

## Overview

### Summary

### Background Information

# The Age of Inventions

By Ann Rossi



The Age of Inventions refers to the time from 1870 to 1910 when new machines and new ways of producing goods and services altered life forever. *The Age of Inventions* describes what it took to be an inventor, what obstacles inventors had to overcome, and some of the major inventions that changed society.

Inventors endured an arduous process to make their ideas a reality. From testing their ideas to getting patents to beating the competition, inventors met challenges from beginning to end. *The Age of Inventions* describes in detail the important inventions of the electric light bulb, the telephone, a new way to produce automobiles, and the airplane. The book describes the effects these inventions had on society.

The late 19th and early 20th centuries saw the rapid expansion of industry, fueled in part by hundreds of inventions. In turn, these inventions caused great changes in cultural, political, economic, and social life. In the 1800s, several inventions revolutionized communication. The 1900s became known for inventions in transportation. In the 1900s, inventors also began to work together toward a common goal.

The inventions in the 1800s and 1900s changed the way Americans worked and played. Inventions made it possible for people to work longer and faster and more efficiently. New ways of making goods created jobs and a modern economy.

## Learning Objectives

### Genre/Text Features

- expository
- historical photographs/art and captions
- chapter titles and subheads
- graph
- sidebars
- contents, glossary, and index

### Reading Skills

#### Skill Focus

- recognize cause-and-effect relationships
- use context clues

#### Supporting Skills

- draw conclusions
- generalize
- make judgments
- reread or read on

### Writing Skills

#### Writing Focus

- write about an invention (explanatory)

#### Supporting Skills

- prewrite
- use an outline
- conduct research

#### Viewing

- create a diagram

### Social Studies Skills

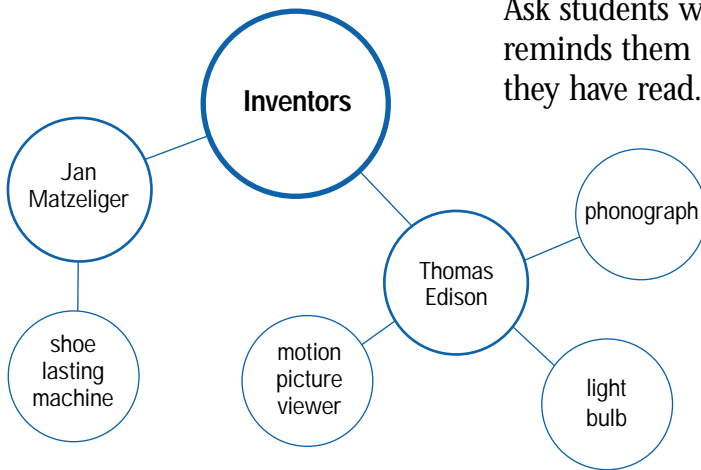
- describe how inventions such as the light bulb, the telephone, and the automobile affected society
- explain some obstacles inventors faced
- explain the role of inventors, workers, and corporations in our economy
- create a diagram

# Focus on Reading

## Before Reading

### Activate Prior Knowledge

Ask students to begin a web that identifies inventors and their contributions to society. Have them write *Inventors* in the center and then write the names of inventors and their inventions in the circles around the center. Small groups of students may work on individual webs together. They can add to their webs as they read and study *The Age of Inventions*. As students read, have them think about the impact each invention had on society.



### Preview

Give students time to preview the book, paying attention to the photographs, the diagrams, and the captions. Ask:

*How can you use the photographs to help you predict what time period you will be reading about? Will you be reading about something in the past or in the present?*

*Read the chapter titles. Knowing what the general topic of the book is, can you predict the content of each chapter?*

*Look at the diagram on page 9. What could this be?*

### Set Purpose

Ask students whether this book reminds them of other books they have read. Set a purpose

for reading to find out more about inventors and inventions to add to the web.

### Vocabulary Strategy: Use context clues

#### Activity Master, Page 252

Have students turn to page 36. Point out the word *aviation* and have a volunteer read the sentence containing that word. Ask:

*After reading this sentence, what do you think the word aviation means?*

Ask students to explain how they figured out the definition. Explain that using context clues, or the words around the word you don't know, is a good strategy for understanding unfamiliar words. Students can practice the strategy using these words:

- |               |                 |
|---------------|-----------------|
| chain stores  | interchangeable |
| discriminated | mass produce    |
| draftsman     | patent          |
| glider        |                 |

## Correlation to National Standards

### Language Arts

- read to be informed and for pleasure
- apply a wide range of strategies to comprehend and interpret texts
- use and adjust visual and written language to communicate effectively
- use the writing process
- conduct research
- participate in literacy communities

### Social Studies

- time, continuity, and change
- production, distribution, and consumption
- science, technology, and society

### Geography

- human systems (9, 11)
- environment and society (16)

### State/Local

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See Standards Chart on pages 282–287.

## During Reading

 **Read Strategically: Recognize cause-and-effect relationships**  
**Activity Master, Page 253**

Assign each chapter of the book as independent reading. As students read, they can use the Activity Master on page 253 to focus on the cause-and-effect relationships between inventors and their inventions and society. To model the process, you might want to work through one section of the chart with the class.

**Strategy Tip: Reread or read on**

If students have difficulty understanding certain passages, encourage them to first try to identify what is confusing to them and to then reread the passage or read on to see whether the confusion is cleared up. Rereading is helpful if students have missed an important statement, such as a topic sentence or the definition of an important word. Reading on can help clear up confusion by providing more explanation.



**Meeting Individual Needs**

For specific strategies on meeting individual needs, see pages 264–269.

## After Reading

**Responding**

Initiate a class discussion to assess reading comprehension with such questions as:

*What qualities do many inventors seem to share?*  
(generalize)

*Why are patents important to inventors?* (draw conclusions)

*What kinds of obstacles did inventors face?* (summarize)

*In what ways did inventions for transportation and communication change people's lives?* (cause and effect)

*In your opinion, which invention in this book was the most important? Explain.*  
(make judgments)



**Writing and Research: Write about an invention**  
**Activity Master, Page 254**

Tell students they are applying for a patent for an invention. Part of the application requires a written description of an invention and the problems it is designed to solve. Students can describe a simple invention of their own, or they can choose an invention that already exists.

**Communicating: Viewing**

**Create a diagram**

Individually or in pairs, students can create a simple diagram of an invention. Diagrams should include a title and labels and might include symbols such as arrows. Refer students to pages 7, 9, and 15 in the student book for models of diagrams.

Diagrams should include

- ✓ labeled parts
- ✓ symbols to show process
- ✓ a title

## Recognize Cause and Effect

What happened?	Why did it happen?
Inventors could legally own an idea. No one else could make or sell the invention without the owner's permission.	Inventors begin to apply for patents for their ideas.
African-American inventors and women inventors were discriminated against.	Prejudice made it harder for African Americans and women to get an education and to have their ideas heard.
People start to work at night and for longer hours.	Electricity makes it possible to work when it is dark outside; electricity changes the way people travel; people move to the city.
People travel more.	Cars become cheap enough for most people to buy them.
The Wright Brothers are ready to build a flying machine.	The Wright Brothers read about previous experiments; learned from others; watched birds; experimented with different machines.

# Extend and Assess

## Focus on Social Studies

### Inventions Change Society

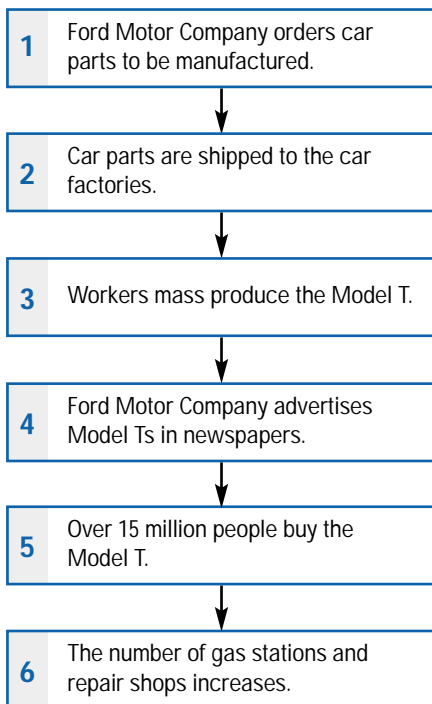
Students can create a chart showing inventors, what they invented, and how these inventions changed society. See the sample chart below.



Create a Diagram

### Activity Master, Page 255

Students create a simple diagram showing how one invention affected society. Students order steps in a process to complete a diagram like the one shown below. Have students give reasons for their arrangements if they differ.



## Assessment Options

Use the following assessment options.

### Questions

During individual conferences or independently in their notebooks, students can answer the following questions:

- 1 What two characteristics do many inventors share?
- 2 What were three challenges faced by inventors?
- 3 Name three inventions and the inventor associated with each.
- 4 Choose two inventions and explain how each changed people's lives.

### Assessment Activity

Students choose three inventions from the student book and rank them in importance. Students should then provide reasons for each ranking

Rankings should consider

- ✓ how each invention has affected society, as in transportation, productivity, or communication
- ✓ how each invention has affected society, past and present

### Inventions Change Society

Inventor	Major Invention	How Invention Affected People's Lives
Henry Ford		
Thomas Alva Edison		
The Wright Brothers		
Alexander Graham Bell		
Elisha Graves Otis		

## Multiple-Choice Test

Use the multiple-choice test in the Assessment Booklet.

## Cross-Curricular Connection

### Science

Thomas Alva Edison and his colleagues spent years experimenting with various materials before they discovered the right combination for the electric light bulb. Students can experiment with a variety of materials to discover how to build a working electric circuit. Provide small groups with a variety of materials, including a battery, a battery tray or metal clips, wire, and a small light bulb. Through trial and error, students can build a working circuit.

## Home-School Connection

How dependent has society become on the inventions discussed in *The Age of Inventions*? Parents and students can identify these inventions in their home and community. Then they can tally the number of times they use these devices in one day.




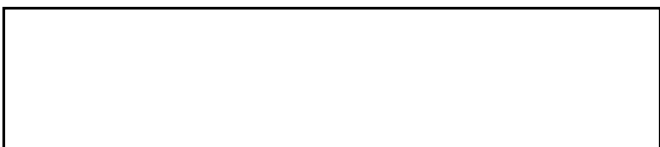

## Vocabulary: Use Context Clues

The words below are from *The Age of Inventions*. Find each word in the student book and read the sentence that contains the word and the sentence that follows. In the spaces provided below, write a definition of each word based on the way it is used in the sentence (its context). Use the glossary to check your answers.

Word	Definition from Context	Definition from Glossary
chain stores (page 34)		
discriminated (page 14)		
draftsman (page 14)		
glider (page 30)		
interchangeable (page 26)		
mass produce (page 26)		
patent (page 7)		

## Reading: Recognize Cause-and-Effect Relationships

As you read *The Age of Inventions*, think about things that happen and why those things happen. To find the effects for each cause, read the cause and ask yourself, “What happened as a result of this?” You may have more than one answer for each.

What happened?	Why did it happen?
1. Investors could legally own an idea. No one else could make or sell the invention without the owner’s permission.	
2. African-American inventors and women were discriminated against.	
3. People start to work for longer hours and at night.	
4. People travel more.	
5. The Wright Brothers are ready to build a flying machine.	

**Writing: Prewriting****An Inventor's Notebook**

You are an inventor with a great idea. In order to beat the competition, you need to apply for a patent. Plan the written description of your invention. (It can be an idea of your own, or you can describe an existing invention.) Below, describe the invention, what problem it will solve, and who will benefit most.

My invention will be called \_\_\_\_\_

**I. The problem(s) it will solve**

A. \_\_\_\_\_

B. \_\_\_\_\_

**II How my invention solves the problem(s)**

A. \_\_\_\_\_

B. \_\_\_\_\_

**III. How my invention works (Include a sketch in the space.)**

A. \_\_\_\_\_

\_\_\_\_\_

B. \_\_\_\_\_

\_\_\_\_\_

**IV Who will benefit most from my invention**

A. \_\_\_\_\_

B. \_\_\_\_\_

## Social Studies: Create a Diagram

Use the information provided below to create a diagram. The diagram will show how the Model T is built and sold to consumers. To create your diagram, follow these directions:

1. Order the six steps below.
2. Make sure you understand each step and how each step relates to the next.
3. Draw a simple diagram in the space provided below. The diagram should show how each step relates to the next.

**STEP #** \_\_\_\_\_

Over 15 million people buy a Model T.

**STEP #** \_\_\_\_\_

Workers mass-produce the Model T.

**STEP #** \_\_\_\_\_

The number of gas stations and repair shops increase.

**STEP #** \_\_\_\_\_

Ford Motor Company orders car parts to be manufactured.

**STEP #** \_\_\_\_\_

Car parts are shipped to the car factories.

**STEP #** \_\_\_\_\_

Ford Motor Company advertises Model Ts in newspapers.