General Science Chapter 13

The Growth of Industry 1860-1900

**patent**- a government grant that allows only the inventor to make, use, and sell an invention for a certain time.

**pollution**- damage to land, air, and water from harmful materials

 Between 1860 and 1900, the United States changed from an economy based on farming to an economy based on industry. Inventions and industry changed the way Americans lived, worked, and traveled.

 Many changes have happened since the Civil War by this time. Settlers had moved to the West. Railroads stretched across America. Mining, farming, and ranching were major businesses.

 Other changes took place. Inventors created and improved on existing ideas and equipment. The government issued thousands of **patents**.

 Thomas Alva Edison probably invented more things than any other person in history. In his lifetime, he received 1,093 patents in the U.S. This is more than any other person has ever received.

 You are using one of his inventions right now. The electric light bulb was invented in 1879. How did this change life for people?

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They made people feel safe and were less dangerous than torches or other methods. Rooms and halls without windows were brighter at night.

 Edison became known as the Wizard of Menlo Park because he built an “invention factory” there.

Please look at the attached chart for other significant inventions from Americans from 1865-1893. Answer the two questions at the bottom.

 Oil is a major source of wealth for those who find it or own it. The oil industry began in 1840. A man observed a thick, dark liquid bubbling up from the ground in Titusville, Pennsylvania. It was referred to as “black gold”.

 Edwin Drake drilled the first oil well there in 1859. People cam from all over to drill for oil. It was like a gold rush all over again. People from the area had more oil than they knew what to do with it. Over the next ten years, the area grew. So did the need and uses of oil. Oil helped machines run smoothly. It was also used for heating homes and lighting lamps.

 Steel is another very important part of our economy and industry today. For centuries, iron was used in building. It rusted easily and was difficult to bend into shapes. Many builders would have used steel, but it was expensive to make. In the late 1850’s, an inventor found a way of making iron into steal cheaply and easily. This method was called the Bessemer process. This allowed factories to churn out millions of tons of steel annually. It is now used in most tall buildings, bridges, and railroad tracks.

 The growth of the oil and steel industries in the late 1800’s brought some problems. The owners of these companies became rich but the workers were underpaid and worked in terrible conditions.

 In addition, these industries caused **pollution**. Oil leaked into water and poisoned land. Smoke from steel plants made the air unhealthy in many places.

Section 2- The Rise of Big Business

**corporation**- a large company formed by a group of investors

**monopoly**- the complete control of an industry by one company or person

The changes brought about by inventions and industry allowed some businesses to grow very large. As businesses grew, they often bought smaller companies in the same industry. This technique is still utilized today by many large companies. As a result, the owners of these businesses became very rich.

 Until the late 1800’s, most businesses were small. Usually there was one owner and a few employees. One business that grew was the Singer Sewing Machine Company. It had several factories and thousands of workers who made more than one million sewing machines per year. Companies in the railroad, steel, and oil industries were even bigger. Not sure about the sewing machines, but the other three are multi-million and even multi-billion dollar companies. These new companies became **corporations**.

 Large business owners, running these large corporations, had great power. Many people disliked the rich business owners. If you could own a business, which would it be? Explain with a minimum of three reasons.

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Do you think it is fair to “dislike” someone just for having a lot of money? Explain.

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Many people felt that the business owners had become rich at the expense of their workers.

 Two men controlled the two most powerful businesses. Andrew Carnegie was the mogul in the steel industry. John D. Rockefeller controlled the oil industry. Both men came up with new ways to make money.

 These men were admired for their success. They were also disliked because many felt that they had obtained their success unfairly.

 Carnegie built a steel mill outside of Pittsburgh, Pennsylvania. He had complete control over the cost of steel. He did not have to pay mining companies, railroads, or shippers to bring supplies to his mills. That was because he owned all of the companies that took part in making the steel. By the 1890’s, he owned many steel mills.

 John D. Rockefeller controlled almost the entire oil industry by the late 1800’s. His business was named the Standard Oil Company.

 He paid attention to every detail of his business. He bought the rights to oil from oil wells drilled by others. He also bought timbers from forests to build oil barrels. He even bought ships to carry oil around the world. When he retired, Rockefeller was worth over a billion dollars.

 Capital is money used to run a business. To generate the capital, companies sold stock. This is a share, or part, of ownership in a company. People who buy stocks are called stockholders. They can make money when the company they invested in made money. Similarly, they also lost money if the company they invested in lost money.

 You will spend $1000 dollars in “fake” money and invest in companies on the stock market. You may also choose to invest in precious metals. We will review our stock daily. You can buy or sell whenever you choose or keep your stock and “ride the wave”. The person that makes the most profit will earn that much in Cutright Bucks!!!!

 We have a free market in America. That means that businesses are free to make as much money as they can. This includes farms, factories, and all other businesses. As businesses grew and grew, some appeared to get too big. This worried some Americans. Because business owners were wealthy and powerful, lawmakers left industry alone. People wanted the government to control big business, however.

 Some businesses asked for help. Farmers, for instance, asked for help because they paid high prices to ship their goods. Guys like Rockefeller, however, paid less to ship his items on rail lines. Rockefeller could force the railroad to lower their prices and farmers could not. Companies such as Sam’s Club have this power in today’s society.

 Some people were unhappy when a big business became a **monopoly**. Rockefeller had a monopoly in the oil business. This was how he controlled prices. In the late 1880’s, lawmakers in the United States tried to control big business. Here are some laws that Congress passed.

 1.) Railroads that traveled through several states had to set prices that were fair to everyone.

 2.) Railroads had to make the prices they changed public so that everyone would know how much they changed.

 3.) Large companies could not interfere with the business of smaller companies.

We will now play a game of Monopoly as a class. This will take several periods so we may have to end the game before it is completely finished.

Section 3- The Work Force

**company town**- a community set up and run by a company for its workers

**labor union**- a group of workers that tries to help its members

**strike**- to refuse to work until certain demands, such as higher wages or better working conditions, are met

 Industries grew quickly because there was such a big supply of workers. By 1880, nearly 5 million men, women, and children worked in factories and other jobs. Most factory workers faced terrible conditions on the job every day. This is one of the reasons that people did not live as long as they do today. Do you think children your age should be allowed to work or should they have to wait until they are 16? Use at least three details in your answer. Use complete sentences.

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 By the late 1800’s, many workers worked 12-hour shifts. As they left at the end of their shift, another group came to work.

 Many factories had unsafe working conditions. There was poor lighting and little fresh air. Poor lighting and unsafe machinery were often the cause of accidents. Air pollution could mean illness or even death to workers.

 Workers had few rights. If they became ill at work or were injured, they lost their jobs. The owners of factories or mills simply hired new workers. However, for most workers, a dangerous job was better than no job at all.

 In some places, especially coal-mining areas, the workers had to live in company-owned houses. These houses were part of communities known as **company towns**.

How might this be a disadvantage for the employees forced to live here and spend money only at the company stores? Would there be any advantages for the worker?

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 Workers had to give some of their wages as rent. They could only shop at company stores. Part of their pay was in scrip. Scrip was paper that could be used only to pay for goods in company stores. You will now design scrip for the company that you own. Grab a sheet of construction paper and color.

 Workers ended up owing money to the company. If the worker complained about his job or working conditions, he was fired. This gave companies great power over their people.

 As industries grew, so did the need for workers. At that time, skills were not required to do factory jobs. Companies could pay extremely low wages to people who badly needed jobs. There was no minimum wage at that time. Women and children were usually paid significantly less than the men.

 Inventions helped create new jobs. One invention, the typewriter, created thousands of jobs for women as secretaries in offices. Another invention, the telephone switchboard, created new jobs for women as operators. Most women took jobs in textile mills, food-packing plants, and factories. Women faced the same dangers as men but made a lot less.

 New machines did not take a great deal of strength to run. Owner often let very young children run machines. Children were paid a penny per hour!!!! There were some laws to protect children but few officials bother making companies follow the laws.

 Some workers decided that the best way to improve poor working conditions was to form **labor unions**. Labor unions try to help their members by seeking higher pay and better working conditions. We rely on unions to this day in the United States.

 At first, many labor unions were small. They did not have much power. Most of the members were workers without skills. The American Federation of Labor (AFL) had skilled workers, such as carpenters and cigar makers.

 If a company did not improve conditions in factories, union members could decide to **strike**. Workers do not earn pay during this time but neither does the company. This occasionally caused violence between owners and unions. Three major events that ended with violence were

 1.) The Haymaker Square Riot

 2.) The Homestead Strike

 3.) The Pullman Strike