

# TECHNOLOGY in Practice



## Applications and Innovations

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### Chapter Overview, Concepts, and Goals

#### Chapter 1, Garbage In, Garbage Out

#### Chapter Overview

This chapter focuses on an environmental issue that many communities struggle with—garbage. Many students may not know what happens to garbage once they put the container out at the curb by their house or drop bags off at the local dump. Although many schools now have recycling programs, students may not realize why recycling is beneficial for the environment. In this chapter, students learn about some of the challenges associated with the disposal of waste.

In the **Engage** activity, students keep track of the items they throw away. They look for patterns in what they throw away and consider what they might do to throw away less.

The **Explore** activity has students learning more about how much people throw away and the history of garbage. The students study a graph to learn more about how much people have thrown away in the last few decades. Then they read scenarios about trash during different time periods and consider what, and how much, people throw away.

As students work through the **Explain** activity, they learn more about landfills and incinerators. They complete an activity that illustrates one of the concerns about landfills, then read more about it. They consider the advantages and disadvantages to both landfills and incinerators.

In the **Elaborate** activity, students learn more about the choices they can make about their waste. Students work in teams to determine how much they think different actions are worth. Many of these actions are related to reducing, reusing, and recycling. They then play a game that helps them think about the impact of the actions. Finally, they read more about these options, as well as composting.

The **Evaluate** activity has students consider a scenario in which a community is trying to decide how to handle both garbage and hazardous waste. They learn about the different options the community is considering, then students consider the costs and benefits of the different options. They use their ideas to write a letter to Congress explaining which choice they think is best.

## Chapter Organizer

### Engage—Tracking Your Trash

**Key idea:**

Tracking our trash can help people begin to see patterns in garbage disposal.

**Activity:**

Students track the items they throw away and look for patterns.

**Linking question:**

How do the ways I dispose of trash compare to what other people do?

### Explore—Garbage through the Years

**Key idea:**

Evidence shows that garbage disposal has changed over time.

**Activity:**

Students look at how the type and amount of garbage people throw away has changed over time.

**Linking question:**

Have changes in the types of garbage and how people dispose of it caused any problems?

### Explain—What Happens to Garbage?

**Key idea:**

Some environmental concerns are related to the ways people dispose of garbage.

**Activity:**

Students learn about some of the concerns associated with landfills by creating a model of one.

**Linking question:**

What can be done to help meet the challenges related to garbage disposal?

### Elaborate—Reduce, Reuse, Recycle Choices

**Key idea:**

The decisions people make can affect the amount of garbage they produce.

**Activity:**

Students determine the value of different actions related to garbage, then play a game about choices.

**Linking question:**

Can technology affect people's decisions about garbage disposal?

### Evaluate—Out in the Desert

**Key idea:**

People must weigh different options for garbage disposal to find the best solution for the environment.

**Activity:**

Students write a letter to Congress to explain their choice for the way a community should deal with waste disposal.

## Major Concepts

- Patterns of garbage disposal have changed over time.
- Patterns of garbage disposal have led to different ways of handling garbage.
- In the future, we may need to find different ways to dispose of garbage.
- All methods of garbage disposal have costs and benefits.

## Goals for the Chapter

By the end of this module, students should

- be able to explain how patterns of trash disposal have changed over time
- describe costs and benefits of current methods of trash disposal
- identify patterns that have led to people seeking other methods of trash disposal
- explain how patterns in garbage disposal might be expected to change in the future
- describe a technology solution for a problem associated with garbage disposal.