TECHNOLOGY in Practice

Applications and Innovations

Chapter Overview, Concepts, and Goals
Chapter 1, Consumer Concerns

Chapter Overview

Chapter 1, "Consumer Concerns," introduces two important technological design concepts—criteria and constraints. Students will develop skills that include creating an operational definition of a property to test, thinking about variables in a test, and constructing data tables. They will use a set of criteria to evaluate certain products as well as think about the constraints that affect the design of the products. The module introduces them to the idea of human factors as a design constraint. This idea will continue through the rest of the module.

In the **Engage** activity, *What Would You Buy?,* students will think about the reasons why they might choose one brand of product over another. They will consider the properties of paper towels and rank the properties according to those that are most important to them.

As they continue with the **Explore** activity, *Putting Paper Towels to the Test,* they will design an investigation to test one of the properties of paper towels. They will decide on a definition for the property, the way they will test the property, and the variables they will control. They will carry out the investigation and present the results to the class.

In the **Explain** activity, *Paper Towel Consumers,* students will learn about the rankings for paper towels provided by *Consumer Reports* magazine. They will role-play a scenario of engineers deciding the important factors for designing a new brand of paper towel. This activity helps them understand how consumers can make informed decisions without having to test all the brands of a product.

During the **Elaborate** activity, *Part of Your Complete Breakfast,* students will test cereals and decide on the criteria and constraints for making the cereals appeal to a teen audience. They will continue their work in the **Evaluate** activity, *Teen Consumer Magazine,* by writing a 200-word article for a fictitious magazine that helps explain their cereal rankings.

For the **Evaluate** activity, *Teen Consumer Magazine,* students use all the information from the previous chapters and write an article about the results of their cereal tests.

Chapter Organizer

Engage—What Would You Buy?

Key idea:
Consumers decide what to buy based on criteria.
Activity:
Students list properties of paper towels and rank the properties most important to them.
Linking question:
How can criteria help someone decide on a product?

Explore—Putting Paper Towels to the Test

Key idea:
Testing a product is a way to find the best brand.
Activity:
Students test one property of paper towels to determine the "best" paper towel.
Linking question:
Do all people have the same criteria?

Explain—Paper Towel Consumers

Key idea:
Consumers and designers have to consider different criteria and constraints.
Activity:
Students use rankings from *Consumer Reports* and role-play to learn about criteria and constraints.
Linking question:
Do all solutions have criteria and constraints?

Elaborate—Part of Your Complete Breakfast

Key idea:
Different solutions have different criteria and constraints.
Activity:
Students determine and test criteria and constraints for cereal.
Linking question:
What should I consider when deciding which product to buy?

Evaluate—*Teen Consumer Magazine*

Key idea:
Communicating ideas and results with others is an important part of developing a product.
Activity:
Students write an article about the results of the cereal tests.

Major Concepts

- Criteria and constraints affect the design of technology.
- Products can be tested for different properties.
- Different products have different criteria and constraints.
- Sharing results about tests can help people make decisions.

Goals for the Chapter

By the end of this chapter, students will

- understand what criteria and constraints are
- be able to explain how criteria and constraints affect technological design
- be able to design an investigation to test a product
- practice communicating scientific information through writing and data tables.