Consequences of Industrialization

What impacts did the Industrial Revolution have on society and the environment?

**Vocabulary**

Glossary Vocabulary Cards

- sweatshop
- child labor
- urbanization
- labor unions
- strike
- socialism
- collective bargaining
- laissez-faire

**Introduction**
Young boys, like the ones shown here in a Pennsylvania coal mine in 1911, were called Breaker Boys because they separated impurities from coal by hand.

The day began well before dawn for an employee of a factory. Every member of the family worked as soon as they were old enough. Parents lifted still sleeping children, as young as six years old, out of bed and sent them off to work. Some walked several miles before the sun rose to reach the factories.

Workers—men, women, and children—were packed together into large rooms filled with machinery. The factory floors were hot, damp, filthy, and dangerous places. Factory owners gave little thought to the safety of their workers. Workers of all ages were malnourished and spread diseases to each other. Children developed physical deformities from doing unnatural, repetitive motions for at times up to 19 hours a day. If children slowed down, or got distracted, they were brutally beaten.

At the end of the day workers went home. Parents would prepare dinner. The family would eat the small amounts of food they were able to afford. Then they would sleep, getting maybe four or five hours of sleep before they had to wake for work the next day. There was no time for learning or play. Some children were bound to factory owners. They would be given to a factory owner by their parents for a set number of years in exchange for a small amount of money. In these cases, they would live at the factory, often locked in and not allowed to go out even when they weren’t working. If a child ran away, they would be caught and beaten.
These harsh working conditions were a common trait of the Industrial Revolution. In this lesson, you will learn about the tremendous impact that the Industrial Revolution had on both society and the environment.

1. The Conditions for the Working Class

During the Industrial Revolution, there was a shift in the classes of society. Since the industrialized processes for producing goods required expensive machines, only those with capital could own them. These owners still needed human and animal labor to run these machines, but since they owned the only means of production, they held a great amount of control over their workers.

This 1868 wood engraving shows workers leaving a textile mill after a 13-hour shift. They would often work these shifts 6 days a week.

This led to increasing inequality between people who owned the means of production and those who engaged in wage labor and subsistence farming. In 1879, the economist Henry George described this transformation as if an “immense wedge” was being driven into society.
He remarked, “Those who are above the point of separation are elevated, but those who are below are crushed down.” The people being crushed definitively belonged to the new **working class**.

**Working Conditions on the Factory Floor**  The working class included men, women, and children who provided the skill and the muscle that enabled industrial productivity to reach new heights and make employers exceedingly wealthy. Yet, those same employers often treated their workers—their human resources—as if they were merely pieces of the machinery.

Industrial workers had an exhausting schedule. Workers were expected to show up at the workplace six days a week, on time, and to put in a full day—typically 12 hours for much of the 1800s. For their efforts, workers earned approximately $1 a day. The work itself was repetitive and boring because, unlike farming or craft work in which a worker did a variety of tasks, the factory system relied on a division of labor. In essence, this system divided production into separate tasks, with one task assigned to each worker. Factory owners designed the system in this manner in order to maximize output and efficiency. Workers were then expected to operate at the same level of efficiency and accuracy as the machines they ran. A British writer, John Byles, characterized factory work this way:

> Night and day, the indefatigable [untiring] and ponderous piston stamps. Night and day, relays of human flesh struggle to keep up with its remorseless and unwearied march.


Furthermore, workers often operated in hazardous environments. A priest once described a steel plant as “the slaughterhouse; they kill them [workers] there every day.” Whirling shafts, slippery floors, spinning blades, and molten steel all had the potential to injure or kill. Worker safety was not of great concern. Workers were not provided helmets or safety glasses, and those who were hurt or disabled received little to no financial compensation for their injuries. Factory owners believed that simply paying wages fulfilled their obligation to workers.

Industrial processing often created toxic gases and dust as well. Workers in textile mills, for example, had no choice but to inhale cotton dust all day. Worse yet was the situation of coal miners. Mary Harris
“Mother” Jones, a labor activist, described the “wretched work” that miners did by explaining that their lungs “breathe coal dust,” which also “grinds itself into the skin, never to be removed.” Perhaps unsurprisingly, textile workers and miners often suffered from lung diseases, and workers in cramped, unventilated shops faced the constant threat of contagious diseases such as tuberculosis.

Laborers tolerated such adversity and hardships because they risked losing their jobs if they protested. Due to the influx of immigrants in the country, employers had little trouble replacing a dissenting worker.

**Industrialization’s Impact on Women and Children** In the cottage industries that existed before industrialization, women and children performed vital tasks in the home workshop. At the start of the Industrial Revolution, they continued to take part in the manufacture of goods. Factory owners could rely on them to perform unskilled labor, and they could pay them a lower wage than men, making them desirable employees.

The New England textile industry hired many women to run the machines that spun and wove cloth. Most of these female mill workers, who became known as “factory girls,” were young and unmarried.

Nevertheless, many women were put out of work during the shift from the domestic system to the factory system. Some managed to find work outside the home, often as household servants or teachers. Some started a laundry service in their own home. By the early 1900s, only 20 percent or so of women continued to work in manufacturing. Of these, many labored in sweatshops—small factories, typically in the garment industry, where wages were low and conditions unhealthy.
These women work in a textile factory in the early 1900s. The sewing machines, bobbins, and piles of cloth often cluttered the factory floors.
Giles Newson, pictured here in 1912, was injured when he was 11 years old in the Sanders Spinning Mill in North Carolina. He fell into the spinning machine, and his hand got caught between the gears. Two of his fingers were torn off in the accident.

Children worked in industry as well, often for two main reasons. First, even with both parents employed, a typical family could barely survive financially, and a child’s wages, though meager, made a crucial difference. Second, because children earned less than adults, factory owners were happy to employ them and exploit cheaper labor. However, even for lesser wages, children were expected to do the same amount of work as adults.

Child workers were exposed to some of the most dangerous working conditions. Because they were small, they could squeeze inside running machinery to make repairs. Young miners driving mules through tunnels risked being crushed by loads of coal. In January 1876, a Pennsylvania newspaper noted, “During the past week nearly one boy a day has been killed” in the mines.

Children also suffered from a lack of education. Working in factories, or in other industries, didn’t leave children any time to go to school. Since most children began working in factories as early as six years old, this meant many received no form of education at all.

Throughout the 1800s, critics voiced concerns about child labor. In response, laws that set a minimum age or number of hours per week for child workers were enacted. In Britain in 1833 the Factory Act was passed, restricting child labor to children older than nine years of age,
and reducing the number of hours per week for children aged nine to thirteen years old. In America, laws varied from state to state but mainly focused on minimum ages in order to keep children in school longer. But these laws had little impact. Even where child labor laws existed, companies often ignored them, or the government poorly enforced them. In 1907, poet Edwin Markham described a typical street scene in New York’s garment district: “Nearly any hour on the East Side of New York City you can see them—pallid boy or spindling girl—their faces dulled, their backs bent under a heavy load of garments piled on head and shoulders.”

By around 1900, Western societies had generally come to the conclusion that industrial labor was primarily the province of men. Middle-class families began to think of home as a separate sphere for women and children, where they would be protected from the evils of the industrial environment.

Women were discouraged from paid labor, and children were sent to school. In poorer families, however, both women and children continued to work in the paid labor force.

**Urbanization and Its Effects** Before the Industrial Revolution, manufacturing took place largely in the countryside, in home workshops. Towns served mainly as centers of government and commerce. With industrialization, the town became the main location of manufacturing.

Factories attracted a steady stream of workers from the countryside, where the agricultural revolution had reduced the need for farm labor. These migrants settled near the factories, greatly expanding the population of existing towns and cities or creating towns where none had previously existed.

Industrialization also encouraged mass migration from one country to another. Throughout the 1800s, the United States was a major destination for immigrants. Some traveled across the Pacific Ocean from China and Japan. Most, however, came from Europe—even from industrializing countries such as Germany, where too many people competed for too few jobs. The growing United States offered factory work, but it also lured immigrant farmers to its wide-open spaces out West.
This 19th century engraving shows a slum area of London known as the Devil’s Acre. As migrants flocked to cities to work in factories, cities became overcrowded and dirty.

The explosion in the number of factories and the flood of migrants to factory towns resulted in rapid urbanization. Within those newly urbanized centers, living conditions were often appalling. Unlike today, government regulation, or legal restriction, of industry was practically nonexistent. Outdoors, smoke belching from factories polluted the air. Chemicals and other industrial wastes fouled rivers, lakes, and coastal waters. So did raw sewage from rapidly expanding towns and cities.

Indoors, living conditions in urban areas were just as bad. Workers often lived in slums—heavily populated parts of a city marked by filth and squalor. Jane Addams, a social reformer, described a typical slum in Chicago:

“The streets are inexpressibly dirty, the number of schools inadequate, sanitary legislation unenforced, the street lighting bad, the paving miserable and altogether lacking in the alleys and smaller streets, and the stables foul beyond description.”

—Jane Addams, Twenty Years at Hull-House, 1910

In the slums, workers lived in tenements, or filthy, overcrowded
apartment buildings of four to six stories, that usually housed four families on each floor. One person described these large, cheaply constructed apartments as “great prison-like structures of brick, with narrow doors and windows, cramped passages and steep, rickety stairs.”

Tenements were often unclean and extremely dangerous places to live. Only a few rooms had windows to provide light and fresh air, while the rest remained dark and airless. Many tenements also lacked a sewer service, and the only source of water was a single faucet in a courtyard.

Living in such close quarters without proper sanitation encouraged the spread of communicable diseases such as cholera, smallpox, and typhoid fever, which killed many infants and young children. Fires were also a constant worry in the cramped spaces. Yet, few government programs for dealing with public-health issues existed until the second half of the 1800s. Urban death rates soared.

Conditions in tenement buildings were generally characterized by excessive crowding and an abundance of filth. This building, on the Lower East Side of Manhattan, New York, shows just how crowded life in a tenement could be.
2. The Labor Movement

In the late 1800s, American industrial workers continued to face extremely strenuous circumstances. They often spent 12 hours a day in a dark, damp, dirty factory amid the deafening whine and clank of machinery. Factories were dangerous, with few of the safety precautions that we take for granted today. Pay was low, and employers sought to keep wages as low as possible in order to maximize their own private profits. And whenever the economy slumped, life became significantly worse. Oftentimes, employers cut workers’ pay or eliminated their jobs entirely. Perhaps most distressing of all, individual workers had little power to change their circumstances—they could not bargain with employers, nor could they seek help from the government, which did little to regulate working conditions. They needed to develop a new way of protecting themselves.

This illustration of a riot at a coal mine in Belgium was published in 1868. Workers sometimes rioted in order to fight for better working conditions.
Workers Unite for Better Conditions  The early years of the Industrial Revolution saw a push within the working class to develop their own strategies for improving their lives. To do this, workers formed labor unions, or groups of workers who organized to protect the interests of its members. Historically, most labor unions have focused on three primary goals: higher wages, shorter hours, and improved working conditions.

The first labor organizations in the United States appeared in the late 1700s in New York City and Philadelphia, and by the mid-1800s, local unions had formed in various other cities. By the late 1800s, strong unions in Europe and the United States had begun to make economic gains for workers, often through strikes or the threat of strikes. A strike is an agreement among workers to stop working until the employer meets their demands. A strike could easily shut down a factory, railroad, or mine. Generally, unions employed the strike strategy as a last resort, often when owners refused to sit down to discuss issues. Strikes could turn violent, with workers battling police or private guards hired by companies to try to break the strike to force employees back to work.

Common Goal, Different Strategies  During the depression of the 1870s, business owners’ tactics succeeded in dismantling many labor unions. After the economy regained its strength, however, the labor movement revived as well. A series of new national labor organizations arose, bringing together various unions under one banner.

In America, one of these new federations was the Knights of Labor, which attracted many members in the late 1870s because it accepted both skilled and unskilled workers, including women and African Americans. However, the Knights declined after 1886, in part because of competition from the American Federation of Labor (AFL). Unlike the Knights, the AFL concentrated mainly on organizing skilled workers. It also had a narrower focus on “bread-and-butter” worker objectives, such as higher wages and shorter workdays. Founded in 1886, the AFL became the only major national labor organization in the 1890s.

In the early 1900s, another labor organization arose, known as the Industrial Workers of the World (IWW). Its members were nicknamed Wobblies. IWW leaders introduced radical ideas into the union movement, adopting the socialist theories of the German political philosopher Karl Marx.
This recruitment poster from 1910 asked workers to join the IWW. Workers sleep in bunks labeled ‘long hours,’ ‘poverty,’ and ‘wage slavery.’ Labor Unions like the IWW secured rights for thousands of workers.

Socialism is a political theory that advocates ownership of the means of production, such as factories and farms, by the common people, rather than by capitalists and landowners. Marx believed that there was an inherent class conflict between the profit interests of capitalists and the concerns of laborers. Some socialist experimenters set up planned or utopian communities in Europe and the United States, most of them short-lived, where workers would share the products of their labor. IWW members, along with other unions, were inspired by the ideas of socialism, and saw it as the path to a better life for workers.

In practice, each of these national labor organizations acted as a union. They engaged in collective bargaining—negotiations between employers and employee representatives concerning wages, working conditions, and other terms of employment. They also called for strikes when collective bargaining failed. Through the acts of unions, by 1900
most workers in the West worked fewer hours. Although hours still varied from one industry to another, the 10-hour workday and 6-day workweek became the standard. Still, many issues remained, and workers continued to rely on labor unions to resolve them well into the 1900s.

**From Laissez-Faire to Regulation**  During at least the first century of the Industrial Revolution, industries grew without government intervention. Western governments largely heeded the economic laws set down by Adam Smith in his book *The Wealth of Nations*, published in 1776.

In this 1843 cartoon, the luxurious lifestyle of industrial capitalists is contrasted with the often appalling working conditions of everyday laborers. Labor unions tried to improve these conditions. The woman in the bottom left corner carrying an anchor represents hope, who is locked out away from the poor workers.

Smith famously wrote, “It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest.” In other words, producers create food and other goods because they seek profit. Government, Smith maintained,
should not interfere in this process.

Smith’s economic laws lay at the heart of a doctrine known as **laissez-faire**, a French term that loosely translates as “leave it alone.” Western industrialists did not want the government interfering with the economy. Their economic strength gave them political power. As a result, the government largely left them and the economy alone. Government’s laissez-faire policies were rooted in the right to private property, a key element of liberalism.

In the late 1800s, however, the rise of corporations led government, especially in the United States, to rethink its position on laissez-faire. Corporations were joining together in various combinations—pools, mergers, trusts, cartels—to gain control of markets. These activities hurt consumers because by gaining control of markets, corporations could set prices artificially high and keep competitors from entering the market while maintaining poor working conditions and low wages. The U.S. Congress gradually took steps to restore fairness and competition through laws and regulations. In time, big government would curb the excesses of big business.

### 3. A Worldwide Trend

Until the 1900s, industrialization was limited to a handful of Western countries, as well as Russia and Japan. But the desire for profits and the general wish to improve living standards led to a widespread push for industry. Also, as more and more peoples throughout the world have demanded a voice in government, liberal democracy has spread across the globe. Capitalism, with its doctrine of private property, has been closely tied to democratic government. Nations that industrialized often used their newfound wealth to strengthen their military. In the late 1800s, some of those nations exercised their power by establishing colonies in foreign lands. On that basis, they formed or expanded empires. This shift to industrialization had major impact around the world.
This photo shows a ‘gusher’ in Port Arthur, Texas, 1901. There were little or no environmental protections in place at the time.

**Environmental Impact of Industrialization**  The Industrial Revolution created a greater need for natural resources than ever before. Factories could produce large quantities of products, and they wanted to maximize their profits by increasing the number of goods they could make. This led to a search for resources that spread across the world. The extraction of the natural resources needed for the newly industrialized world was damaging to the nations that undertook it. Disruption of the environment, particularly natural habitats such as forests and mountains, compromised and destroyed ecosystems. And the constant need for more and more resources has made it difficult for these habitats to recover.

New technology and sources of energy developed during the Industrial Revolution made the factory system practical. Coal and steam became essential parts of this factory system, increasing efficiency and decreasing cost of production.
But coal, and later the petroleum and natural gas that replaced it, has a widespread impact on the environment. Mining coal is incredibly dangerous and can destroy the natural environments around the mining site. The burning of coal pollutes the air with tiny particles of ash and soot, which causes respiratory and even neurological diseases in humans and other animals. It also produces gases, such as carbon dioxide, methane, and nitrous oxides.

These environmental issues impact the entire world, not just the nation that undertakes these practices. Water pollutants, such as oil spills, can spread easily across the ocean with currents and winds, as well as wildlife that it comes into contact with. Air pollutants join the atmosphere and surround our entire planet with harmful substances. These environmental impacts can last for years, and many are irreversible.

**Industrialization Creates a New Global Dynamic**  
As industry grew, providing more reliable sources of food as well as some health improvements, the populations in industrialized nations grew as well. This put a strain on the resources available. The result was a depletion of natural resources, such as wood in Britain. Wood was a main source of energy in Britain, which was especially true before Britain adopted coal as a fuel source. Natural resources were necessary for industrialization, and the depletion of these resources threatened Britain’s progress.

The high demand for natural resources led industrialized nations to look for necessary goods beyond their borders. Countries in Asia, Africa, and Latin America became essential locations for acquiring natural resources. This led to a new age of imperialism, where industrialized nations formally and informally colonized countries with access to needed natural resources. Thus, a new global dynamic was established during the Industrial Revolution, a dynamic that continued long after the revolution’s final days.

**Summary**

In this lesson, you read about the development of the working class and the conditions that they lived and worked in. This working class developed unions to help protect themselves, and the government started regulating big business to ensure fairness within the industries.

**Economic Structures**  
During the Industrial Revolution, corporations were allowed to grow without government intervention under laissez-
faire policies. However, this unchecked growth hurt consumers. Governments decided to implement regulations in order to restore fairness and competition to the economy.

**Social Structures** Factory work distanced employers from employees, whose unskilled labor and low wages marked them as members of the working class. The new working class faced many hardships, including low wages, long hours, and unsafe working conditions. They banded together to form unions to improve these hardships.

**Human-Environment Interaction** Industrialization led to larger cities where the poorer working class lived in slums and tenements. This helped the spread of disease and pollution. The use of coal, and later fossil fuels and petroleum, and the extraction of natural resources led to massive amounts of pollution and habitat destruction, much of which is irreversible.