# **Table of Contents**

<b>Introduction</b>	Create Your Own School and	
<b>Teacher Lesson Plans for Reading</b>	Community Almanac	53
Comprehension	Persuasive Essay—The Greatest	
Colonial Inventions and Inventors 4	Invention	
19th-Century Inventions	Persuasive Essay Planner	55
Agricultural and Medical Inventions 5	Proverbs and Sayings	56
Cars, Planes, and Rockets	Vocabulary in Context	57
The Computer Revolution	Einstein Anderson: Child Scientist	58
Common Inventions 6	<b>Teacher Lesson Plans for Social Studies</b>	
	and Science	
Student Reading Pages	Time Lines and Researching Inventions	59
Colonial Inventions and Inventors	Using Maps	
19th-Century Inventions: Power and	Electricity Experiments	
Transportation	Planes and Phones.	
19th-Century Inventions: The Communications	Kites and Plants	
Revolution	Making Car Models	
Agricultural Inventions		01
Medical Inventions	Student Activity Pages for Social Studies	
A Revolution in Speed: Cars, Planes,	and Science	(0
and Rockets	Time Line of American Inventions	
The Computer Revolution	Time Line of American History	
Common Inventions	Researching Inventions	
Reading Comprehension Quizzes	Mapping Inventions and Inventors	65
Colonial Inventions and Inventors Quiz 36	Focus on Ben Franklin: Making	
19th-Century Inventions: Power and	an Electroscope	
Transportation Quiz	Modifying an Electroscope	
19th-Century Inventions: The Communications	Making a Telegraph Model	
Revolution Quiz	Sending Morse Code	
Agricultural Inventions Quiz	Using Morse Code	
Medical Inventions Quiz40	Electromagnets	
A Revolution in Speed: Cars, Planes,	Become Your Own Airplane Designer	
and Rockets Quiz41	Fishing Line Phones	
The Computer Revolution Quiz 42	Tetrahedral Kites	
Common Inventions Quiz43	Becoming an Agricultural Scientist	82
<b>Teacher Lesson Plans for Language Arts</b>	Agricultural Science: Phototropism	0.2
Biography	and Geotropism	
Almanacs and Persuasive Essay	Agricultural Science: Plant Nutrients	84
Vocabulary and Literature	Agricultural Science: Growing Plants	0.7
·	from Plants	
Student Activity Pages for Language Arts	Make Your Own Car Model	86
Focus on a Colonial Inventor: Ben Franklin . 46	<b>Culminating Activities: Create Your</b>	
Biographies	Own Invention	89
Selected Biographies of American Inventors . 48	Annotated Bibliography	93
Write an Inventor's Biography		
Inventor Organizer	Glossary	94
Write Your Own Biography as an Inventor 51	Answer Key	96
Using an Almanac	· · · · · · · · · · · · · · · · · · ·	_



### Focus on a Colonial Inventor: Ben Franklin

Benjamin Franklin is a model for the typical American inventor. From his youth, he saw needs and tried to create practical solutions. He was interested in swimming as a boy and wanted to go faster through the water. He observed the birds and other animals that swept rapidly through the water and designed his own paddles for hands and feet. He went faster, but they were uncomfortably heavy, so he sometimes used a kite in a good breeze to pull him across a river.

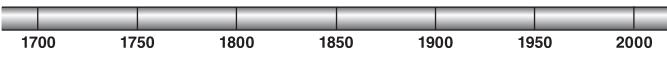
Ben would use a kite, of course, in his most famous experiment. He attached a long, pointed wire to a kite and a key to the kite string near his hand. During a lightning storm, he felt the electric shock from the key. Ben had proved that lightning was a form of electricity. He was fortunate the electric shock didn't kill him, but his



accounts of the experiment made him famous throughout Europe, where he was honored by universities and scientific organizations. Franklin used the information from the experiment to invent the lightning rod, which protected homes and barns from lightning strikes, a major cause of fire in colonial America. He also entertained friends and important community leaders with a series of electrical experiments, including efforts to electrocute a turkey and send electric shocks through his friends.

Franklin was a very successful printer and publisher of *Poor Richard's Almanack*, an annual publication filled with advice, weather predictions, and witty sayings that amused readers. Many of his other inventions centered on business, personal, and community needs. The Franklin stove was more efficient for heating homes and cooking. He invented a stepladder stool, a rocking chair with a fan, and a device for getting books from high shelves. Later, he invented bifocal glasses to help his aging eyes read better.

Some of Franklin's inventions were community-based. He helped organize the first circulating library in America, a fire department for Philadelphia, and suggested ways to protect the community from attack, deepen rivers, dispose of garbage, and keep the streets clean. He helped start a university and studied science subjects as diverse as comets, hurricanes, the behavior of insects, and medicine. Franklin was truly a creative genius and a model for every future American inventor.



# **Biographies**

The biographies listed on page 48 recount the lives of famous American inventors. Some of the biographies focus on the personal lives of inventors. Others are concerned with the way the inventions were made and how they became important in American life.

### **Assignment**

- **1.** Read one of the suggested inventor biographies from the list on page 48 or another suggested by your teacher.
- 2. Complete the Discussion Notes below about your subject.
- **3.** Use these Discussion Notes as ideas for sharing with your reading circle or class.

### **Discussion Notes**

1.	Why was this inventor important?
2.	What interesting facts did you learn about your inventor?
3.	How did the life and experiences of the inventor's youth affect his or her career as an inventor?
4.	Name and describe three inventions or improvements on inventions that your person created.  a
	b
	c
5.	Which of your person's ideas, designs, or inventions was the most important? Explain your choice.
6.	What was the greatest challenge your inventor faced?
7.	Are one or more of the inventions your subject created still in use today in some form or as the basis for other inventions? Where are they used?
	·
8.	Would you have liked to have known this inventor? Explain your answer.



# Selected Biographies of American Inventors

#### Ben Franklin

Fritz, Jean. What's the Big Idea, Ben Franklin? Coward, McCann, & Geoghegan, 1976. (An amusing, easy-to-read biography of Franklin as an inventor.)

Giblin, James Cross. <u>The Amazing Life of Benjamin Franklin</u>. Scholastic, 2000. (A brief but comprehensive account of the life of Franklin as a creative thinker and patriotic leader.)

Harness, Cheryl. <u>The Remarkable Benjamin Franklin</u>. National Geographic, 2005. (A well-written and colorfully illustrated review of Franklin's career.)

### **Wright Brothers**

Busby, Peter. First to Fly: How Wilbur and Orville Wright Invented the Airplane. Crown, 2003. (A good basic work on the life and work of the Wright brothers.)

Collins, Mary. <u>Airborne: A Photobiography of Wilbur and Orville Wright</u>. National Geographic, 2003. (This work issued to celebrate the 100th anniversary of the historic flight has particularly clear explanations of the Wrights' technological achievements.)

MacLeod, Elizabeth. <u>The Wright Brothers: A Flying Start</u>. Kids Can Press, 2002. (A well-illustrated, clever story of the great flight.)

### Benjamin Banneker

Maupin, Melissa. <u>Benjamin Banneker</u>. The Child's World, 2000. (An easy, well-illustrated account of Banneker's life and work.)

#### **Thomas Alva Edison**

Mason, Paul. <u>Thomas A. Edison</u>. Raintree, 2002. (An excellent overview of the inventor's interests and career.) Price-Groff, Claire. <u>Thomas Alva Edison: Inventor and Entrepreneur</u>. Watts, 2003. (A detailed account of Edison's inventions and business life.)

Williams, Brian. Thomas Alva Edison. Heinemann, 2001. (A complete overview of Edison's inventive career.)

### **George Washington Carver**

Carey, Charles W. George Washington Carver. The Child's World, 1909. (A good introduction to Carver's life and contributions.)

MacLeod, Elizabeth. George Washington Carver: An Innovative Life. Kids Can Press, 2007. (An interesting and visual account of this inventor's life and career.)

#### **Alexander Graham Bell**

Reid, Struan. <u>Alexander Graham Bell</u>. Heinemann, 2001. (A complete and graphic account of Bell and his many inventions.)

Ross, Stewart. Alexander Graham Bell. Raintree, 2001. (A well-illustrated account of Bell's inventions.)

Williams, Brian. <u>Bell and the Science of the Telephone</u>. Barron's, 2006. (A very graphic, clear, and light account of Bell's discovery.)

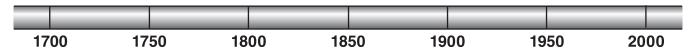
#### **Robert Fulton**

Pierce, Morris A. Robert Fulton and the Development of the Steamboat. PowerPlus Books, 2003. (A very detailed and visual account of the Fulton's many interests.)

### Other Biographies

Marx, Christy. <u>Grace Hopper: The First Woman to Program the First Computer in the United States</u>. Rosen, 2004. (An interesting account of Grace Hopper's career.)

Riddle, John and Whiting, Jim. <u>Stephen Wozniak and the Story of Apple Computer</u>. Mitchell Lane, 2002. (A brief, easy-to-read account of the inventor's life.)



# Write an Inventor's Biography

**Directions:** Choose one of the inventor biographies listed on page 48 or another recommended by your teacher. Use the following graphic organizer as a cluster for writing a 4-paragraph biography of your inventor. To start, complete each section in the blank organizer on page 50.



- date
- place of birth
- · schooling
- childhood interests
- personal facts about childhood and teen years
- family information

#### **Focus on One Invention**

- needs the inventor recognized
- problems to be solved
- type of invention
- costs
- uses of the invention
- success of the invention

**Inventor's Name** 

#### Other Inventions and Ideas

- other invention interests
- successes and failures
- the most interesting invention
- partners, colleagues, and assistants

#### **Personal Evaluation**

- your feelings about the inventor
- importance of the inventor and his or her inventions



### **Inventor Organizer**

**Directions:** Complete the graphic organizer below using the organizer outline from page 49 to guide your ideas. Use your findings to help you write your 4-paragraph biography on your own paper.

