

GARBOLOGY



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Grades

7-8

Objectives

To get students to think about how wasteful our society can be, and how much of what we call waste can in fact be a valuable resource.

Materials

None necessary, but discussion could be enhanced by having on hand a variety of objects or pictures representing life in the present compared with the past.

Vocabulary

resource recovery, planned obsolescence

Background

Solid waste dumping grounds are a characteristic of all human settlements. Archaeologists use old dumping grounds as a "link to the past" through which they can learn about ancient civilizations.

The Industrial Revolution of the mid-19th century signaled a change from an agriculturally-based lifestyle to one based on industry and technology. The resulting lifestyle changes have had an important effect on the composition and amounts of solid waste produced.

Materials such as nylon, plastic, and aluminum were unheard of or rare a century ago, when wastes were more likely to be composed of paper, wood, and other biodegradable materials. Another difference that has occurred over the past 100 years is the designed lifetime of products. Until the 20th century, possessions were treasured and handed down to succeeding generations as family heirlooms. With the onset of mass production, many materials made today are designed to last for a limited period of time. This is known as planned obsolescence. This has resulted in a vast increase in the amount of solid waste we produce.

Shoppers today come home with much more than food or other purchased items. In addition, we bring home (and immediately throw away) vast amounts of packaging, used for convenience, sanitation, or marketing. In fact, 1/3 of our trash is packaging. Americans living in less-developed countries are familiar with the idea that waste can be a resource, since many items such as glass jars or plastic containers are removed from their garbage by locals to whom such items are valuable and useful.

Items made from materials such as glass, plastics, or aluminum will last for centuries without decomposing. In modern landfills, even biodegradable materials may not degrade because of the lack of air and water needed by microorganisms. "Garbologists," such as William Rathje of the University of Arizona, have dug into landfills and found undecayed newspapers, leaves, and food over 30 years old.

Garbologists of the future may single out the second half of the 20th century as a time of unprecedented wastefulness of the world's resources. Many of the world's energy resources and raw materials are rapidly dwindling, and some people have suggested that the landfills from our throw-away society will be "mined" in the future as the world's supply of resources becomes more scarce.

Many of our nation's landfills are filling up or being closed because of environmental contamination problems. As local awareness and opposition to landfills have grown, new sites have become ever harder to find. The costs of garbage disposal have risen dramatically because of the scarcity of available sites and because new landfills are built with many more precautions to protect the environment. As the costs of garbage disposal escalate, we are beginning to look more carefully at what we throw away and to realize that much of what we have traditionally called garbage can instead be used as a resource. Resource recovery operations separate solid wastes into items that can be recycled or reused, and the remainder may be burned for energy generation.

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continued

Procedure

1. Ask the class to imagine that they are archaeologists of the future, trying to learn about our civilization by studying the artifacts and wastes we have left behind. Have the class work together to produce a timeline describing the types of objects that could typically be found for 20-year intervals from 1900 to the year 2000.

For example:

- 1900-1920 wood furniture, glass bottles
 - 1920-1940 farm tools, canning jars
 - 1940-1960 manual typewriters, auto tires
 - 1960-1980 aluminum cans, plastic bottles
 - 1980-2000 video tapes, computer components
2. Point out the differences in materials used from one era to another, such as the introduction of plastics and synthetic chemical compounds.
 3. Discuss what assumptions you might make about society during each time interval, based on the artifacts that were found. For each time interval, what conclusions could be drawn about lifestyles, eating habits, clothing, technology, and impacts on the environment?
 4. Ask the students to write an essay on one of the following questions, comparing their own attitudes with those of their grandparents' generation:
 - What is your opinion on the quality and durability of goods made today, compared with 50-100 years ago?
 - Were past products made so they could be repaired easily? How about those of today?
 - Did people take care of the belongings so that they would last as long as possible? More than they do now?
 - What are the consequences of the lifestyle differences between your generation and your grandparents' generation, in terms of the amount of solid waste produced?
 - Do you think that people of the future will find more solid wastes from present civilization than we have found from the past? If so, why?
 - What do you think will be left behind by today's society that could be found in a few thousand years?

- Do you think any of the solid wastes from present day society might be harmful to future civilizations on earth (e.g. radioactive wastes)?
- Are the solid wastes of past civilizations harmful to us? If so, how?

Follow Up

Have the students make a list of all the disposable objects they can find at home, then discuss possible alternatives to these products or ways of extending their useful lifetimes.