

Preventable Journey

Target Level:
Grade 3 and 4

SOLs:

Health: 3.19

Science: 3.1, 3.10, 4.1, 4.8

English: 3.7, 4.7

Materials Needed:

Large playing area

Cardboard, tape, and markers to make dice and label stations; alternately 4 inch square boxes can be purchased at mailing centers.

Copy of 'Tony, the Trash Bag' sheet and pencil for each student

Summary

Students will track the movement of a piece of litter as it moves through different land and aquatic environments.

Objectives

Students will be able to describe the ecological impact of one piece of litter by following and predicting consequences of misplaced trash, i.e. litter. Students will be able to explain the possible effects of litter in both oral and written format.

Background

Often the environmental consequences of what we do and don't do are never fully realized. This activity will trace the possible path of one type of litter-- the plastic bags obtained from grocery, department, drug and other stores.

Advance Preparation:

1. Make a sign for each of the following stations: *Roadside, Front Yard, Tree, Storm Drain, River, Chesapeake Bay, Ocean, Beach, Turtle*. Tape each sign to a different location in the room (allow room for students to move from one station to another).
2. Construct nine dice or cardboard cubes, one for each station. Each cube should have six sides and be labeled as listed below. (Include station name on each cube to easily identify the cubes in the future.) Place each cube at its corresponding station prior to beginning activity.

- * *Roadside Cube:* 1 side- front yard; 1 side- storm drain; 2 sides- stay; 2 sides- tree
- * *Front Yard Cube:* 1 side- storm drain; 1 side- roadside; 2 sides- tree; 1 side- stay
- * *Tree Cube:* 2 sides- stay; 1 side--front yard; 2 sides-- roadside; 1 side- river
- * *Storm Drain Cube:* 3 sides- river; 3 sides- stay
- * *River Cube:* 1 side beach; 2 sides Chesapeake Bay; 3 sides stay
- * *Chesapeake Bay Cube:* 2 sides ocean; 2 sides beach; 2 sides stay
- * *Ocean Cube:* 4 sides stay; 1 side beach; 1 side turtle
- * *Beach Cube:* 3 sides- ocean; 2 sides- Chesapeake Bay; 1 side- stay
- * *Turtle Cube:* 5 sides--stay; 1 side- beach

Procedure:

1. Begin by asking students to discuss litter and predict its impacts. Ask students if a plastic bag, such as we all receive from grocery, department, and drug stores, would be considered litter. Establish a working definition of the word "litter" through continued discussion. A determination is reached with an understanding the appropriate use and disposal of an item.

2. Explain to the students that they will play a game that will illustrate possibilities in the lifespan of a plastic bag that has become litter. Each student will represent one plastic bag that had been properly placed into a waste/trash container; but the container had no lid, and as the wind blew, the bag became litter.

Ask students to predict where the bag will land. Point out the stations around the room and explain that each student will start their lives as litter at one of the nine stations.

3. Explain the rules: Each student will take a turn rolling the cube at their starting station. The label facing up on the cube will determine where that particular plastic bag's next destination will be. The person should then move to the back of the line at its new destina-

tion and wait his/her turn to roll the die there. If the cube shows “stay”, the person should move to the back of the line at that same station and wait for his/her turn to roll the cube again.

4. Give each student a piece of paper and pencil and have them record the numbers 1 through 10 down the left side (or make a copy of the student page for each student). During their “travels,” each student will keep a record of where they are traveling and will have ten opportunities to move. Note that it is possible (though not probable) for a plastic bag to stay in one location for the entire game.

5. Break students into nine small groups and assign each group to a different starting station. Have students record their initial location/station beside their space numbered 1. Now, let the wind blow and the rolling begin! Remind students to record their locations after each roll.

6. Prompt discussion of the journeys of the plastic bags. Sample starter questions include:

How many of you were at one station more than one turn?

How many were in the trees? In the ocean?

How long did you stay there? Did anyone get “stuck” in one place?

Why might this happen? (Examples might be that the bags could get caught in branches, or hooked onto things in the ocean, etc.)

Variation:

In agricultural areas where farms are common, plastic bags can cause additional problems. These bags can blow into the barnyards or pastures of the animals, or they can be found in hay bales if there are plastic bags in the hay field when hay is being baled. As cows and horses tend to be curious creatures, they will often eat plastic bags. The bags will fill areas of their stomachs making them feel full when in reality they still need food. Or the bags can pass through the stomach causing a blockage in the intestine. One bag can cause major problems for a horse or cow if it blocks the intestines.

Barnyard Cube: 1 side- horse; 1 side- farm pond; 1 side- tree; 1 side- front yard; 1 side- road side; 1 side- stream/river

Farm Pond Cube: 3 sides- stay, 1 side- stream/river; 1 side- horse; 1 side- Bay

Stream/River Cube: 2 sides- stay; 2 sides- roadside; 2 sides- Bay

Horse Cube: 6 sides- stay

Roadside Cube: 1 side- front yard; 2 sides- stay; 1 side- tree; 1 side- barnyard; 1 side- stream/river

Tree Cube: 1 side- barnyard; 2 sides- front yard; 2 sides- roadsides; 1 side- farm pond;

Ocean Cube: 4 sides- stay; 2 sides- Bay

Bay Cube: 2 sides- stay; 2 sides- ocean; 2 sides- stream/river

Front Yard Cube: 2 sides- barnyard; 2 sides- tree; 2 sides- roadside

WrapUp/Assessment

1. Explain that the students have lots of ‘food for thought’ in the records of their journeys! Their follow-up assignment is to use the data generated in their record to write an appropriate and descriptive short story. Ask them to convince the reader about the fate of litter. Be sure to include “If only.....” or “The next time I hope...”.

Note: This activity was adapted with permission from **Project WET**, for more information, please contact the Project WET Coordinator, Virginia Department of Environmental Quality, P.O. Box 10009, Richmond, VA 23240-0009. (800)592-54VA. This guide is only available through attendance at a workshop.

Extensions

1. Have students discuss ways to reduce and prevent litter in their community.

2. Have students research and write a similar scenario utilizing a different piece of litter. Suggestions might include an aluminum soda can, metal food can, plastic milk jug, six-pack holder, glass juice bottle, newspaper, old written test, candy bar wrapper, etc. The scenario should include possible places visited by their piece of litter and it’s possible impacts. Students should also include the natural resources used to make the item as well as the amount of time it might take “their litter” to decompose.

For more activities about marine debris, please refer to the following:

Turning the Tide on Trash: A Learning Guide on Marine Debris: U.S. Environmental Protection Agency, Ocean and Coastal Protection Division, 401 M St., SW, Washington, DC 20460.

The Preventable Journey Score Card

Hi! My name is Tony, the Trash Bag.

I started life carrying groceries home from a store. I had gotten dirty and torn and the concerned citizen using me put me into a trash can. My journey of experiences begins as the wind picks up later in the day.

Oh no, there's no cover on the trash can! I am wooshed out and away! I landed.....

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

