

## **Waste Generation and Disposal in Ancient Greece and Rome**

In ancient Greece and Rome, people lived in bustling cities filled with homes, shops, and public spaces. Just like today, these societies produced waste, though the types of waste and how they handled it were very different.

**Consider this: Why do you think the types of waste were so different than today? Why do you think people likely disposed of less material in ancient times than they do today?**

The waste in ancient Greece and Rome came from everyday life. People threw out food scraps, broken pottery, and ashes from their fires. In wealthier homes, they also discarded worn-out furniture, clothing, and other household items. Large-scale activities like construction and farming created debris and animal waste. In cities, public baths and markets generated a lot of waste too, such as leftover food and discarded materials from merchants.

Disposing of this waste was a challenge. In smaller towns, people often buried their waste in pits outside their homes. In larger cities like Athens and Rome, organized waste disposal systems began to develop. Rome, for example, had early garbage collectors called *redemptores*, who were responsible for clearing waste from the streets. People also dumped waste in designated areas outside the city walls. Some organic waste, like food scraps, might be repurposed as fertilizer for farming.

**Consider this: Why do you think larger cities started to move away from a system in which households buried their own waste outside their homes? What challenges may come along with a system in which everyone buries their own waste next to their homes?**

Ancient Rome also had innovative systems for cleanliness, including aqueducts and public toilets. Wastewater from homes and public baths drained into a sewer system called the *Cloaca Maxima*. While impressive, this system couldn't handle solid waste effectively, and many people still disposed of trash in streets or rivers.

The Greeks and Romans recognized that waste caused problems. Uncollected trash piled up in streets, attracting pests like rats and flies. These pests spread diseases, making people sick. In response, cities created laws to manage waste. In Athens, officials called *astynomi* enforced cleanliness rules, such as keeping streets free of garbage. In Rome, Emperor Augustus implemented public health measures, including organizing more regular street cleaning.

**Consider this: Why did cleanliness rules likely begin in large cities instead of small villages? Why might citizens have resisted new rules like these?**

Despite these efforts, waste remained a major challenge. Without modern tools, like plastic or landfills, or modern transportation, ancient societies had to find ways to handle their growing garbage. Their experiences remind us that managing waste has been an important issue for societies throughout history. By learning from the past, we can better understand the importance of keeping our cities clean and healthy today.

## **Common Waste Items**

- Food scraps (bones, vegetable peels)
- Broken pottery and clay items
- Ashes from wood fires
- Animal waste (from livestock)
- Human waste (chamber pots, open sewers)
- Construction debris (stone, bricks, plaster)
- Worn-out tools and household items (wood and metal)



## Waste Generation and Disposal in Medieval Times

Life in medieval times, from the 5th to the 15th century, brought new challenges in waste generation and disposal as towns and cities grew larger. People in places like England, France, and Italy produced waste similar to what ancient civilizations did, like food scraps, human waste, and broken tools—but with some unique additions.

In medieval towns, waste came from homes, markets, and workshops. Food scraps and animal bones were common, as people relied on fresh meat and produce. Workshops produced waste like sawdust, scraps of metal, and dyes from cloth-making. Human and animal waste also piled up quickly in growing towns. People often dumped their chamber pots—small portable toilets—right into the streets or ditches outside their homes.

**Consider this: Why do you think people chose to throw their garbage and human waste directly into the streets?**

The disposal of waste in medieval towns was often unorganized. In some places, trash was thrown into open ditches or rivers. For example, the River Thames in London became heavily polluted because people used it as a dumping ground for waste. However, some cities did try to manage the problem. In Paris, laws dating back to the 14th century required butchers to remove animal remains and dispose of them properly, rather than leaving them in the streets.

**Consider this: Rivers have often been common dumping grounds for humans. Why do you think humans throughout history have used rivers as a way to get rid of all kinds of waste? Why is this approach problematic?**

Leaders also played a role in encouraging cleaner cities. In London, King Edward III issued orders in the 1300s to improve sanitation. His rules banned the dumping of waste near public buildings and required people to clean the streets outside their homes. Similar efforts were made in other cities, like Florence, Italy, where officials hired workers to collect trash and animal carcasses.

**Consider this: Why might citizens have resisted new rules like these?**

Despite these laws, managing waste in medieval times was a constant struggle. Streets filled with garbage attracted rats and other pests, which spread diseases. One of the most devastating diseases of the time, the Black Death, killed millions of people across Europe in the 14th century. While the plague was caused by bacteria carried by fleas on rats, the dirty and waste-filled environments in towns made it easier for the disease to spread.

Medieval societies didn't have the technology or understanding of sanitation that we have today, but they knew waste was a problem. Laws and leaders tried to address the issue, but the rapid growth of towns made it hard to keep up. Their struggles remind us how important it is to manage waste to protect health and keep cities livable.

## Common Waste Items

- Food scraps (meat bones, bread crusts)
- Animal remains (from butchers)
- Human waste (chamber pots emptied into streets or ditches)
- Wood ash from cooking and heating
- Broken tools and household items
- Market waste (vegetable scraps, straw, and spoiled goods)
- Textile scraps from clothing production



## Waste Generation and Disposal During the Industrial Revolution

The Industrial Revolution, which began in the late 18th century, marked a major turning point in how people lived, worked, and managed waste. As factories, machines, and new technologies transformed daily life, they also changed the kinds of waste people generated and how it was disposed of.

In cities like Manchester, England, and Pittsburgh, Pennsylvania, factories produced enormous amounts of industrial waste. This included coal ash from powering machines, chemical byproducts from making textiles and dyes, and scraps of metal from producing tools and machinery. Meanwhile, growing urban populations created more household waste, such as food scraps, broken furniture, and human waste. Unlike earlier times, people also started throwing away more manufactured goods, like glass bottles and tin cans.

Disposing of this waste became a major challenge. In crowded industrial cities, garbage often piled up in streets and alleys. Open sewers ran through neighborhoods, carrying human waste and factory runoff into nearby rivers. For example, the River Thames in London became so polluted with waste during the mid-1800s that it was called "The Great Stink." The smell was so bad that lawmakers eventually took action to improve sanitation.

**Consider this: Rivers have always been common dumping grounds for humans. Why do you think humans throughout history have used rivers as a way to get rid of all kinds of waste? Why is this approach problematic?**

Governments began to recognize the growing need for better waste management. In the 1840s, Edwin Chadwick, a public health reformer in England, pushed for new sanitation laws. His efforts led to the construction of underground sewer systems, which helped cities dispose of waste more effectively. In the United States, cities like New York and Boston also built sewer systems and organized garbage collection programs.

**Consider this: Why do you think large cities like London, Boston, or New York were often the starting point for new rules and laws about waste? Why might smaller villages, towns, cities, or rural areas be slower to take action about waste?**

Despite these improvements, industrial waste created new problems. Pollution from factories poisoned rivers and the air, making many people sick. Diseases like cholera and typhoid spread quickly in areas with poor sanitation. Some cities passed laws to regulate waste disposal. For instance, in 1881, the British Public Health Act required local governments to collect and properly dispose of trash.

The Industrial Revolution brought incredible progress but also highlighted the challenges of managing waste in growing cities. As factories and populations continued to grow, so did the need for better systems to keep cities clean and protect public health. These early efforts laid the foundation for modern waste management practices.

### Common Waste Items

- Coal ash from factories and homes
- Metal scraps from machinery production
- Chemical byproducts (dyes, acids)
- Food packaging (glass jars, tin cans)
- Food scraps
- Human waste
- Construction debris (brick, wood, and plaster)
- Leather and textile scraps from manufacturing



## Waste Generation and Disposal in the Early 20th Century

The early 20th century was a time of rapid change in waste generation and disposal. New technologies, growing cities, and consumer habits created both challenges and opportunities for managing waste.

During this time, waste generation increased significantly. Factories were mass-producing goods, which led to more packaging waste like paper, cardboard, and tin cans. The popularity of new consumer products, such as glass jars, canned foods, and disposable items, also meant people were throwing away more trash than ever before. Additionally, coal ash from heating homes and power plants, food scraps, and yard waste remained common.

Cities were growing rapidly, and managing waste became a major problem. In many places, trash was dumped in open pits or burned in large incinerators. For example, New York City had vast trash heaps along its shores, some of which became infamous landmarks. Rivers and other waterways were often used as dumping grounds, polluting the environment.

**Consider this: Rivers have often been common dumping grounds for humans. Why do you think humans throughout history have used rivers as a way to get rid of all kinds of waste? Why is this approach problematic?**

However, the early 20th century also saw the beginnings of modern waste management systems. In New York City, a sanitation revolution began in 1895 when George Waring, Jr., was appointed head of the Department of Street Cleaning. Waring organized a team of street cleaners, famously known as the “White Wings” because of their clean white uniforms. These workers were responsible for sweeping streets and removing garbage, transforming the city’s dirty, trash-filled streets into cleaner, healthier spaces. The success of the White Wings inspired other cities to improve their sanitation practices.

**Consider this: Wearing all white to do a dirty job like cleaning the streets may seem like a bad idea. Why do you think white was the chosen color for the White Wings uniforms?**

Cities also began to develop organized garbage collection services. In 1914, New York City started requiring residents to separate their waste into categories like ashes, food waste, and paper, making it easier to manage and recycle. Many cities introduced landfills as a safer alternative to open dumps. These early landfills were designed to bury waste instead of allowing it to sit out and exposed, which helped to keep it away from people and wildlife.

Recycling also became more common during this period. During World War I and later World War II, governments encouraged people to recycle materials like metal, rubber, and paper to support the war effort. Children often participated in scrap drives, where they collected these items to be reused in manufacturing.

Despite these advances, waste still caused problems. Trash heaps attracted rats and pests, spreading diseases like typhoid fever. Pollution from burning waste and dumping in rivers affected the health of people and the environment. But public awareness of the need for better waste management was growing. Leaders and city planners could see the importance of reducing waste, recycling, and creating systems to protect public health.

The early 20th century was a turning point in waste management. While many challenges remained, efforts like those of the White Wings and early recycling initiatives laid the groundwork for the modern systems we use today to keep cities cleaner and healthier.

## Common Waste Items

- Food scraps and organic waste
- Paper and cardboard packaging
- Tin cans and glass bottles
- Coal ash from heating homes
- Early plastics (ex, Bakelite)
- Worn-out consumer goods (clothing, furniture)
- Industrial waste (metals, chemicals)



## Waste Generation and Disposal in the 1950s–1970s

The mid-20th century, from the 1950s to the 1970s, saw big changes in waste generation and disposal. Rapid economic growth, a booming population, and the rise of consumer culture meant that people were throwing away more trash than ever before. However, the systems for managing this waste were still developing, and many practices during this time had negative effects on the environment.

One major source of waste came from the increased use of disposable products. Items like plastic packaging, aluminum cans, and single-use containers became common as they made life more convenient for consumers. Household waste included food scraps, paper, and glass, but plastics—first mass-produced in the 1950s—began to make up a larger portion of the trash. Factories and power plants also created large amounts of industrial waste.

**Consider this: Why do you think society was excited about the development of disposable products? What are some benefits and drawbacks to using disposable products, like paper plates, plastic forks, or disinfectant wipes?**

Open dumps, where trash was simply piled in large heaps, were slowly being replaced by landfills during this time. However, these early landfills were not designed to be sanitary. Waste was buried, but there were no protective layers or barriers underneath the garbage to stop liquids from seeping into the ground. This meant that harmful substances, called leachate, could pollute groundwater. Landfills were also not covered properly, so trash was exposed to pests like rats and birds, and odors were a common problem.

Incineration was another common method for disposing of waste. Trash was burned in large incinerators, which reduced its volume and saved space in landfills. However, these incinerators released harmful smoke and pollutants into the air because there were no advanced systems in place to filter emissions. This created air quality issues in many cities and towns.

**Consider this: Why might burning garbage have been more problematic at this point in history than it would have been in ancient times?**

During this time, people and governments began to realize the impact waste was having on the environment. In the 1960s and 1970s, environmental movements grew, and scientists warned about the dangers of pollution. Books were published that highlighted the harmful effects of human activities, including waste disposal, on nature.

The United States passed the Solid Waste Disposal Act in 1965, the first federal law aimed at improving waste management. It encouraged cities to move away from open dumps and incinerators and adopt better landfill practices. However, it wasn't until later decades that modern sanitary landfills, designed to protect groundwater and the environment, became standard.

The 1950s–1970s marked a time of transition in waste management. While progress was being made, many practices still caused harm to the environment. This period reminds us of the importance of improving waste systems to protect our planet and future generations.

## Common Waste Items

- Food scraps and organic waste
- Plastic packaging (single-use items, wrappers)
- Aluminum cans and glass bottles
- Paper products (newspapers, magazines)
- Disposable consumer goods (razors, diapers)
- Construction waste (concrete, drywall, metals)
- Industrial chemicals and waste products
- Household hazardous waste (paint, batteries)
- Clothes, toys, and furniture

