## Two Waves of Industrial Revolution 4pts Name:

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| Industry and technology go hand-in-hand. When new technologies are born, new industries develop along with them. This naturally leads to periods of accelerated development and periods of relatively less development. The Industrial Revolution is like this. Different “revolutions” occurred following the development of certain critical inventions or ideas. | **Why are there different “waves” of industrial revolution?** |
| **The (first) Industrial Revolution: 1760-1840** | |
| **Why Britain?** This revolution began in Britain. Britain was perhaps best suited for this revolution because it was already transitioning to a manufacturing economy. All of Europe (and pretty much all of the world) was practicing economies based on farming. In Britain, however, a series of laws called the Enclosure Acts allowed wealthy landlords to seize common lands—making it more difficult for peasants to actually make money selling food. Because of this, peasants began to spin thread and make clothes in the home. By 1750, cottage manufacturing was a significant part of the British Economy. Britain also had other advantages. Britain had many navigable waterways, which makes transportation easier. Britain also has large, easy to mine deposits of iron and coal—the most important resources for industrialization. Finally, Britain’s government had adopted new laws which guaranteed the right of property—meaning people didn’t have to worry about their wealth being taken by the crown. | **Explain at least 3 reasons why Britain was well suited to industrialize:** |
| **The Revolution:** The First Industrial Revolution was sparked first by new methods of *utilization[[1]](#footnote-1)* and then later by new methods of *power*. The first new utilization was the **Spinning Jenny** (1770). This allowed mill owners to spin thousands of threads at once with just a few workers and a waterwheel. Thousands of these mills were built from 1770-1790. The cheapness of British thread combined with the massive reach of the British fleet and Empire allowed it to replace local thread almost everywhere on earth. Following this success, new machines were invented like the water frame, spinning mule, and power loom. These additions allowed British factories to manufacture full fabric rather than just thread. | **What is a Spinning Jenny?**  **What power did the first factories use?** |
| **Steam Engine:** the biggest change occurred with a change not in *utilization* but in *power*. James Watt’s improved steam engine in 1775 began to be adopted as the new source of energy for factories starting around 1780 and increasing in the 1790s. These produced much more power than the older waterwheels and allowed factories to be built away from rivers. This massively increased British industry and for the first time factories began to appear in the city centers rather than out in the country.  The gains of the First Industrial Revolution were primarily in 3 industries: iron, textiles, and coal. However, there were also significant steps taken in the glass and paper industries that would not be fully realized until the second industrial revolution. The effects of the revolution were a dramatic increase in wealth for the wealthy of Britain and a dramatic decrease in living standard for the workers forced into these early, terrible factories by the collapse of peasant agriculture and cottage textiles (neither could compete by 1800). Another effect is that Britain furthered its power over the rest of the world. Britain’s domination of India and China would start in earnest during the First Industrial Revolution. | **What were the advantages of the Steam Engine?**  **How was Britain changed during this revolution?** |
| **The Gains:** The first revolution mainly saw gains in wealth. Those who owned factories made considerably more money. Those that didn’t own factories found certain goods to be cheaper (tools, clothes, coal, etc). However, most industrial workers also saw their wealth diminish so may not have seen any real gain. But those that still managed to hold on to decent jobs would see an increase in overall wealth. There were also some important inventions—most notably the train, steamboat, camera, and telegraph. Each of these would have important impacts on people’s lives, although only the steamboat would be fully realized before 1840 and many would not become common until the second revolution. | **List at least 5 gains of the revolution:** |
| **The Second Industrial Revolution: 1860-1940** | |
| **The Lag:** Starting around 1840, technological development began to slow. Some of the factories built during the first revolution began to close. This is partly a trait of market economies. After a new industry (called a “sunrise industry”) is no longer new, many of the companies close and the successful ones take over some of the failing companies. However, it was also due to a shortage of steel. The innovations of the first industrial revolution improved the availability of good iron but not steel—which was critical to many of the high-pressure, improved steam engines of the 1830s. The price of steel skyrocketed in the 30s, 40s, and 50s, dramatically slowing industrial progress. | **Why was there a lag from 1840-1860?** |
| **The Revolution:** The second wave of the industrial revolution was worldwide and effected far more industries than the first. The second revolution saw improvements to almost every industry and was undertaken in every part of Europe as well as North America.  The second industrial revolution was sparked primarily by the **Bessemer Process** (1865), which allowed the cheap manufacture of good steel. However, a number of other inventions would really drive the innovations of the Second Revolution. Those inventions were electricity (1886), interchangeable parts, rubber manufacturing, and the (gasoline) combustion engine (1876). Between these five inventions, almost every industry on earth was forever altered. | **What makes the second revolution larger than the first?**  **What inventions drove this revolution?** |
| **The Gains:** Normal lives were changed by household appliances (like the refrigerator), trains, cars, motorboats, electric lights, telegraphs, telephones, sewage systems, running water, canned food, airplanes, photographs, fertilizer, and numerous others. Medicine also saw huge leaps forward, especially with the development of the first anti-biotic and improved methods for vaccination. Vaccination efforts starting in the 1870s had eradicated smallpox in most parts of Europe by 1900. America, which saw more resistance to mandatory vaccination, didn’t eradicate smallpox until 1950. | **List what you would say are the 5 most important inventions:** |
| **The Losses:** But alongside this were also less encouraging developments. Warfare was also revolutionized. The machine gun, barbed wire, and high-angle artillery would usher in an era of brutal, industrial warfare. Poison gas would dramatically worsen soldier’s lives and lead to the genocides of the 1910s-1940s. Ironclad warships, armored gunboats, and Dreadnaughts would allow European powers to dominate the oceans and trample over the rest of the world. | **What are a few ways the world was worsened?** |
| **The Fixes:** And yet, as disheartening as some parts of the Second Revolution were, it was also more hopeful than the first. Many of the worst parts of industry—the air pollution and brutal working conditions—were addressed, reformed, and at least partially fixed during the second revolution. | **What was fixed?** |

## Two Waves

Record the following on this timeline:

* Industrial Revolution, Second Industrial Revolution
* At least 6 inventions or events

1750 1800 1850 1900 1950

**Each of the waves is “sparked” by a few inventions/ideas. Which inventions/ideas sparked each revolution?**

|  |  |
| --- | --- |
| **First Revolution** | **Second Revoution** |

**What other inventions were created during each revolution?**

|  |  |
| --- | --- |
| **First Revolution** | **Second Revoution** |

**First Revolution:** what were the positive and negative effects of this revolution?

|  |  |
| --- | --- |
| **Positive** | **Negative** |

**Second Revolution:** what were the positive and negative effects of this revolution?

|  |  |
| --- | --- |
| **Positive** | **Negative** |

**Writing: Which of the revolutions would you consider to be more significant? Why?**

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1. Power, transmission, and utilization are the 3 parts of mechanization. Power is where you generate the energy for the work, transmission is how you move that energy, and utilization is what you do with it. [↑](#footnote-ref-1)