

# TECHNOLOGY in Practice



## Applications and Innovations

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### Chapter Overview, Concepts, and Goals Doing Technology

#### Chapter Overview

Technology is an important idea as we think about today's students entering the workforce. *Technology* is defined as anything that helps people solve problems. Often, technology helps by expanding human limits. "Doing technology" is using information to solve problems. Doing technology can also be called engineering. It is important to expose students to the ideas of engineering early on, and also to help them understand that doing technology is a process. Critical thinking is very much a part of doing technology, as students have to consider the different aspects of the process in order to solve a problem.

You will introduce students to the basic ideas of technology and engineering in the "Doing Technology" chapter of the module. In the **Engage** activity, *What Is Technology?* students will consider a number of different items to determine if the items represent technology.

In the **Explore** activity, *How Do I Do Technology?* students will design a solution for a problem based on a scenario they read.

In the **Explain** activity, *The Process of Doing Technology*, students will learn about one engineer's job. They also will find out about the process of technology and consider how to solve problems.

Students will consider safety during the **Elaborate** activity, *Be Safe!* They will think about how they can keep safe while doing technology, and what a designed product's safety concerns might be.

Finally, students will be able to show what they have learned about technology during the **Evaluate** activity, *Sharing Technology*. They will return to the items from the Engage activity and have an opportunity to revise the list of items that represent technology. They then will choose one item to use as an example, describing why it represents technology, the process a designer had to use to make the product, and any safety concerns related to the product.

For more information about what the teacher does and what the student does in each of the stages, see *The BSCS 5E Instructional Model*. This document can be found under the "Program Overview" section of the Teacher Resources menu.

## Chapter Organizer

Chapter organizers act as a pathway to guide you and your students through a chapter. Have students examine the chapter organizer at the start of every chapter. Refer back to it as you start each new activity. Challenge students to make sure they understand the **key ideas** and **linking questions** as you move from one activity to the next. Be aware that linking questions help students understand the connection between one activity and the next; however, students will not be able to answer a linking question until they complete the activity that follows the question.

### Engage—What Is Technology?

**Key idea:**

Many examples of technology exist.

**Activity:**

Students use a set of cards to divide items into whether they do or do not represent technology.

**Linking question:**

Who designs technology?

### Explore—How Do I Do Technology?

**Key idea:**

Doing technology is solving problems.

**Activity:**

Students design a solution to a problem.

**Linking question:**

How do people who have jobs doing technology solve problems?

### Explain—The Process of Doing Technology

**Key idea:**

Engineers use a process to design solutions to problems.

**Activity:**

Students read about an engineer's work and organize ideas about the process of technology.

**Linking question:**

What other issues do people who do technology need to think about?

### Elaborate—Be Safe!

**Key idea:**

Safety is an important concern when people do technology.

**Activity:**

Students decide on the safety equipment needed for a job in a toy factory and consider safety concerns for consumers.

**Linking question:**

How can I use both the process of doing technology and safety concerns to think about products?

### Evaluate—Sharing Technology

**Key idea:**

Doing technology involves both a specific process and safety concerns.

**Activity:**

Students use one of the items from the Engage activity to explain the process of technology.

## Major Concepts

- Technology is anything that helps people solve problems.
- Doing technology is a process.
- Safety is an important concern when designing technology.
- All people, not just engineers, can use the process of doing technology.

## Goals for the Chapter

By the end of this chapter, students should understand the following:

- Technology is anything that helps people solve problems, often by expanding limits.
- There is a process to solving problems, or doing technology.
- Both the safety of designers and the safety of people who use technology must be considered when designing a product.
- All people, not just engineers, can do technology.