



OVERVIEW

The students will use role-playing, models and a simulated entanglement to learn about trash in our environment and how it affects our wildlife in water and on land.

Learning Targets

- Students will demonstrate how litter is dangerous to our environment and harms wildlife both on land and water.
- Students will investigate how items that don't break down, such as plastic, can make wildlife sick or die as they are consumed.
- Students will model plastic entanglement and discuss and evaluate methods to prevent it from occurring.

GLEs

See attachment

Materials Needed

- Plastic six-pack drink holders, fishing line, plastic bags, nets and other pieces of trash that could harm wildlife
- An aquarium or other transparent container of water
- One small plastic fish or turtle
- Stuffed animals brought in by the students (optional)
- Shoeboxes (one per child)
- Spoons (one per child)
- "Wildlife food" (bird seed or popcorn)
- Dried beans
- Rubber bands (one per child)

Background Information

Every year, more than 250 million tons of trash is thrown away by Americans. Much of this trash is sent to landfills; however a very large amount is discarded into our natural environment and hurts the wildlife on land and in the water. Litter kills many animals every day. When trash or leftover food is thrown out of a moving car window, it can attract hungry animals and put them at risk of getting hit by a car. Cigarette butts can cause wildfires that destroy entire forests.

When wildlife agents find sick birds, they X-ray the animals for fishing hooks and other pieces of trash. Fishing hooks can cause punctured joints that cause infections, broken glass can cut the feet of foxes, coyotes or badgers, and unbroken bottles present a hazard to various small animals. Lizards often crawl inside bottles or cans to seek protection or search for food; but they may find it difficult to squeeze out again and can die of overheating. Small mammals in search of food often get their heads caught in the openings of jars. Replacing lids on bottles and jars before discarding can help prevent animals from becoming entrapped. Birds, fish and mammals may be ensnared by plastic six-pack holders. This can be prevented by cutting up the plastic rings so that they do not become traps.

Background Information (continued)

In many of our waterways, fish, turtles, dolphins and manatees have been found with plastic bags in their stomachs or dead from entanglement. Sea creatures can ingest items such as bottle caps, plastic and other pieces of trash, including cigarette butts. Many birds found dead on the beach have stomachs full of plastic. When animals eat plastic, the pieces get caught in their digestive systems and it fill up their stomachs, starving them to death. Plastic litter, such as six-pack holders, fishing line and fishing nets are especially dangerous to wildlife.

Researchers are now discovering that plastic trash in our waterways actually never goes away; it just breaks down into very small pieces that hurt marine ocean animals and release chemicals into the environment. We can all do our part to make sure that our trash and waste is either recycled or thrown away.

Marcus Erikson, a native of Louisiana, has done lots of research on plastic in our waterways and the damage this plastic is doing to our wildlife. Through years of research, he has learned that there are more than 5.25 trillion particles of plastic in our world's oceans. Animals are ingesting this plastic and getting sick.

ACTIVITY

Part I (Suggested for grades 2 to 4)

1. Fill the aquarium with enough water so that the turtle and trash items can float. You will use these to demonstrate how trash can affect wildlife and let students demonstrate their ideas.
2. Show the students this video clip, which shows what happens when plastic trash goes into our waterways.
<http://thekidshouldseethis.com/post/85747435912>
3. Have a short discussion with students about what they learned from the video, and then explain that they will be doing a couple of activities that explore how plastic affects wildlife.

Optional for younger students

1. Ask the students to bring a stuffed animal from home, including toy birds, turtles, bears
2. Place the transparent bag in an aquarium, with a plastic fish or plastic turtle
3. Ask the students how the bag could create a problem for the animals living in the sea. Demonstrate how the fish or the turtle can get trapped in the plastic bag.
4. Have the students share the animals they brought to class
5. Have the students use the plastic bags, six-pack holders and other litter to demonstrate ways that the animals could get hurt by using the litter.

Part II (Suggested for grades 2 to 4)

1. Make sure each student has a shoebox, spoon, cup, wildlife "food" and dried beans.
2. Have each child take a shoebox and add 1 ½ cups of the birdseed or popcorn. Explain that this represents the food that wildlife such as fish or ducks may eat.
3. Have the students add ½ cup of the dried beans to the shoebox. Explain to students that this represents trash, such as plastic, that has wound up in the environment as litter.
4. Explain to students that they are about to feed from their shoeboxes. The spoons represent their mouths, while the cups are their stomachs. They need to "eat" as much food as they can in 30 seconds. Start the timer and go!
5. When time is up, have the children examine their cups for any trash that was mistakenly eaten. As an option you may have students create a table or pie chart to show the amounts of trash and food that was eaten.
6. Discuss with students what they think may happen to an animal that ingests plastic or other litter. Do they get sick? Are they able to feed as well? You may approach this by asking students what would happen to them if they ate plastic. Use the aquarium as a demo as appropriate.
7. You may also choose to do multiple rounds of feeding as a game.
 - a. Have students create data sheets in order to record the amount of natural food and plastic litter consumed. Have one column for the plastic litter and the other for natural food.
 - b. After a round of "feeding" have students analyze their food. If ¼ or more of the food they ate was plastic, the plastic blocks the student's digestive tract and they "die." Continue for several rounds.
8. Ask students how they can help keep animals safe from litter, and what actions they will personally take.

Part III – All Tangled Up (Suggested for grades K to 4)

1. Animals do not have to eat trash in order to be harmed by it. Discuss the term entanglement with students, and explain that they are going to become entangled today. Using the plastic fish or turtle, discuss and show some common ways that animals may become entangled, in plastic bags, monofilament fishing line and plastic rings from soft drinks.
2. Make sure each student has a rubber band. Show them the proper way to put it on their hand.
 - a. Hold your left hand up in front of your face, with the back of your hand towards your face.
 - b. Hold the rubber band in your right hand and hook one end of it over the little finger of your left hand.
 - c. Hook the other end of the rubber band over the left-hand thumb. The rubber band should be taut and resting across the bottom knuckles on the back of your left hand.
 - d. Place your right hand on the bottom of your left elbow, and keep it there.
3. Have students try to free their hand of the rubber band without using their right hand, teeth, face or other body parts.
4. While the students are struggling, ask the class to imagine that they are animals that have gotten pieces of fishing line, abandoned net or other trash wrapped around their flippers, beaks, or necks. Tell them: imagine that you are birds that are unable to eat until they are free from the trash. Ask the students the following questions (Encourage students to share their feelings about being entangled as they answer these questions):
 - a. How would you feel after struggling like this all morning?
 - b. How would you feel after missing breakfast?
 - c. What would happen if you continued to miss meals and spent all of your strength fighting to get free?
 - d. What would happen if a predator was chasing you?
5. Discuss what students can do to help prevent problems like entanglement. If they see any trash, they should pick it up, cut up plastic soda rings before disposal, and recycle monofilament fishing line whenever possible.

CALL TO ACTION

1. Ask the students to create a poster asking their school community to help keep animals safe by properly disposing of their litter.
2. Encourage students to create a recycling program for harder-to-recycle items like plastic grocery bags and monofilament fishing line.
3. Have students make a pledge to reduce the amount of trash they produce by using reusable grocery bags and water bottles.

OTHER RESOURCES

- **Lasell, Fen H. Kiya the Gull.** Reading, Mass: Adison-Welsey Publishing Company, 1969. A boy rescues a gull that became injured in a tangled fishing line
- **Learn more about Marcus Erikson's work at** <http://www.5gyres.org/>
- **Background Material Source:** http://www.humanesociety.org/news/magazines/2009/07-08/the_deadly_truth_about_trash.html
- **Instructions for building a monofilament collector** <http://www.boatus.org/monofilament/>
Mail collected monofilament to:
Berkley Recycling
1900 18th Street
Spirit Lake, Iowa 51360
- **Keep Louisiana Beautiful** <http://keeplouisianabeautiful.org/>
- **Keep America Beautiful** <https://www.kab.org/>
- **Activities modified from "Marine Wildlife and Harmful Trash" from the National Park Service, and "Mistaken Munchies" from the Marine Mammal Center.**