Living During the Industrial Revolution from the: *Living History Series*

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Table of Contents

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Living During the Industrial Revolution
From the *Living History Series*
Grades 4-8
Viewing Time: 20 minutes including a one-minute, five-question Video Quiz

INTRODUCTION TO THE SERIES

The Living History Series
This series of programs portrays human life during several different eras of history. It depicts the effects of such things as new ideas, religious ideology, and technological advancement on the development of civilization.

INTRODUCTION TO THE PROGRAM

Living During the Industrial Revolution examines how important technological changes in manufacturing, called the Industrial Revolution, radically altered the way that people lived in Europe and America.

LINKS TO CURRICULUM STANDARDS

World History Standards and Benchmarks/ Era 7/ An Age of Revolutions, 1750 -1914

• Understands the emergence and impact of industrialism in 18th-century England (major characteristics of industrialization, population shifts, how changes in the textile industry affected how people worked, the contributions of important figures).

• Understands the impact of the Industrial Revolution in both Europe and America (urbanization, quality of life, class distinctions, daily life, advances in communication and transportation).

• Understands the consequences and importance of new technologies.

SUMMARY OF THE PROGRAM

This program is divided into several major topics that are presented in this order:

- Introduction
- Life Before the Industrial Revolution
- Revolution in the Textile Industry
- Factories and the Growth of Industrial Cities
- The Industrial Revolution Comes to America
- The Cotton Gin
- Interchangeable Parts
- New England's Industrial Revolution
- Factory Work
- The Steam Engine
- Conclusion

INSTRUCTIONAL NOTES

Before presenting these lessons to your students, we suggest that you preview the program, review the guide, and the accompanying Blackline Master activities in order to familiarize yourself with their content.

As you review the materials presented in this guide, you may find it necessary to make some changes, additions, or deletions to meet the specific needs of your class. We encourage you to do so, for only by tailoring this program to your class will they obtain the maximum instructional benefits afforded by the materials.

PRE-TEST AND POST-TEST

Blackline Master #1, Pre-Test, is an assessment tool intended to gauge student comprehension of the objectives prior to viewing the program. Remind your students that these are key concepts upon which they should focus while watching the program.

Blackline Master #2, Post-Test, can be compared to the results of the Pre-Test to determine the change in student comprehension after participation in the activities and viewing the program.

STUDENT PREPARATION

Set up an *Industrial Revolution Learning Center* with pictures of industrial landscapes, factories, products, machines, inventions, and people at work. Highlighted maps depicting important Industrial Revolution sites would be useful.

STUDENT OBJECTIVES

After viewing the program and completing the follow-up activities, students should be able to:

- Discuss the emergence and impact of industrialism in 18th century England.
- Describe the major characteristics of industrialization.
- Explain the population shifts and urbanization that occurred due to industrialization.
- Discuss how changes in the textile industry affected how people worked.
- Describe some of the contributions of the most important figures of the Industrial Revolution.
- Discuss the impact of the Industrial Revolution on daily life.
- Explain the consequences and importance of new technologies on the development of civilizations.

INTRODUCING THE PROGRAM

Introduce this program by describing the growing interest in mechanical devices that arose during the Age of Reason and how this led to the creation of important machines of the Industrial Revolution. Discuss the rise of Britain as the leading world power. Explain that the changes brought about by indus-

trialization were, and still are, enormous (many countries are still not industrialized or are only now undergoing industrialization with its accompanying environmental degradation, population displacement, and urbanization).

VIEW THE PROGRAM

Running Time: 20 minutes including a one-minute, five-question **Video Quiz**.

Hand out **Blackline Master #3, Video Quiz**.

DISCUSSION QUESTIONS

The following are some suggested topics for post-viewing discussion:

1. Compare and contrast the changes brought about by industrialization in the 18th and 19th centuries to the changes brought on by the birth of the "Information Age" in the 20th century.

2. In terms of "quality of life," what things improved and what things declined as a result of industrialization?

DESCRIPTION OF BLACKLINE MASTERS

Blackline Master #1, Pre-Test, is an assessment tool intended to gauge student comprehension of the objectives prior to viewing the program.

Blackline Master #2, Post-Test, is an assessment tool to be administered after viewing the program and completing additional activities. The results of this assessment can be compared to the results of the Pre-Test to determine the change in student comprehension before and after participation in this lesson.

Blackline Master #3, Video Quiz, is an assessment tool primarily intended to promote student attention to the program presentation,

Blackline Master #4, Crossword Puzzle, is a puzzle game based on information presented in the Vocabulary.

Blackline Masters #5 and 6, Timeline and Activity, a chronological list of events pertaining to the Industrial Revolution.

Blackline Masters #7 and 8, Vocabulary List and Activity, includes important words and names pertaining to the Industrial Revolution followed by a vocabulary activity.

EXTENDED LEARNING ACTIVITIES

Field trips to historic industrial sites or modern-day factories are the best way to savor the flavor of industrialization.

Papers, oral reports, or presentations could be done on the following subjects:
• daily life of a factory worker during the Industrial Revolution
• changes in the use of children as factory laborers in the 18th and 19th centuries
• technological change as an instigator of social change
• the invention of the steam engine and how it revolutionized manufacturing, farming, and transportation in the 19th century
• industrialization and environmental destruction
• immigration and factory work in 19th century America

ANSWER KEY

Blackline Master #1, Pre-Test
A. True or False
1. False, it began in England.
2. False, textiles were the first products of large scale industrialization.
3. False, the use of clocks increased.
4. True
5. True
B. Answers will vary

Blackline Master #2, Post-Test

Multiple Choice

1. b
2. b
3. d
4. d
5. b
6. c
7. c
8. d
9. c
10. c

Essay answers should include some of the following comparisons in their discussion:

Before the Industrial Revolution:

people were living mostly in rural areas
people didn't rely on clocks
most people farmed
cottage industries dominated
life was slower, quieter
most things were made by hand
no interchangeable parts
few large machines existed
no rapid transit
large lower class, small upper class
limited availability of goods
most people were illiterate
few reliable sources of income
no phones, phonographs, or movies

After the Industrial Revolution:

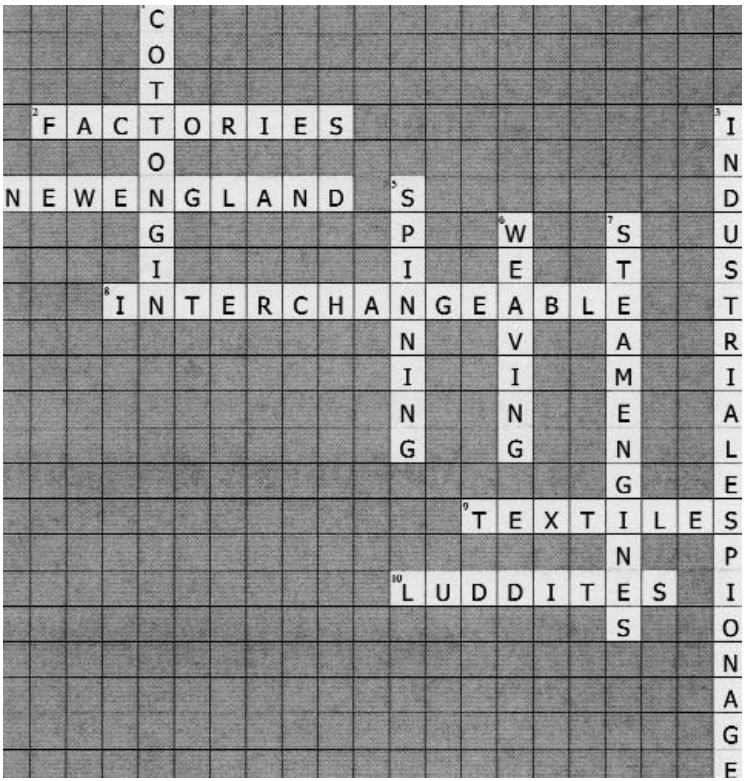
people are living mostly in urban areas
people depend on clocks
more factory workers, fewer farmers
machine manufacturing predominates
life is faster, noisier
most things are machine made

interchangeable parts are common
large machines are common
rapid transit is common
large middle class
manufactured goods more readily available
most people literate
more reliable income sources
mass-communication commonplace

Blackline Master #3, Video Quiz

1. False, the textile factories replaced the cottage industries.
2. True
3. False, most new textile machines were invented in England.
4. True
5. False, the use of steam engines caused air pollution.

Blackline Master #4, Crossword Puzzle



Blackline Master #6, Timeline Activity
1. photography
2. light bulb
3. power loom
4. steam engine
5. telephone

Blackline Master #8 Vocabulary Activity
1. Guglielmo Marconi
2. internal combustion
3. spinning
4. Luddites
5. cottage industry

SCRIPT OF THE PROGRAM NARRATION

A series of events occurred over 200 years ago that brought about huge changes in the way that people lived. That was the time when fast power-driven machines started to do work, that up until that time had only been done by human hands. It was when the first big factories were built to house workers and the machines they operated. It was when the production of manufactured goods increased dramatically, when the lives of human beings first started to be regulated by clocks and factory bells. It was also when rural populations declined as people headed to factories to find steady work, when cities rapidly grew, and when pollution of the environment began to occur on a massive scale.

Taken together these events started the world's first Industrial Revolution.

Life Before the Industrial Revolution
Before the Industrial Revolution began in England around the year 1760, the way most people lived in Europe and America was very different from how they live today.

Nine out of ten people lived in rural areas. There was a large, mostly poor, lower class, a small, rich, upper class and not much of a middle class. Rural people raised most of their food on small farms. And they didn't have to leave home each day to work at their jobs. Back then, there were no electric lights, no movies, no telephones, no recorded music, and no cars. Ordinary people used their hands to make most of the things they needed. They had no reason to own a clock, since their lives were tuned to the rising and setting of the sun. The world was pretty quiet before the Industrial Revolution because there were no machines for rapid transportation to fill the air with noise. Without these devices people didn't travel much. Consequently, except for their own villages, they knew very little about the world in which they lived. The pace of life was much slower before the Industrial Revolution because people had to walk or use horses to move from place to place. There was no public education, so few people could read and write. And due to poor nutrition and living conditions they didn't live nearly as long as people do today.

Textile Manufacturing Before the Industrial Revolution

Textile manufacturing was the first major industry to undergo industrialization and for many people the change was tragic. That was because before the Industrial Revolution the poor, rural population had few ways of earning a living except for the unreliable income they got from farming. But in Europe especially, many rural people could add to their incomes by working at what were known as domestic or cottage industries by making cloth. The way this worked was that cloth merchants purchased large quantities of wool from sheep farmers, as well as linen fibers from flax farmers. The merchants then delivered the material to cottage workers to be made into cloth.

First, the fibers were spun into yarn using a simple foot-powered machine called a spinning wheel. Then, under what was known as the "putting-out system" the yarn was then distributed to weavers to be woven into certain types of cloth on a hand-

loom. It took a long time, but after the roll of cloth was finished the merchants paid the cottage workers for what they had done. These traditional, home-based, textile workers were the first people to be replaced by machines when the Industrial Revolution began.

Revolution in the Textile Industry

In the 1760s, two new machines, the spinning jenny and the water frame, caused a revolution in the textile industry because both machines markedly sped-up the process of making thread for weaving. These machines were adapted to use the power of flowing water or hydraulic power. This means that the motion of the water would turn a wheel that was connected by a complicated system of pulleys and belts used to run the machines. Another machine called the spinning mule was developed later in the 1700s. When it was hooked up to waterpower just one person could do the work of 3000 hand spinners. The new textile machines were extremely efficient at producing the fine thread needed to make high quality cloth and they caused the cottage spinning industry to collapse soon after they were introduced.

A little later, mechanized power looms were developed that used waterpower instead of human muscle-power to weave thread into cloth. One important invention adapted to power weaving from handlooms was a mechanized version of the flying shuttle seen here. This was a special device used to rapidly weave a cross thread through the webs of thread on the loom. On power looms this process took place at an incredible speed when compared to doing it by hand. It is not surprising that the much more efficient power looms rapidly ended the cottage weaving industry.

In England, in 1811, unemployed home textile workers called the Luddites, got so angry about losing their jobs that they rioted and tried to destroy the new textile machines.

Factories and Growth of Industrial Cities

In the late 1700s, and early 1800s, large buildings called factories, began to appear along rivers in Europe and North America. Factories are places where workers operate expensive, usually very complicated machine produced manufactured goods.

The creation of factories was a turning point in human society because people had to leave home each day to earn a living. This radically changed family life and the way children were raised. New housing for workers had to be built near the factories, and as this happened cities rapidly grew in size, while rural populations decreased. And because people had to meet production deadlines they were expected to show up at the factories at specific times. This meant that for the first time in history large numbers of human lives began to be regulated by clocks and the ringing of factory bells. For example, the schedule seen here shows that in 1874, the long workday at the Lowell Mills began at 6:45 in the morning and ended at six in the evening, except on Saturday, when it ended at 4:30. On Sunday, however, workers were given a day off.

The Industrial Revolution comes to America

The Industrial Revolution came to America mainly through two instances of what today would be called industrial espionage, or industrial spying. The spying occurred because the designs of English textile machines were carefully guarded secrets. They had brought England so much wealth that laws prohibited shipping the machines out of the country for fear that people might copy them. The first case of industrial spying took place sometime in the 1780s, when a man who had been employed at an English spinning factory, named Samuel Slater, memorized every detail of how the machines were built. He moved to the United States the year George Washington was elected president and had copies made of the English machines. Then he opened-up a cotton spinning mill in Pawtucket, Rhode Island, and put them to work. And by the beginning of the 19th century 100 workers, mostly women, and children aged seven to 14, could be found laboring here at Slater's mill.

The second case of espionage that brought the Industrial Revolution to America produced copies of English power looms that were first employed in the United States in the year 1814. Like the design of the spinning machine, the design of the power loom had been secretly memorized from English machines. And once America had power looms it rapidly became an important textile-manufacturing nation.

The Cotton Gin

Even though the first mechanical spinning and weaving machines in America were copied from English machines, one truly American invention called the cotton gin helped revolutionize the textile industry. Cotton plants produce excellent fibers, and in America's Southern States, cotton was very cheap to produce because unpaid slaves were used to grow and harvest the crop. Yet, even though the demand for cotton was great before the invention of the cotton gin, it was not widely used in textiles. That was because cotton fibers are contained in the plant's seedpods, and before the fiber can be spun into thread the seeds must be removed. "Cleaning" cotton was a very slow process when done by hand. But after 1793, the year Eli Whitney invented his cotton gin, simply by turning a crank, it was possible to remove as many seeds from raw cotton in a single day as 50 people could do using just their hands.

Because the cotton gin made the fibers more readily available there was a great increase in cotton production. Consequently, there was an increase in the number of slaves working on plantations as well. After the invention of the cotton gin the raising of cotton rapidly became the backbone of the economy in the southern United States.

Interchangeable Parts

Besides inventing the cotton gin, Eli Whitney also came up with a new method of making things that helped revolutionize manufacturing. That was the idea of having interchangeable parts. Before the Industrial Revolution, each tool or machine was made by hand, one at a time. In fact, an important job of

the blacksmith in pre-industrial times was to make replacement parts when a piece of equipment got broken, which was a very time-consuming process. For example, if a lock like this one stopped working it was not possible to fix it with "off the shelf" parts, because each lock was "one of kind" and its parts could not be interchanged.

The situation began to change in 1798, when Eli Whitney got an order from the U.S. Government for 10,000 rifles that needed to be delivered in a very short period of time.

To meet the deadline he developed a method of manufacturing guns that were nearly identical to one another, so that a part for one rifle would work in any other rifle of the same kind.

Making interchangeable parts not only sped up the manufacturing process for the rifles, if they failed to shoot, it made fixing them a lot quicker and easier to do. Whitney's method of using interchangeable parts was a big step forward in manufacturing, and eventually led to greatly increased production of almost all machine-made goods. While at the same time, the blacksmith's job became much less important.

New England's Industrial Revolution

During the 19th century, while the southern states developed a slave-based agricultural economy, the New England States became the center of America's Industrial Revolution. There were several reasons why industrialization took hold in New England. First, the region's many large rivers provided excellent sources of waterpower. Second, it was easier for New Englanders to shift to an economy based on manufacturing due to the fact that the area's rocky soil was poorly suited for farming. Third, New England had a number of fine seaports that could be used for bringing in raw materials and transporting out finished goods. And fourth, thanks to decades of success in the transatlantic shipping business, there were people in New England with large sums of money who wanted to invest in factories.

Factory Work

When the Industrial Revolution began in England the earliest textile factories employed many young children and paid them almost nothing. But that changed in America because by the mid-1800s, eight out of every ten workers in the textile factories were unmarried women between the ages of 15 and 30. Most of them had left behind quiet lives on isolated farms for the adventure of working in a city and earning a steady wage.

The conditions were not good in the textile factories, but they did improve over time. The machines tended to be extremely loud and dangerous to operate, the hours were long, the work was quite monotonous, and the air in the factories was filled with tiny bits of fiber that damaged the worker's lungs. The wages were low as well. The "mill-girls" as they were called, earned less than three dollars for putting in a six day, sixty hour, work week; while men got a dollar more a week for doing same jobs. The lives of the mill-girls were almost completely controlled by the factories where they worked. For example, right across the street from this textile factory are the company-owned boarding houses where they slept and ate their meals. Here the girls were carefully supervised and followed a strict curfew. But they were provided with respectable surroundings that were often more comfortable than those they had known back on the farm.

However, as the nineteenth century rolled-on, unskilled factory jobs began to be filled more and more often by recent immigrants to America, instead of farm girls. Such jobs provided many immigrant families with a reliable income with which to start their new lives.

Steam Power

The switch from water to steam power sped up the Industrial Revolution and led to huge changes in manufacturing, farming, and transportation. Factories that started using steam engines were more efficient than water-powered factories and could be

built far away from rivers. Steam engines also began to be used to run machines for mass transportation, such as railroads and steamboats, and this made it possible for people to travel long distances in a very short amount of time. The use of steam engines in farming for things such as threshing grain led to greatly increased food production and helped to revolutionize agriculture. But because steam engines burned wood or coal, smokestacks became a very familiar sight. And air pollution increased to the point that it began to cause serious health problems in the industrial cities.

Naturally, as the popularity of steam powered machines grew, the appetite for coal and iron increased as well. More and more mines were developed to supply industry, and large scale mining itself resulted in tremendous environmental damage in many parts of the world.

Conclusion

By the year 1900, industrialization was firmly in place across much of Europe and America. The century that had just ended had been one of drastic, rapid change on a scale unlike anything seen before in history. Huge numbers of rural people had moved to crowded cities and taken up factory work. Many of them now lived in homes illuminated with electric light bulbs. Their children attended public schools. They could listen to recorded music in their homes instead of going to a concert hall. They could even watch motion pictures, talk on the telephone, and ride in an automobile.

For the Industrial Revolution had ushered in the Modern Age, and with it came not only tremendous technological and environmental changes, but a brand new "middle class" of hard-working people as well.

Video Quiz

1. True or False? Cottage industries replaced textile factories after the Industrial Revolution.

2. True or False? Interchangeable parts were developed by Eli Whitney.

3. True or False? Most of the new textile machines of the 18th century were invented in the U.S.A.

4. True or False? Cotton gins were used to remove seeds from cotton fibers.

5. True or False? In the 19th century, steam engines were mainly used to remove pollutants from the air.

Name _____

LIVING DURING THE INDUSTRIAL REVOLUTION
from the *LIVING HISTORY* series

PRE-TEST

A. Directions: Answer each of the following either True or False.

1. The world's first major movement toward industrialization began in America. _____

2. Canned food was the first product of large-scale industrialization. _____

3. The need for clocks decreased after industrialization. _____

4. Industrialization brought about a decrease in the number of farmers. _____

5. The telephone, light bulb, automobile, and motion pictures were all 19th century inventions. _____

B. List as many changes in people's lives that have occurred since the Industrial Revolution.

Name _____

LIVING DURING THE INDUSTRIAL REVOLUTION
from the *LIVING HISTORY* series

POST-TEST

Multiple Choice
Directions: Fill in the blank by choosing from the choices provided.

1. The _____ was the first textile machines of the Industrial Revolution.
   a) cotton gin
   b) water frame
   c) internal combustion engine
   d) power forge

2. _____ brought English textile machinery designs to the U.S.A.
   a) Eli Whitney
   b) Samuel Slater
   c) John Adams
   d) Thomas Jefferson

3. An example of a cottage industry is _____.
   a) power looming
   b) building steam engines
   c) making interchangeable parts
   d) hand weaving

4. The approximate decade that the Industrial Revolution began was the_____.
   a) 1840s
   b) 1830s
   c) 1810s
   d) 1760s

5. _____ is the country where the Industrial Revolution began.
   a) Russia
   b) England
   c) Spain
   d) Germany

6. The typical number of hours in a textile factory work-week in the U.S.A. in the 1870s was _____.
   a) 40
   b) 50
   c) 60
   d) 70

7. _____ was not improved by the use of steam engines in the 19th century.
   a) Transportation
   b) Farming
   c) Air quality
   d) Manufacturing

8. _____ was a source of linen fiber used before the Industrial Revolution.
   a) Cotton plants
   b) Silk worms
   c) Sheep
   d) Flax plants

9. _____ did not increase after the Industrial Revolution.
   a) Factories
   b) Production of goods
   c) Population of rural areas
   d) Environmental pollution

10. The region of _____, in the U.S.A, was where industrialization was first concentrated.
   a) the Southern States
   b) the Pacific Northwest
   c) New England
   d) California

Essay Question
Compare and contrast life before and after the Industrial Revolution. Include at least five examples in your discussion. You may use the back of this sheet or a separate piece of paper to complete your answer.

Name _____

LIVING DURING THE INDUSTRIAL REVOLUTION
from the *LIVING HISTORY* series
VIDEO QUIZ

Directions: Answer the following true of false.

1. True or False? Cottage industries replaced textile factories after the Industrial Revolution. _____

2. True or False? Interchangeable parts were developed by Eli Whitney. _____

3. True or False? Most of the new textile machines of the 18th century were invented in the U.S.A. _____

4. True or False? Cotton gins were used to remove seeds from cotton fibers. _____

5. True or False? In the 19th century, steam engines were mainly used to remove pollutants from the air. _____

Name _____

LIVING DURING THE INDUSTRIAL REVOLUTION
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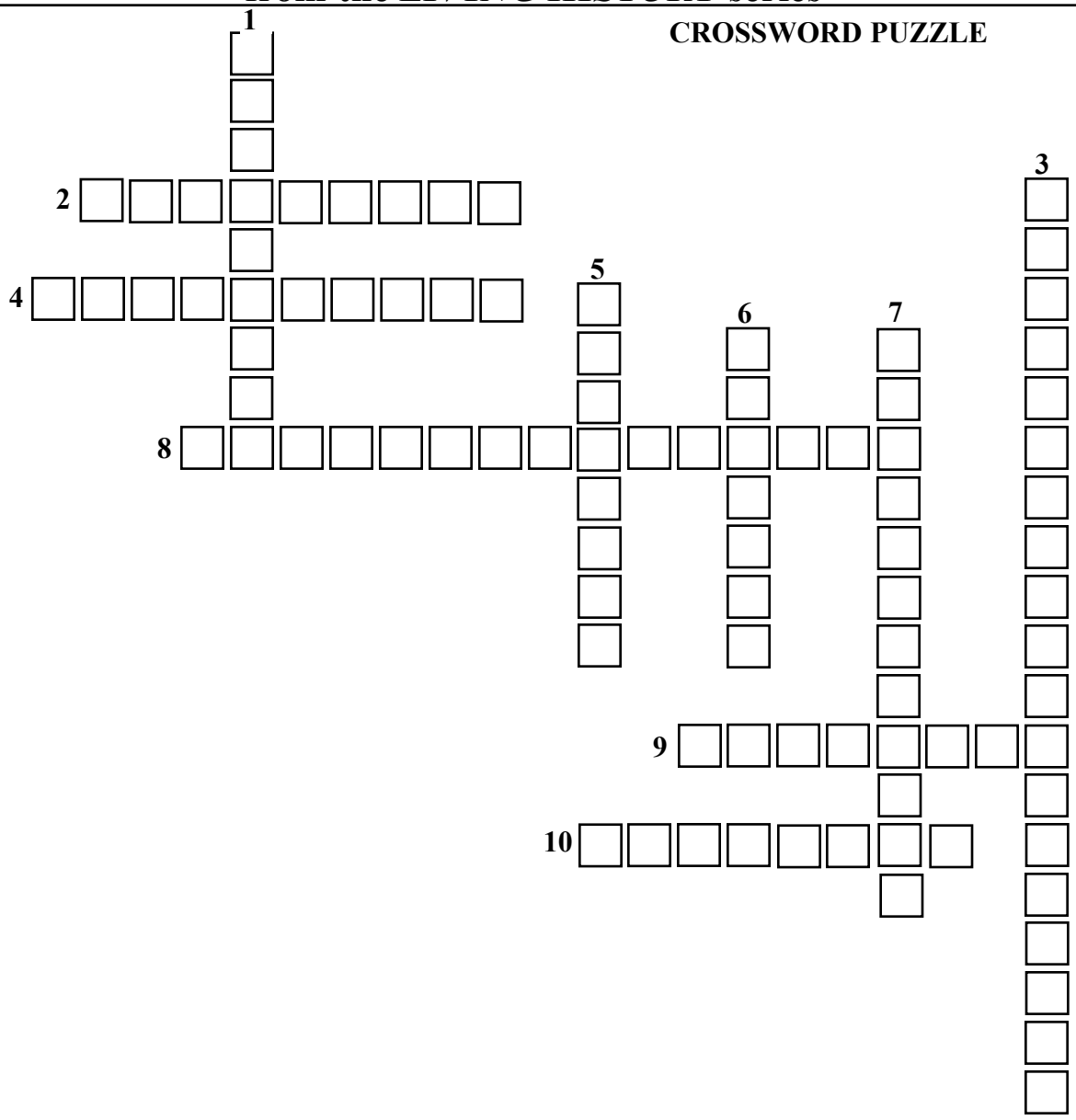
CROSSWORD PUZZLE



Across

2. These buildings are where workers come to use machines.
4. This region of the U.S.A was the center of the American Industrial Revolution.
8. The production and repair of mechanical devices of all sorts was much more efficient when they were made from these kind of parts.
9. In the late 1700s, new machines for efficiently making these products started the Industrial Revolution.
10. This group of unemployed cottage workers attacked the machines that put them out of business.

Down

1. Eli Whitney invented this machine for cleaning cotton fibers.
3. Samuel Slater committed this illegal act in order to open his factory in Rhode Island.
5. This process produces yarn and thread.
6. Thread is made into cloth by this process.
7. The use of coal increased due to use of these devices.

Name _____

LIVING DURING THE INDUSTRIAL REVOLUTION
from the *LIVING HISTORY* series

TIMELINE

1698 The first commercial steam engine is produced.

1733 The flying shuttle for handlooms is invented.

1738 The first spinning machine is patented in England.

1740s The first textile mills were built in England.

1760s The spinning jenny and water frame are invented for spinning fibers.

1764 James Watt invents a condenser for a steam engine.

1769 The first steam-powered carriage is invented.

1773 The first cast iron bridge is built in England.

1774 A boring machine is invented for making cylinders for steam engines.

1775 James Watt perfects the steam engine. The outbreak of the American War for Independence.

1779 The spinning mule is perfected.

1784 The threshing machine is invented.

1785 The first steam engine is used to power a loom.

1787 A steamboat is launched on the Delaware River.

1789 Samuel Slater installs copied spinning machines at his mill in Rhode Island. George Washington is elected president of the U.S.A.

1793 Eli Whitney invents the cotton gin.

1794 The first telegraph is invented in Paris.

1796 The first vaccination against smallpox, by Edward Jenner in England.

1801 The first submarine is built by Robert Fulton in America.

1802 John Dalton introduces atomic theory to chemistry.

1811 Luddites (unemployed cottage textile workers in England) riot against new textile machines.

1814 Francis Lowell opens his modern textile factory in Massachusetts, using designs for machines copied from British factories.

1819 Electromagnetism is discovered.

1825 The Stockton-to-Darlington passenger railroad line is opened in England.

1827 The first photographs are produced.

1830 Charles Babbage invents a mechanical computing machine, the world's first computer. The first American steam train is in operation in Maryland.

1831 Michael Faraday demonstrates the phenomenon of electromagnetic induction that is essential in making electric motors.

1833 A telegraph is invented that carries messages nearly two miles.

1835 The first efforts to propel railroad vehicles using electric batteries is attempted. Great Britain has more than 120,000 power looms in operation.

1837 Samuel Morse demonstrates the electric telegraph.

1839 The first electric clock is designed.

1844 Telegraph messages are sent between Baltimore and Washington, D.C.

1846 Electric arc lighting is used at the Paris opera.

1859 The first practical battery for storing electricity is used.

1860 The first practical internal combustion engine is used in automobiles.

1865 The completion of the first transatlantic telegraph cable.

1876 Alexander Graham bell patents the telephone.

1877 Thomas Edison invents the photograph.

1879 Thomas Edison perfects the electric light bulb. A company in San Francisco, California builds the first centralized power plant for generating electricity.

1882 Thomas Edison designs the first hydroelectric plant in Appleton, Wisconsin, and builds a steam powered electric generating plant in New York City.

1888 Nikola Tesla constructs an electric motor (manufactured by George Westinghouse), George Eastman perfects the "Kodak" box camera.

1893 Henry Ford builds his first automobile.

1895 A camera is developed for motion pictures. Guglielmo Marconi sends telegraph signals by radio.

1896 A hydroelectric plant opens at Niagara Falls, N.Y.

1900 Over 3600 electric utilities exist in the U.S.

1901 Guglielmo Marconi sends the first transatlantic radio signal.

1903 The Wright brothers fly the first motor-driven airplane.

1914 Henry Ford mass-produces Model T-Ford automobiles on an assembly line.

1918 Free and compulsory public education exists in every U.S. state.

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LIVING DURING THE INDUSTRIAL REVOLUTION
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TIMELINE ACTIVITY

Directions: From the Timeline, fill the dates in the blanks.

1. The invention of photography or the phonograph _____

2. The invention of the light bulb or the motion picture camera _____

3. The invention of the telegraph or the power loom _____

4. The invention of the cotton gin or the steam engine _____

5. The invention of the telephone or the first motor-driven airplane _____

Name _____

LIVING DURING THE INDUSTRIAL REVOLUTION
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VOCABULARY LIST

The following are important words and names pertaining to the Industrial Revolution. Try to listen for these terms while viewing the program: pay close attention so you can include them in your writing assignments.

assembly-line - A manufacturing system in which a product is completed step-by-step by different workers.

Bell, Alexander Graham - The inventor of the telephone.

capital - Money or wealth used in trade, manufacturing, or business.

capitalism - An economic system in which factories and utilities are privately owned and operated for a profit.

cottage industry - Home based manufacturing, same as domestic industries.

cotton gin - A machine that removes seeds from cotton.

Edison, Thomas Alva - American inventor of hundreds of products including the light bulb and phonograph.

factory - A place where workers use machines to make products.

Ford, Henry - Founder of the Ford Motor Company, the man who created an assembly- line of workers to produce inexpensive cars.

industrial espionage - Industrial spying to obtain secrets about manufacturing methods.

interchangeable parts - Machine parts that are mass produced and identical as opposed to being hand-made and "one of a kind."

internal combustion engine - Engines that consume fuel that burns and explodes inside the engine to drive a piston. Automobile engines are internal combustion engines.

loom - A machine for weaving thread into cloth.

Lowell, Francis - Important New England industrialist and industrial spy.

Luddites - Unemployed cottage textile workers that rioted against new textile machines in the early part of the 19th century.

mass production - Making products on a large scale usually by machine.

middle class - The part of a population of people between the wealthy upper class and poor lower class.

Marconi, Guglielmo - Inventor of the radio.

putting-out system - The manufacturing system whereby yarn was distributed or "put out" to cottage workers to be woven into thread.

Slater, Samuel - The man who first brought English spinning technology to America in 1789.

spinning - The process of twisting fibers into thread or yarn for weaving.

spinning jenny - A machine for spinning that did the work of 16 hand operated spinning wheels.

spinning mule - A machine for spinning that did the work of 3000 hand-operated spinning wheels.

steam engine - An external combustion engine in which fuel is burned to heat water and convert it into steam. The steam is used to push a piston.

water frame - A spinning machine of the 1760s.

weaving - The process of turning thread or yarn into cloth that is done on a loom.

Whitney, Eli - Inventor of the cotton gin.

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VOCABULARY ACTIVITY

Directions: From the vocabulary list select the correct word to fill in the blank.

1. The radio was invented by _____.

2. Cars are powered by _____engines.

3. The process of thread making is called _____.

4. The _____ rioted against new textile machines in the early 1800s.

5. _____ refers to manufacturing that is done in the home.