



# Keep It Above Board

Deborah Schultz

## Focus/Overview

This activity focuses on trash decomposition in the environment. Students explore the length of time it takes for various common materials to decompose in the environment. Discussion brings out the point that some human actions, like littering, can be very harmful to the animals and plants that live within our ecosystems.

## Learning Objectives

The learner will...

- develop a decomposition timeline illustrating how long it takes for various types of common trash to deteriorate in the environment.

## Louisiana Grade Level Expectations (Science)

2-4: GLE-1 (Inquiry)	Ask questions about objects, organisms and events in the environment (SI-E-A1).
2-4: GLE-4 (Inquiry)	Predict and anticipate possible outcomes (SI-E-A2).
2: GLE-49	Describe how consumption of resources can be reduced by recycling, reusing and conserving (SE-E-A4).
3: GLE-58	Describe how humans have made negative and positive affects on organisms and their environments (SE-E-A5).

## Materials List

- BTNEP 2005 Tidal Graph Calendar Month of April trash chart (available on the BTNEP Resources page of the website [www.btnep.org](http://www.btnep.org))
- Roll of poster board paper or other paper roll to create timeline
- Yardstick
- Markers
- Photocopy of page, with individual items cut out
- Objects from calendar (or something made of same material)
  - ▶ paper towels
  - ▶ apple core
  - ▶ cotton glove
  - ▶ newspapers
  - ▶ cardboard box
  - ▶ waxed milk carton
  - ▶ cotton rope
  - ▶ disposable diaper
  - ▶ Styrofoam float
  - ▶ stick
  - ▶ monofilament fishing line
  - ▶ glass jars or bottles
- ▶ Styrofoam cup or plate
- ▶ aluminum cans
- ▶ plastic bottle
- ▶ wool glove
- ▶ plywood
- ▶ tin can
- ▶ plastic six-pack ring
- ▶ tire
- ▶ orange peel
- ▶ shirt

## Background Information

Waste materials degrade at different rates. This activity will provide students with an opportunity to learn about the length of time materials last in the environment. As students make timelines, be sure to have them include the following: 400 B.C. - Greeks develop the first town dumps, 1769- Thomas Jefferson builds Monticello and includes a mechanical garbage disposal system, 1785- the first cardboard box is produced, 1961- Proctor & Gamble begin test-marketing disposable diapers.

## BTNEP Connection

Water Quality

## Grade Level

2-4

## Duration

1 class period

## Subject Area

science

## Setting

classroom

## Vocabulary

decompose, ecosystem, decomposition, environment

## Original Source

Author: Deborah Schultz

[www.btnep.org](http://www.btnep.org)

## Advance Preparation

1. Collect materials pictured on the **Keep It Above Board Trash Chart - Blackline Master #1** (from the BTNEP Tidal Graph Calendar. *NOTE: A "tidal graph" is a graph that shows the height of the sea's surface at a particular time and place on the coast. The tides are of particular interest to fishermen and boaters. You can download a copy of the BTNEP Tidal Graph Calendar at <http://www.btnep.org>.*

## Procedure

1. Begin by asking students, "What does **decompose** or **decomposition** mean? Write the student responses on the board.
2. Divide students into groups. Have students take the materials you provide them and place them in (predict) what they think is the relative order of decomposition. Have students record their agreed upon order in each group. Compare the groups' orders. Are their differences? If so, why? Get a consensus from the class on how long each item takes to decompose and put the objects in order. Start with the item that takes the least amount of time to decompose and end with the item that takes the most time. Record your final order.
3. Have students examine the BTNEP Tidal Graph Calendar chart that shows the decomposition rates of the various items. How does the consensus (class) list compare with the actual decomposition times? Remind students that without air (as in the case of a landfill, items decompose at a much slower rate.
4. You can extend the activity by (1) having students create a collage of pictures to show the relative order of decomposition, or (2) giving students pictures of objects not listed in the calendar chart and have them predict the decomposition time based on materials already on their timeline.
4. Ask the students, "What does this information tell us about litter and waste?" Have the groups of students summarize what this display of trash data means in their own words. Have each of the groups share what they understand with their classmates.
5. Conclude by discussing the following questions:
  - Is it OK for us to litter with any of the items on the list? Why or why not?
  - What kinds of items take the longest to decompose?
  - What kinds of items take the least amount of time to decompose?
  - Which of the items on our list could be recycled?
  - Why is recycling good for our environment and the Earth?

<b>Loose leaf paper – 2-4 weeks</b>
<b>Banana peel – 2-5 weeks</b>
<b>Newspaper – 6 weeks</b>
<b>Apple Core – 2 months</b>
<b>Cardboard Box – 2-3 months</b>
<b>Cotton Glove – 3 months</b>
<b>Waxed Milk Carton – 5 months</b>
<b>Wool Sock – 1 year</b>
<b>Plastic Garbage Bag – 10-20 years</b>
<b>Painted Wood – 13 years</b>
<b>Nylon Fabric – 30-40 years</b>
<b>Styrofoam Cup – 50 years</b>
<b>Rubber Boot Sole – 50-80 years</b>
<b>Tin Can – 100 years</b>
<b>Aluminum Can – 200-500 years</b>
<b>Plastic Cup – 250 years</b>
<b>Six Pack Ring – 400 years</b>
<b>Plastic Bottles – 450 years</b>
<b>Disposable Diaper – 500 Years</b>
<b>Glass Bottles – Undetermined</b>
<b>Plastic Bottles – Undetermined</b>

## Blackline Master

1. **Keep It Above Board Trash Chart**

## Assessment

- Students can create a concept map about the protective nature of the marsh during storms..

## Resources

### BTNEP Resources:

- BTNEP Tidal Graph Calendar.

### Tradebooks:

Brimner, Larry Dane. 2003. **Trash Trouble** (Rookie Choices Series). Children's Press. 32pp.

*On a field trip to the Nature Center, Three J leads his second-grade classmates on a mission to pick up as much trash as possible after they find a bird caught in a discarded lunch bag. Age Range: 6 to 7.*

Jacobs, Francine. 1996. **Follow That Trash: All about Recycling.** Penguin Group (USA). 48pp.

*With this amusing and educational book, readers can follow the trash and find out how soda cans can turn into a canoe. Using simple text and clever cartoon-style drawings, Follow That Trash! teaches children where all that garbage goes. Full color. Age Range: 6 to 8.*

Schwartz, Linda. 1990. **Earth Book for Kids: Activities to Help Heal the Environment.** Creative Teaching Press, Inc. ISBN: 0881601950.

*Creative ideas with easy-to-follow instructions show kids how to make their own paper, compare phosphate levels in detergents, test the effects of oil pollution, conduct a recycling survey, create a trash sculpture, redesign a package, chart a flush, measure acidity and make a difference in many other exciting ways. Age Range: 8 to 11.*

Sensel, Joni. 2001. **Garbage Monster.** Dream Factory Books. 24pp. ISBN: 0970119526.

*When Jo is slow to take out the trash one evening, the garbage comes to life and hauls her outside instead. The beast threatens mayhem throughout the neighborhood, but Jo is undaunted. She plucks him limb from limb, finding another use for his cardboard head, fibrous fanny, & other various parts. By the time she is done, Jo sees how recycling can be a resourceful way to put the beast back in his place-and make an unpleasant chore more fun. This book brings to life the benefits of recycling and the hazards of a wasteful attitude. Age Range: 5 to 8.*

Stwertka, Eve, and Albert Stwertka. 1993. **Cleaning up: How Trash Becomes Treasure.** Silver Burdett Press. 40pp. ISBN: 0671694677.

*Discusses the problem of trash and what can be done with it, including the partial solution of recycling. Age Range: 7 to 10.*

## Websites:

### Videos

**Trash and the Environment** (Real World Science 1 series). 1999. Sunburst Communications. Cost: \$49.95 (includes 13 minute video with teacher guide and 25 student worksheets). Contact Sunburst Visual Media, (800) 431-1934, <http://www.sunburstvm.com/>

*This videotape, designed for students in grades 3 to 5 as part of the REAL WORLD SCIENCE I series, explores what happens to trash, litter, and solid waste after it is thrown away. Viewers listen to student host, Cassie, as she describes Earth's natural recycling process and explains how humans have altered this process. Color photographs and footage highlight the ways in which humans produce solid waste from lunch bags and leftover food to worn out socks and homework mistakes. The processes of reducing, reusing, and recycling are also addressed. Age Range: 8 to 10 years.*

# BTNEP 2005 Tidal Graph Calendar

## Month of April - Trash Chart

**Keep it 'above board'**

**Each person's small efforts add up to a BIG DIFFERENCE for fish habitat!**

Recycle used oil and filters, batteries and antifreezes;

Keep trash from blowing overboard; Use shore based restrooms and pumpout facilities;

Use oil absorbent materials in your bilge and for spill cleanup;

Keep detergents and bilge cleansers out of the water;

Whenever possible, do repairs and painting away from the water;

Avoid boating in shallow waters, especially those with submerged vegetation;

**Please don't throw your trash overboard  
It takes a long time for trash to "disappear" from the deep!**

Ala. Marine Resources Division