



Title: What Happens to Litter?

Grades: 2

Time 45 minutes

Subjects: Science, Health, Language Arts, Math

Objectives

- Describe litter, and explain where it comes from, what happens to it and why that matters.
- Collect, record, organize, and interpret data using a variety of graphic representations.
- Describe a year in terms of months.
- Make observations and draw conclusions.

Standards

Technology Standard 3: Understand the relationship among science, technology, society and the individual.

- Benchmark # 3: Know that man-made materials, products, and systems can affect the environment adversely, yet there are things that can be done to circumvent this process (e.g., disposing of waste properly).

Science Standard 10: Understand force and motion.

- Benchmark # 3: Know that the position of an object can be described by locating it relative to another object or the background.
- Benchmark # 5: Know things move in many different ways (e.g., straight line, circular motion).

Science Standard 12: Understand the nature of scientific inquiry.

- Benchmark # 1: Know learning can come from careful observation and simple experiments.

Health Standard 2: Know environmental and external factors that affect individual and community health.

- Benchmark # 1: Know the sources and causes of pollution in the community.
- Mathematics Standard 2: Understand and apply basic and advanced properties of the concepts of numbers.
- Benchmark # 3: Understand symbolic, concrete, and pictorial representations of numbers.
- Benchmark # 4: Understand basic whole number relationships (e.g., 4 is less than ten).

Mathematics Standard 4: Understand and apply the basic and advanced properties of the concepts of measurement.

- Benchmark # 2: Understand the concept of time and how it is measured (e.g., months in a year).

Mathematics Standard 6: Understand and apply the basic and advanced concepts of statistics and data analysis.

- Benchmark # 1: Collect and represent information about objects or events in simple graphs (e.g., tally charts, bar graphs).

Language Arts Standard 6: Use reading skills and strategies to understand and interpret a variety of literary text.

- Benchmark # 1: Use reading skills and strategies to understand a variety of familiar literary passages and texts (e.g., picture books, predictable books...).



- Benchmark # 5: Relate stories to personal experiences.

Materials

- Copy of “Where Does Pollution Come From?” by C. Vance Cast
- Poster markers or colored chalk
- Grade appropriate grid paper
- Pencils
- Rulers
- Chart paper
- "Rotting Litter" data table provided below

Overview: Litter is an environmental issue than spans the globe. Since a significant number of human activities produce some type of waste, and many individuals feel no sense of ownership for the trash they generate, or the places in which they leave their trash behind, the potential for littering is considerable. The Keep America Beautiful organization has studied this issue at length and identified four types of general locations where litter will most likely accumulate.

These include:

- Outdoor venues, such as concerts, fairs, and special events that attract large crowds.
- Highways, including on and off ramps.
- High traffic locations with convenience stores, fast food restaurants, parks and picnic areas, and businesses that host food vendors.
- “Transition points” where people gather temporarily, such as train and bus stations, entrances to public buildings and elevators.

While recognizing there is no definitive description of a potential litter candidate or site, some of the most likely sources and origins of litter have been identified. These include:

- Individuals who discard waste on the ground rather than in trash receptacles.
- Drivers who toss trash out their vehicles or neglect to cover loads in truck beds.
- Business owners who neglect to properly maintain and cover dumpsters.
- Owners of recreational and commercial sites (marinas, loading docks, construction and demolition sites) who fail to provide adequate storage and disposal facilities.
- Homeowners who fail to cover trash and recycling bins before collection and collectors who neglect to secure trash during collection.

Regardless of where trash is left, when it is inappropriately disposed of it becomes litter. At that point nature’s forces, wind and weather, move litter from place to place. It finds its way into highways and waterways, backyards and playgrounds, just about anywhere on Earth.

Litter is a menace, contaminating our natural resources. Some studies suggest that almost 20% of all litter becomes water pollution, posing a threat to our drinking water, and the plants and animals who live in those habitats. Litter is also dangerous. Motorists who toss trash out car windows and flying debris from trucks are accidents waiting to happen. Litter is costly. Millions of taxpayer’s dollars are diverted every year away from needed services to clean up debris that, if left unchecked, can negatively impact neighborhoods, decreasing property values and encouraging other problems, such as graffiti and vandalism.



Kid's Speak: Litter is trash that has not been properly recycled or thrown away. People sometimes throw trash on the sidewalk, street or out a car window instead of putting it into a garbage can or litterbag. Sometimes it blows out of trucks or away from construction sites. Sometimes animals rip open trash bags left out for trash collectors. When people leave trash behind, not taking responsibility for it, it becomes litter and a problem for everyone.

Litter doesn't stay where it is dropped. Wind and water move it from place to place. It can be found on the ground, in bushes and trees, and in ponds, rivers, and streams. It can be found almost anywhere on Earth. It can pollute our drinking water, harm plants, animals and their habitats, cause accidents and cost a lot of money to clean up. If everyone reduced the amount of trash they made, reused the things they could use, recycled what they couldn't use and carefully threw away what was left, then litter would not be as much of a problem.

Eco-Fact: Americans use enough plastic foam cups each year to circle the earth more than 400 times.

Procedures:

Before Conducting the Lesson:

- Review the term litter, and some of the various ways trash becomes litter. (See the Overview for specific examples.)
- Explain to students that when trash becomes litter it needs to be picked up and if it is not collected and disposed of properly it can become a serious problem. Explain to students that litter does not stay where it is. Litter moves. It moves by the wind, water, and animals. It ends up in anywhere and everywhere: along highways, in parking lots and yards, in parks and waterways.
- Read the story "Where Does Pollution Come From?" by C. Vance Cast. Discuss with students how the main character in the story learns about litter when he sees trash tossed onto the highway from a passing car. Discuss the problems that can be caused by litter and introduce the term pollution.

Conducting the Lesson:

- Explain to students the process of decomposition in simple terms. Explain to students that not all trash breaks down into smaller parts or rots as quickly as others. Some things take a very long time to decompose.
- Show students the data table provided. Explain that the items listed on the table are some of the objects that have been found by people collecting litter. Next to each type of litter is the amount of time it usually takes for the item to break up into smaller parts. Discuss the items and times with the students.
- Select some of the items from the data table, such as the: banana and orange peels, the paper bag, wool sock, milk carton and cigarette butt. Discuss with students the number of months in a year. Compare one month, three months and six months to one year.
- Use a strip of paper to provide students with a concrete example. The strip should be marked with twelve segments on one side and be blank on the other. Using the blank side explain to students that the strip of paper represents one year. Fold the paper in half and explain to students that the year can also be shown as two groups of six month each. Fold one of the halves in half again and it represents three months. Fold the three-month section into thirds and one of the thirds represents one month. Show the students the other side of the strip of paper to reveal the twelve segments.



- Using the first five items on the data table draw a simple bar graph on the board to show students how they can represent the data from the table in a different way. Teach students how to read the bar graph. Ask questions similar to the following:
- Students will reproduce the bar graph on grade appropriate grid paper.
- Students will discuss and explain why litter can become a problem that will not go away easily.

Adaptations:

- Use the *Litter From Lunchtime* lesson found on the GEF website as a follow up to this lesson.

Extensions:

- Students can make an additional bar graph using the items that take between 100 and 600 years to decompose, using a scale in 100-year intervals.