1.5

**The Industrial Revolution in America**

Lecture handout

**Key Terms:**

**Industrialization**- a shift from an *agricultural* (farming) economy to one based on *industry* (manufacturing)

**Manufacturing**– the use of machines, tools, and labor to make things for use or sale

**Urban**– city life (densely populated)

**Urbanization**– the movement of people to cities

**Tenement** – a substandard, multi-family dwelling; usually old and occupied by the poor

**Monopoly**- a situation in which a single company or group owns all or nearly all of the market for a given type of product or service.

**Laissez-faire economics**-a policy that allows businesses to operate with very little interference from the government (“hands off”)

**Free market**– a market economy based on supply and demand with little or no government control.

**Capitalism**– private ownership of means of production

**Socialism**– society (not the individual) owns and operates the means of production

**Essential Question:**

How did the Industrial Revolution transform the lives of Americans?

**Dawn of the Industrial Age**

Industrialization: a shift from an *agricultural* (farming) economy to one based on *industry* (manufacturing)

* The Industrial Revolution began in England around 1760 and then spread around Europe and the U.S.
* In 1750 most people worked the land using handmade tools.
* People did not know much about the world outside of their own village.
* People made their own clothes and grew their own food
* By 1850 many country villages had turned into industrial towns and cities
* Due to rapid innovation and improvements in health, there was unprecedented growth in population.
	+ Population of Britain grew from 5 to 9 million
	+ Population of Europe grew from 120 to 190 million

**Inventions of the Industrial Revolution**

**Cotton gin**—invented by Eli Whitney

◦Made cotton production profitable

◦Provided raw material for textile factories

**Steam Engine—**Improved by James Watt

◦Offered a dramatic *increase in fuel efficiency* and it could be used to drive many different types of machinery (by the 1850s, most factories were powered by the steam engine)

◦Increased the demand for coal to heat the water to produce steam (and the need for coal miners)

**Steel**

◦Bessemer Process: Steel was lighter & more durable than iron, could be produced cheaply

◦Andrew Carnegie becomes the first person to mass-produce steel using the Bessemer process

**Chemicals**

◦Hundreds of new chemical products

◦Dynamite: Explosive much safer than others used at the time; created by Alfred Nobel

**Electricity**

In the Late 1800’s electricity replaced steam as the dominant source of Industrial power

◦Alessandro Volta – creates first battery

◦Michael Faraday – creates first dynamo (machine that generates electricity)

◦Thomas Edison – creates first light bulb (DC-direct current)

◦Nikola Tesla- creates a light bulb with AC or alternating current

Electricity allowed people to work after dark

**Communication**

◦Samuel F.B. Morse- developed the telegraph, which could send coded messages over wires by means of electricity

◦Alexander Graham Bell- patented the telephone

◦Guglielmo Marconi- invented the radio

**Transportation**

◦Nikolaus Otto invented a gasoline-powered internal combustion engine

◦Karl Benz received a patent for first automobile

◦Henry Ford used assembly line to mass-produce cars- Model T

◦Orville and Wilbur Wright designed and flew a flimsy airplane; ushered in the air age

**New Methods of Production**

* **Interchangeable Parts-** Identical components that could be used in place of one another. Simplified assembly & repair
* **Assembly Line-** Workers along line add parts to a product that moves along a belt from one workstation to the next. Made production faster & cheaper

**Growth of factories**

* As demand for cloth grew, inventors came up with new machines (e.g., flying shuttle, spinning jenny)
* To house these new machines, manufacturers built the first factories
* New machines and factories increased production
* By the 1850s, factories began to be powered by coal and steam engines

**Hardships of Industrial Life**

* **Urbanization** – **The movement of large numbers of people to cities**
* Urbanization occurred due to:
* Technological advances in farming
* Soaring population growth
* Increase in demand for workers
* Air became polluted in industrialized cities.
* Living conditions for workers were terrible
* Many workers were packed into ­­­­­­­­tenements (small apartments).
* Tenements had no running water, no bathrooms or sanitation system, no garbage areas
* Cholera spreads rapidly
* These cities become known as **slums**
* When was the last time we learned about human waste and garbage in the streets?
* –The Black Death in Europe (14th century)

**The Factory System**

–12-14 hour shifts 6-7 days a week

–Men, women, and children as young as 6 worked in factories

–Exhaustion led to many accidents

–Many lost limbs, got black lung, white lung or died

–Workers were fired if they were sick

–Life sucked

* Women worked the same amount of hours and made less money
* Child Labor
	+ Small fingers made it easier to work with machine parts
	+ Small bodies allowed them to squeeze into narrow mine shafts
	+ Many orphans were “bought” by corporations and used for labor
* Many workers called for reform—leads into the Progressive Era of the era

**The Rise of Big Business**

* Owners began to sell stock to investors. A stock is a share in a company.
* Corporations- Businesses that are owned by many investors who buy shares of stock
* Monopolies rose, controlling entire industries. A monopoly is a situation in which a single company or group owns all or nearly all of the market for a given type of product or service. A monopolyis characterized by an absence of competition, which often results in high prices and inferior products.
* **John D. Rockefeller**’s Standard Oil Company, **Andrew Carnegie**’s Carnegie Steel, **Cornelius Vanderbilt**’s New York Central Railroad System, and **J.P. Morgan**’s banking house.

**Political Impact of the Industrial Revolution**

Successful people of the Industrial Revolution, like Andrew Carnegie, embraced Laissez-faire economics**.**

What does this mean?

◦They embraced Adam Smith’s book, The Wealth of Nations

◦Laissez-faire economics is a policy that allows businesses to operate with very little interference from the government (“hands off”)

**Socialism**

◦Socialists argued that the only way to get rid of poverty and injustice was to adopt socialism.

◦Socialism – everyone owns and operates everything.

◦Socialists wanted to eliminate the gap between rich and poor.

**Karl Marx**

◦Agreed with the ideas of socialism and wrote “The Communist Manifesto”

◦Marx hated Capitalism.

◦Argued that all of history can be defined by the struggle between the “haves” and “have nots”

◦“Haves” = Bourgeoisie

◦“Have nots” = Proletariat

◦Marx felt that the Proletariat would eventually take over the world.

**Pros & Cons to the Industrial Revolution**

**Pros**

◦Demand for mass-produced goods

◦More jobs were available

◦Wages eventually rose

◦Cost of travel fell

◦Opportunities increased

**Cons**

◦Low pay initially

◦Unemployment

◦Dismal working conditions

◦Slums & Disease

◦Social problems

America the Story of Us: Cities

Viewing Questions

1. Who is Andrew Carnegie? Why is he important to America?

2. What is “Walking the steel”?

3. How many ‘rough necks’ die on the job?

4. Which invention, besides producible steel, helped cities to grow (hint: vertically)?

5. How did Jacob Riis contribute to changing America?

6. Why is Colonel George Waring known as “America’s First Eco-Warrior?”

7. After testing over 6,000 elements what did Edison use to create the first light bulb?

8. What good (laws) came out of the deadly Triangle Shirt Waste Fire? Name at least 2 examples.