.uga.edu/>

Acknowledgements

Source: An original activity by Margaret Olsen, COSEE SE Education Specialist as printed in *The Educator's Guide to Marine Debris; Southeast and Gulf of Mexico*.

This lesson plan was provided by COSEE SE. For more information, please contact Angela Bliss at acbliss@uga.edu.