

A large, bold, black serif font title "Solid Waste" centered on a white page. The text is the primary focus of the slide.

# Solid Waste

# SOLID WASTE

## Waste Management and the Law

**SUGGESTED GRADE LEVEL:** 4-5

**OBJECTIVE:**

Students will examine the need for strict waste management laws and review New York State's and Tompkins County's waste management laws and goals.

**TIME:**

One or two class periods.

**MATERIALS:**

- ❖ Solid waste management in New York State information ([www.dec.state.ny.us/website/dpae/index.html](http://www.dec.state.ny.us/website/dpae/index.html))
- ❖ List of local, state and national government officials

**PROCEDURE:**

1. Ask: What would happen if there were no laws to protect the environment? Do you think our laws are strict enough? Do you think our laws are too strict?
2. Divide the class into six teams. Have the teams investigate and illustrate a time line of waste management and the law. Use the waste management information included with this lesson as a guide for the students' time line research.

3. After completing the time lines, have students brainstorm local community needs in the area of environmental protection (for example, the need for recycling centers and local composting facilities).
4. Have students write letters to government officials expressing their concerns about solid waste management. Letters can be sent to representatives on local, state and national levels.
5. Contact your local Health Department office and invite a representative to your class to discuss laws, regulations and enforcement.

**EXTENSION ACTIVITY:**

Have the class brainstorm environmental careers. Let each student select a career, research the educational requirements and job duties and share information in the form of a resumé presentation.

Professions include: biologists, chemists, recyclers, ecologists, lawyers, educators, and engineers.

**SOURCE:**

South Carolina Department of Health and Environmental Control. 2001.  
*Action for a Cleaner Tomorrow: A South Carolina Environmental Curriculum Supplement.*

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## Timeline Guidelines

### The Past

Trash disposal is an ancient problem that has typically been dealt with in the cheapest, quickest way. In ancient Rome, trash was taken outside the city walls and burned. In the 1200's in cities such as London, garbage was heaved into the streets from the window. Pigs roamed the street eating garbage. If you heard the phrase "Gardy-Loo" watch out. "Garbage coming down."

In the 1700s, communities relied on open burning and dumping as methods for solid waste disposal. Trash was disposed of in unpopulated areas considered unfit for development, such as riverbanks, wetlands, floodplains, marshes, swamps and bogs.

By the mid-1800s unsightly dumps were causing a number of health problems such as attracting rodents and other pests which transmit infectious diseases. As populations grew, so did refuse accumulation, and the question of what to do with household garbage went unanswered. By the late 1800s, some communities passed ordinances to clean up refuse areas, but there were no laws regulating manufacturing wastes.

### At the Turn of the Century

At the turn of the century, most communities in the United States dumped their waste in marshes and wetlands. These areas were considered unsuitable for development and could be purchased at very low prices by local haulers and municipal governments. The prevailing belief was that the soil would act as a natural filter, and that as the waste seeped through the ground, it would

be cleaned. No one anticipated the consequences of ground water contamination and the effects on public and private water supplies. Garbage dumps were frequently located in areas where supplies of fresh ground water were replenished by rainfall, the same places where many towns were also locating drinking water pumps and wells.

In the 1930s much waste was burned in open pits to reduce its volume before burial. Open pit burning caused its own problems, and there were frequent landfill fires. First, surrounding neighborhoods lived with continuously smokey air. Second, the fire department always seemed en route to put out landfill fires. In fact, landfill fires were so abundant that they were used by fire departments to train newly-enrolled firefighters.

Communities responded to these problems by passing ordinances limiting open burning to specific areas. As the need for disposal grew, the availability of marginal land for disposal decreased and many cities built incinerators, further reducing the need for land to bury garbage.

With household garbage piling up, industrial wastes were also accumulating as the demand for new "convenience" consumer goods grew. From 1900 to 1948, although the industrial revolution was in full swing, no significant environmental legislation was passed. By the time people learned that waste management of harmful industrial by-products was needed, millions of tons of chemicals and other wastes had already been released into our air, water and onto our land.

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## 1948 Federal Legislation

In 1948 the original first Federal Water Pollution Control Act was passed. Public awareness of the importance of water and land-use preservation grew dramatically during the 60s and 70s. Attention focused on wetlands, floodplains and other water resources, which were the very areas where garbage and industrial waste were being dumped and buried.

Most communities disposed of the waste in landfills. Lobbying efforts on the part of environmental groups such as the National Audubon Society and the Sierra Club led to legislative action, including passage of the National Solid Wastes Act in October 1965. This Act required all states to accept federal guidelines structuring regulations for solid waste management and disposal. Each state could add to these requirements as it saw fit.

On the federal level, policies are created by the United States **Environmental Protection Agency**, formed in 1970. The EPA's mission is to administer and enforce anti-pollution laws directed toward air and water. The Clean Air Act of 1970 and the Clean Water Act of 1972 set standards and compliance procedures for industrial polluters and for the first time established the authority to levy fines against companies that failed to comply. The first Earth Day was held April 22, 1970, as citizen awareness grew. Citizens rallied to demand action against pollution.

In 1976, the Resource Conservation and Recovery Act established "cradle-to-grave" management of hazardous waste. Hazardous chemicals are tracked from manufacture to disposal. In 1980 the Superfund was established to clean up polluted sites.

These federal laws have continued to be refined to protect the environment. Compliance with the federal air emissions standards under the Clean Air Act required incinerators to add costly pollution control devices called "scrubbers." Many incinerators were closed rather than taking on the high cost of compliance.

## The 1990s

The U.S. EPA's Waste Management Hierarchy established the following list as a goal for dealing with solid waste:

- ❖ Reduce waste by preventing its creation.
- ❖ Recycle and compost as much waste as possible.
- ❖ Incinerate waste or treat it in other ways to reduce its volume or landfill waste.

In 1992, New York State made recycling mandatory and set waste reduction and recycling goals. Currently, the United States recycles about 30 percent of its solid waste. Tompkins County's recycling rate is nearly 50 percent. While our county is doing quite well, there is still more to do. Plus, many areas of the U.S. lag behind.

There are more than 9,000 curbside recycling programs and these programs reach more than half the people in the U. S. There are more than 10,000 drop-off centers for recyclables. Environmental laws and regulations are frequently in the news as local, state, federal and world leaders sort through the measures necessary to protect the environment.

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Annual generation of solid waste has grown steadily, from 88 million tons in 1960 to more than 200 million tons in 1998. Solid waste generation was projected to be 222 million tons by 2000 and 253 million tons by 2010. The total U.S. costs for pollution control we're projected to reach about \$160 billion by the year 2000, according to the National Association of Manufacturers.

Composting in New York gains momentum with the regulation banning yard wastes from the landfill. Many counties establish composting facilities and promote backyard composting.

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## What is Trash?

**SUGGESTED GRADE LEVEL:** 1-2

**OBJECTIVE:**

Students will be able to state the difference between recyclables, biodegradables, and the leftovers that must be disposed of.

**TIME:**

One class period.

**MATERIALS:**

Classroom trash (one day's worth), Sesame Street song *I Love Trash*.

**PROCEDURE:**

1. Collect the trash, which accumulates in the classroom after one day. Help the students separate it into three categories:
  - ❖ recyclables
  - ❖ biodegradables, and
  - ❖ the leftover that must be disposed of.
2. **Reusables, Recyclables**  
Discuss some ways in which these materials can be reused or recycled. Sandwich containers can be used many times; papers of various types can be reprocessed and recycled. Find out how Oscar on Sesame Street is using what other people throw away. Learn his song, "I Love Trash."

3. **Biodegradables**

These are materials that will rot over a short period of time. In a plot on a schoolyard, bury some samples of biodegradable trash; unearth the trash periodically to see what is happening. Record what you see. You might also bury some paper, glass, or metal trash at the same time for comparison.

4. **The leftover that must be disposed of**

This is trash that will not decay and cannot be recycled. Are there some reusable or recyclable materials that could have been substituted for disposable materials? Discuss what happens to trash in your community.

**SOURCE:**

Cornell Waste Management Institute. 1991. *Trash Goes to School*. (<http://cwmi.css.cornell.edu/TrashGoesToSchool/TrashIntro.htm>).