

The Rise of Industry

Reading Notes

Key Content Terms

As you complete the Reading Notes, use these terms in your answers. At the end, take a highlighter and highlight all the times you use these terms.

entrepreneur
monopoly

mass production

trust

urbanization

Reading Questions

In complete sentences, answer the following questions using the readings.

1. How did federal, state, and local governments encourage business expansion?

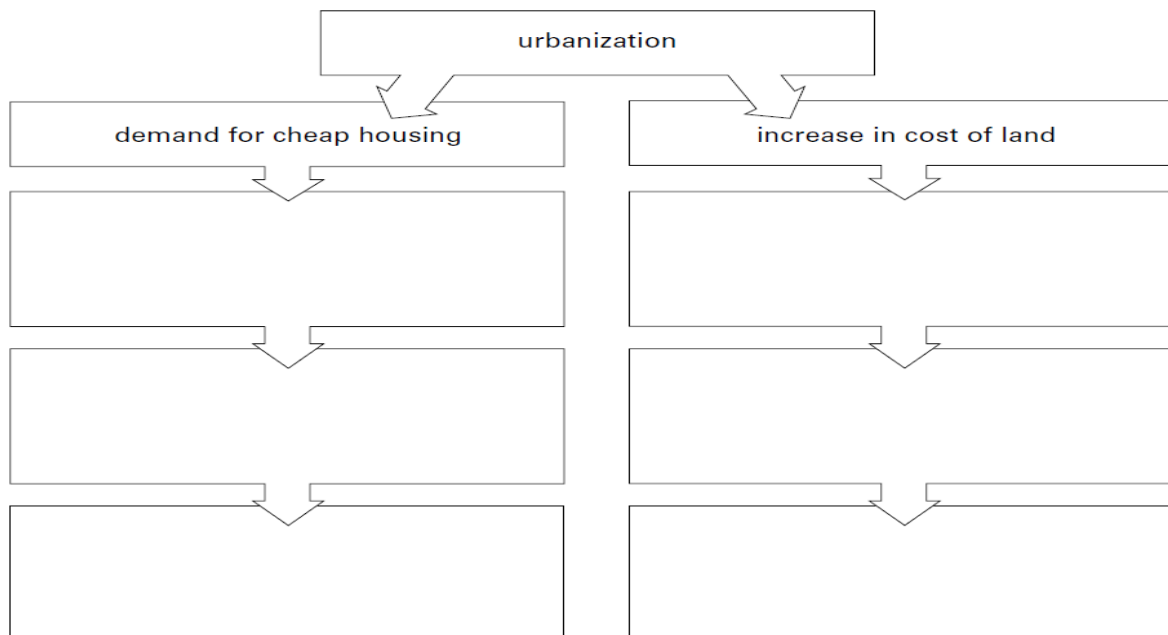
2. Fill in the chart to compare the benefits of industrialization with its costs.

Benefits of Industrialization	Costs of Industrialization

3. What did the Chicago Tribune mean when it warned that "liberty and monopoly cannot live together"?

Complete the flowchart to show the effects of urbanization on the nation.

4.



Applying The Skill

In the first column of the matrix, draw a symbol to represent each invention. Then complete the second and third columns.

Invention	Inventor	Impact of the Invention
Bessemer Process (symbol)		
Electrical Power Station (symbol)		
Telephone (symbol)		
Mass Production (symbol)	several people contributed to this invention, which was made popular by Henry Ford.	
Airplane (symbol)		

A Nation Transformed



On March 26, 1883, Mrs. William Kissam Vanderbilt threw a party to show off her family's new home in New York City. It wasn't just a party, it was a grand ball—the most dazzling social event in the city's history. And it wasn't just any home. The Vanderbilts had built a mansion in the style of a European castle, complete with medieval furniture, tapestries, and armor.

But then, the Vanderbilts weren't just any family. Mrs. Vanderbilt's husband, a railroad tycoon, was the grandson of Cornelius Vanderbilt, who had made a fortune in banking and shipping. The Vanderbilt clan was one of America's wealthiest and most powerful families.

More than 1,200 of New York's social elite flocked to Mrs. Vanderbilt's ball, dressed in glittering costumes. Many of the guests came as kings and queens. But Mrs. Vanderbilt's sister-in-law decided to be more modern. She came dressed as The Electric Light.

Mrs. Vanderbilt's party reflected the way rapid **industrialization** was transforming American life in the decades after the Civil War. Cities like New York were booming. **Entrepreneurs** in banking, commerce, and industry were amassing enormous wealth. And technological marvels like electric light were changing how Americans lived and worked. But as the workers in the Triangle Shirtwaist Factory knew, not everyone benefited from this progress.

The Growth of Big Business

Families like the Vanderbilts made huge profits from the growth of big business after the Civil War. Businesses got bigger in part because of new technology and manufacturing practices. They also grew because there was more money to invest in them. Bankers and investors were happy to provide the necessary funds in hopes of earning large returns. Some of the money that fueled industrialization came from the large-scale mining of gold and silver in the West.

Government policies also contributed to the boom in big business. According to the doctrine of **laissez-faire**, economies worked best when governments did not meddle in them. To business tycoons and their politician allies, laissez-faire meant that government should not regulate the price or quality of goods, the working conditions of laborers, or the business practices of bankers and industrialists—even when those practices were ruthless.

But businesses were only too happy to accept the kind of "meddling" that protected and increased their wealth. Federal, state, and local governments all actively helped business through favorable laws and subsidies, such as the land grants given to railroads and farmers. Congress passed higher and higher tariffs. These made imported goods more expensive, and therefore less competitive with those produced in the United States.

The business boom fed the growth of American cities. For 100 years, Americans had been going West to seek their fortunes. In 1890, the Census Bureau said that it could no longer draw a line to show the farthest limit of westward migration. The frontier was closed. The new "land of opportunity" was located in the cities of the Northeast and around the Great Lakes, where factories provided thousands of new jobs.

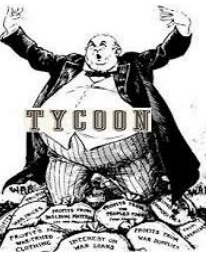
Outside the cities, even farming was getting to be big business. In the Midwest, commercial farmers used new machinery and techniques to grow crops on a larger scale than ever before. "The wildest dream has become reality," marveled one writer in 1887. "Nothing is too large for belief. Twenty and even thirty thousand acre farms, and a hundred bushels to the acre...The New West...is a veritable 'Wonderland.'"

The Gilded Age

As businesses got bigger, so did the fortunes of those who owned or invested in them. Between 1860 and 1892, the number of millionaires in the United States grew from 400 to more than 4,000. The newly rich filled their palace-like homes with gaudy decorations and European art and antiques. In 1873, the great American writer Mark Twain scornfully dubbed this time of showy wealth "the Gilded Age."

Twain's name stuck, but it did not describe the lives of most Americans. While wealthy capitalists lived like royalty, many workers lived in dire poverty. Those who were immigrants often faced prejudice and discrimination. During business downturns many workers lost their jobs. People were angry about the cozy relationships between tycoons and politicians which resulted in widespread corruption. As you will learn, these conditions eventually sparked protests and calls for reform.

Improved Technology



By the 1860s, many of the factors necessary for the rapid **industrialization** of the United States were already in place. Machines had taken over much of the work once done by hand. Work had moved from homes to factories. Railroads had begun to connect customers and manufacturers with an efficient transportation system.

After the Civil War, new inventions and improved technology prompted the growth of new industries. Some of these innovations, or new ideas, helped businesses to grow and become more efficient. Others made daily life easier for many Americans.

The Age of Steel

Before the Civil War, the nation's railroads ran on iron rails that wore out quickly. Railroad owners knew that rails made of steel—a mixture of iron, carbon, and sometimes other metals—were stronger and would last longer. Steel, however, was difficult and costly to make.

In 1872, a Scottish immigrant named Andrew Carnegie went to England to study a less expensive method of making steel, invented by Henry Bessemer. Carnegie owned a company that made iron bridges for railroads. But he knew that his bridges would be better if made out of steel. Carnegie was so impressed by the Bessemer process that he brought it back to the United States. "The day of iron has passed," he announced. "Steel is king!"



Carnegie was right. Within a decade, steel was replacing iron in rails, locomotives, and bridges. Other industries also took advantage of less expensive steel. Steel nails, needles, and knives became common household items.

Many steel companies competed fiercely to supply steel for such products. To remain the leader, Carnegie hired scientists to improve the quality of his company's steel. He employed good managers to make his steel mills run efficiently. His recipe for success was, "Adopt every improvement, have the best machinery, and know the most."

To keep costs low, Carnegie set out to control every step in the steel-making process. He purchased iron mines to supply his ore, coal fields to fire his furnaces, and railroads to ship his finished steel to customers.

To reduce his competition, Carnegie also bought up several rival steel companies. He then combined them all to form the giant Carnegie Steel Company. By 1900, Carnegie Steel produced a quarter of the nation's steel.

Electric Power

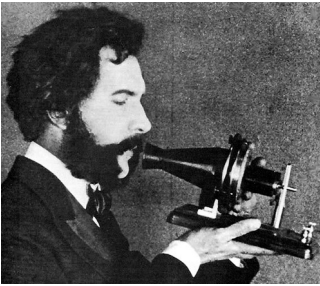
In 1876, Thomas Edison opened an "invention factory" in New Jersey. With a team of workers, he set out to create a "minor" invention every ten days and a major one "every six months or so."

Edison succeeded brilliantly. More than any other inventor, he helped turn electricity into an everyday source of light and power. His workshop turned out the first practical electric light bulb, the phonograph, the motion picture projector, and many other inventions.

In 1882, Edison built the first electrical power station and distribution system in New York City. His team invented everything the system required, including generators, regulators, meters, switches, light sockets, fuse boxes, and underground electric cables. When he finally turned the generator on, electricity began to flow to homes, stores, and factories. The age of electricity had begun.

By 1900, some 25 million light bulbs were glowing across the country. Many factories were replacing water wheels and steam engines with electric motors. Streetcars powered by electricity carried workers and shoppers along city streets. New electric-powered devices, such as washing machines and vacuum cleaners, were making housework easier.

The Telephone



The telephone was invented by a Scottish immigrant named Alexander Graham Bell. In 1876, as he was getting ready to test his "talking machine," Bell spilled acid on himself. "Watson, come here, I want you," he commanded his assistant. Watson, who was in another room, heard every word over a telephone.

Bell's invention worked so well that, by 1915, Americans were communicating with one another over nine million telephones. All these telephones made American industry more efficient and competitive by allowing producers, sellers, and customers to communicate quickly and easily.

New Production Methods

New methods of organizing work were also making business more efficient. Factory owners adopted Eli Whitney's idea of assembling a wide variety of products from interchangeable parts. They also used the assembly line. In a shoe factory, for example, one worker operated a heel-cutting machine. Another operated a sole-cutting machine. Another made shoelaces. Still other workers assembled, labeled, and packaged the shoes.

These techniques of **mass production** enabled workers to produce more goods per day at less cost. As prices dropped, more Americans could afford to buy manufactured products. More customers meant more factories. By 1900, almost four times as many Americans worked in factories as had a generation earlier.

The Rise of Big Business

When Carnegie opened his first factory in 1865, most businesses were still owned by one person or a few partners. Because the owners' funds were limited, businesses were small. Owners knew their employees and often treated them like family.

Growth of Corporations

A partnership might work well for a garment, or clothing, factory. But big businesses, such as railroads, needed much more capital (money to start a business) than a few partners could provide. To raise larger sums, entrepreneurs set up **corporations**. A corporation is a business that is owned by many investors, or people who help pay its initial expenses.

A corporation raises funds by selling stock, or shares in a business. The investors who buy the stock are known as stockholders. In return for their investment, stockholders hope to receive dividends, or a share of the corporation's profits.

The money invested by the stockholders is used to build the business. To make sure their money is used properly, stockholders elect a board of directors. The people on the board of directors oversee the running of the corporation.

After the Civil War, corporations attracted large amounts of money from investors. By the 1880s, thousands of corporations were doing business across the United States.

Rockefeller's Oil Trust

A giant in the oil business, John D. Rockefeller introduced another form of business organization known as the **trust**. A trust is a group of corporations run by a single board of directors.

Rockefeller invested in his first oil refinery in 1862, at the age of 23. At that time, petroleum, or oil found underground, was just becoming a valuable resource. Oil refineries purify petroleum into fuel oil. During the 19th century, oil was used to light homes, cook food, and run engines and generators.

Before long, many small refineries were competing fiercely in the oil business. The amount of oil produced by these firms rose and fell wildly, along with prices. Rockefeller saw this as wasteful and inefficient. To reduce competition, he did everything he could to drive his rivals out of business. Those companies he could not destroy, he bought.

Like Carnegie, Rockefeller took control of every step of his business. He bought oil fields along with railroads, pipelines, and ships to move his oil. He built his own warehouses and even made his own oil barrels for storing oil products. By 1880, Rockefeller controlled 95 percent of the nation's oil refining.

To manage his many businesses, Rockefeller combined them into the Standard Oil Trust. The trust made the oil industry more efficient than ever before. But, as a **monopoly**, it had the power to control oil prices. This worried people who depended on oil in their homes and businesses.

Following Rockefeller's example, entrepreneurs created trusts in other businesses such as railroads, meatpacking, sugar, whiskey, and tobacco.

The business leaders who controlled these huge trusts became fabulously wealthy. Because most had made their fortunes by crushing their competitors, critics called them "robber barons."

The Evils of Trusts

The growth of trusts alarmed many Americans. They saw these monopolies as a threat to the free-enterprise system. This system depends on free competition among businesses to provide the public quality products at fair prices. A monopoly, people argued, has little reason to improve its products or to keep prices low because it has no competition.

People also worried about the influence of trusts on the political process. Wealthy entrepreneurs, they complained, were using their enormous wealth to buy elections and corrupt public officials. As the Chicago Tribune warned, "liberty and monopoly cannot live together."

The Growth of Cities

Industrialization brought with it **urbanization**, or city growth. Most of the nation's new industries were located in cities. Immigrants and rural Americans flocked to these industrial centers looking for jobs. Chicago, for example, more than tripled its population between 1880 and 1900.

Urban Tenements

As cities swelled with workers, demand for cheap housing exploded. To meet this demand, developers threw up cheap apartment buildings called tenements. One person described tenements as "great prison-like structures of brick, with narrow doors and windows, cramped passages and steep, rickety stairs." By 1900, about two thirds of New Yorkers lived in such buildings.



A poor family might occupy just one or two rooms in a tenement, usually with no heat or water. Friends or family often took in newcomers who arrived in cities without money for rent. As a result, tenement neighborhoods were some of the most heavily populated areas on Earth.

Tenements were unclean and even dangerous places to live. Only a few rooms had windows to provide light and fresh air. The rest were dark and airless. In some tenements, the only source of water was a single faucet in a courtyard. Many lacked sewer services. In such conditions, diseases such as typhoid and cholera spread quickly, killing infants and young children. Fire was another constant worry.

Cities Expand Upward

As cities expanded, urban land costs shot up. In New York, land that had sold for \$80 in 1804 was selling for \$8,000 by 1880. Such prices inspired builders to construct more building space on less land by going upward. Using lightweight steel beams to support walls and ceilings, builders constructed skyscrapers that rose ten or more stories into the air. Electric elevators whisked people and freight effortlessly from floor to floor.

Businesspeople rented space in city skyscrapers for their offices and factories. Factory owners preferred the top floors. Rents were cheaper higher up, and the natural light was better, saving owners money on electric lighting. The cost of insurance was low as well because steel buildings were thought to be fireproof. By the early 1900s, more than half of New York City's workers labored above the seventh floor.

City Excitement

For all their problems, cities were also exciting places to live. City stores were filled with products never seen on a farm. City dwellers enjoyed all sorts of entertainment, from operas and art museums to dance halls and

sporting events. When writer Hamlin Garland came to Chicago with his brother, he found that, "Everything interested us.... Nothing was commonplace; nothing was ugly to us."

Vocabulary

industrialization the birth and growth of businesses that make and distribute products through the use of machinery

entrepreneur someone who starts a business and is good at making money

laissez-faire the theory that economies work best when governments do not interfere with them. (*Laissez-faire* is French for "leave alone.")

mass production the use of interchangeable parts and assembly lines to make large quantities of identical goods

corporation a business that is owned by many investors

trust a group of corporations that unite in order to reduce competition and control prices in a business or an industry

monopoly a company that controls all production and sales of a particular product or service

urbanization the growth of cities