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**The Industrial Revolution in Britain Group Work**

*Directions*: *Look at the Industrial Revolution slides presentation in Canvas. Read through and analyze the sources to answer the following questions. Write in* ***complete sentences, and use specific details****.*

**Intro Video:**

* **What was the industrial revolution?**

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| The industrial revolution was a period when societies shifted from handmade good to machine-made goods. It started in Britain around the 18th century. |

* **How much did the population grow in cities by 1900?**

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| By the 1900s the population had increased to around 16%. |

* **What are some reasons this revolution began in Britain?**

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| There are two main reasons that I believe why the revolution began in Britain.  First, because of the energy resources such as coal reserves. And second would be philosophical difference. |

**Why Britain?**

* Identify and explain seven reasons the Industrial Revolution began in Britain.

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| 1. Abundant natural resources like coal and iron. |
| 1. Advancements in agriculture leading to surplus labour |
| 1. Access to raw materials through its colonial empire. |
| 1. Technological innovations like the spinning jenny and steam engine. |
| 1. Investment in infrastructure such as canals and railways. |
| 1. Political stability and favourable institutions for entrepreneurship. |
| 1. Rapid population growth and urbanization, providing a large workforce. |

* Identify and explain three effects of the Industrial Revolution.

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| 1. **Urbanization**: The Industrial Revolution caused rapid urban growth as people moved from rural areas to cities for jobs, leading to crowded urban centres and the emergence of new social classes. |
| 1. **Economic Transformation**: It shifted economies from agrarian to industrial, boosting productivity and leading to wealth disparities. It also spurred globalization through mass production and distribution. |
| 1. **Environmental Impact**: Industrial activities, fueled by coal and other resources, caused pollution, deforestation, and resource depletion, laying the groundwork for environmental issues like climate change that persist today. |

**The Factory System**

* Describe three innovations that allowed for the factory system in Great Britain.

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| 1. **Mechanized Spinning:** Inventions like the Spinning Jenny (James Hargreaves, 1764) and the Water Frame (Richard Arkwright, 1769) revolutionized yarn production. The Jenny allowed a single worker to spin multiple threads simultaneously, while the Water Frame produced stronger, higher-quality yarn using water power. These advancements drastically increased yarn output, creating a need for faster weaving. |
| 1. **Power Looms:** The Flying Shuttle (John Kay, 1733) and the Power Loom (Edmund Cartwright, 1784) transformed weaving. The Flying Shuttle sped up the weaving process, while the Power Loom completely mechanized weaving, eliminating the need for human weavers altogether. These inventions further boosted production and reduced reliance on manual labor. |
| 1. **Steam Engine:** the improved steam engine by James Watt (1776) provided a reliable and powerful source of energy for factories. Previously, factories relied on water power, limiting their location to rivers. Steam engines allowed factories to be built anywhere, near coal supplies for fuel. This flexibility significantly impacted factory placement and growth. |

* Describe three characteristics of the first factories.

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| 1. **Centralized Production:** Unlike the cottage industry where work was scattered across individual homes, factories brought workers and machines together under one roof, or a large complex. This facilitated efficient supervision, streamlined workflow, and ensured all resources were readily available. |
| 1. **Mechanized Labor:** A hallmark of factories was the extensive use of machines powered by water or the newly improved steam engine. These machines replaced many tasks previously done by hand, significantly increasing production speed and reducing reliance on skilled artisans. |
| 1. **Division of Labor:** Factory work emphasized specialization. Complex tasks were broken down into smaller, repetitive steps, each assigned to a different worker. This approach improved efficiency and allowed workers to become highly skilled at specific tasks, but it also led to monotonous and potentially dangerous work. |

**Iron and Steel Manufacturing**

* Identify and explain one development in iron and one development in steel.

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| Iron | Steel |
| The development of the **Hot Blast** by James Cowper in 1828 revolutionized iron production.   * **Explanation:** Prior to the hot blast, cold air was blown into the blast furnace, which required large amounts of coke (processed coal) to reach the high temperatures needed for smelting iron ore. The hot blast preheated the air entering the furnace, significantly reducing the amount of coke needed. This led to:   + **Increased Efficiency:** Less coke meant lower production costs.   + **Higher Production:** Hotter furnaces could process more iron ore, boosting output.   + **Fuel Source Flexibility:** With less reliance on coke, other fuels like coal became more viable options. | The invention of the **Bessemer Process** by Henry Bessemer in 1856 drastically improved steel production.   * **Explanation:** Traditional methods used for centuries produced steel that was expensive and limited in quantity. The Bessemer process involved blowing air through molten iron, burning off excess carbon and impurities. This resulted in:   + **Mass Production:** The Bessemer process significantly reduced production time and cost, enabling large-scale steelmaking.   + **Stronger Steel:** By removing impurities, the Bessemer process produced a stronger and more versatile type of steel.   + **Wider Applications:** Affordable, high-quality steel opened doors for new inventions and infrastructure projects like railways and buildings. |

**Railways**

* Analyze the impact that European railroads had on the industrial revolution in 4 ways.

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| **Transportation Revolution:**   1. **Speed and Efficiency:** Compared to traditional methods like horse-drawn wagons and canals, railways offered significantly faster and more efficient transportation of both goods and people. This allowed factories to receive raw materials quickly and distribute finished products to wider markets, reducing spoilage and boosting overall production. |
| 1. **Market Expansion:**    1. **Wider Reach:** Railways connected previously isolated regions, creating national and even international markets for goods. Manufacturers could now tap into a much larger customer base, leading to increased production and economic growth. |
| 1. **Resource Acquisition:**    1. **Fueling Industry:** Railroads facilitated the efficient transportation of coal, a vital fuel source for steam engines powering factories. This reliable access to fuel further fueled industrial growth. Additionally, railways enabled the transportation of other essential resources like iron ore and timber to industrial centers. |
| 1. **Urbanization and Workforce Mobility:**   **Labor Pool Growth:** Easier movement of people led to a migration from rural areas to booming industrial cities. This provided factories with a readily available workforce, crucial for expanding production. |

**Industrial Society**

* Compare and contrast how different classes in British society lived during the Industrial Revolution.

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| Similarities | Differences |
| * **Impact of Urbanization:** Both the working class and the middle class experienced the effects of rapid urbanization as people migrated from rural areas to cities in search of employment opportunities in factories and industries. * **Dependency on Industrialization:** Both the working class and the lower-middle class were heavily dependent on the industrial economy for employment and livelihood. Their lives were directly impacted by the expansion of factories, mines, and other industrial enterprises. * **Poor Living Conditions:** Regardless of class, living conditions in urban areas were often overcrowded, unsanitary, and lacking in adequate infrastructure such as clean water and sewage systems. Tenements and slums were common dwellings for both the working and lower-middle classes. * **Social Mobility Challenges:** Despite variations in wealth and opportunities, social mobility was tough for both the working and lower-middle classes. The rigid class structure of Victorian society made upward movement difficult, though there were occasional exceptions. | * **Education and Opportunities:** Members of the middle class, particularly the upper-middle class, had greater access to education and opportunities for advancement. They could afford to send their children to schools or provide them with apprenticeships, whereas working-class children often had limited access to education and were expected to contribute to family income from a young age. * **Political Influence:** The upper-middle class and wealthy industrialists held significant political influence during the Industrial Revolution, often through ownership of factories, land, or other means of economic power. * **Access to Legal Rights:** The middle class had better access to legal rights and protections compared to the working class. They could afford legal representation and had greater recourse to the legal system in cases of disputes or injustices. * **Housing Conditions:** While both classes faced poor living conditions, there were differences in the types of housing they could afford. The lower-middle class might have lived in slightly better-quality housing compared to the working class, with access to basic amenities such as indoor plumbing and slightly more space. |

**Child Labor**

* Analyze the reasons for child labor and how the government attempted to regulate child labor.

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| Reasons for Child Labor | Attempt to regulate Child Labor |
| * Cheaper labor: children could be paid significantly less than adults. * Suited for specific tasks: their small size allowed them to perform task in tight spaces that adults couldn’t. | The attempt to regulate child labor came from the belief that it was crucial for the economy to grow. The image however, doesn’t specify the details of these regulations. |

**Industrial Workers**

* Compare and contrast the characteristics of different types of factory work.

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| Similarities | Differences |
| * Longer hours working * Dangerous conditions * Low wages * Child labor |  |

**Labor Movement**

* Evaluate the growth of the European labor unions. Be specific.

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| During the industrial revolution, there was a massive shift from rural to urban life as people flocked to cities to work in factories. Working conditions were often dangerous and grueling and workers had little power to bargain for better wage or benefits. Labor unions provided a way for worker to collectively bargain with employers and fight for better working conditions. |

**Housing and Urban Development**

* Describe worker’s houses.

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| Worker’s house during the industrial revolution were typically overcrowded and poorly build. They were often contracted quickly and cheaply, with little regard for sanitation or safety. These homes were built to house the influx of people moving to cities to work in factories and as result they were often cramped and lacked basic amenities. |

**Impacts of the Industrial Revolution**

* Identify and describe five impacts of the Industrial Revolution.

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| 1. Shift from agrarian to industrial economy: the industrial revolution ushered in a dramatic shift from economies based on agriculture to one focused on manufacturing. |
| 1. Rise of mass product: the efficiency of mechanized production led to a boom in mass-produced goods. This create a new era of consumerism with a wider rage of affordable product. |
| 1. Social change: The growth of factories drew people from rural areas to cities in search of work. This rapids urbanization led to the rise of work class alongside the existing wealthy elite. |
| 1. Technological advancements: the industrial revolution was a period of fervent invention. Key innovations included the steam engine, power loom, and Bessemer process for steel production. |
| 1. Environmental consequences: the large scale burning of fossil duels to power factories and transportation significantly increased air and water pollution. Deforestation also became an issue as resources were consumed to meet the demands of industry. |

**A Global Industrial Revolution**

* Find a country or region in the world & research how the Industrial Revolution impacted that country.

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| The industrial revolution arrived United States later than Britain, however it spurred rapid economic growth, particularly in the Northeast factories boomed, cities grew, and inventions like the cotton gin transformed agriculture. |

**“Workers of the World Unite!”**

* Do your own research on one of the following groups and write about: 1. what their beliefs were, and 2. how they resisted the conditions of the industrial revolution and capitalism. (The Luddites, Karl Marx & the socialists, Mikhail Bakunin & the anarchists, the Industrial Workers of the World (Wobblies).

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| Karl Marx believed capitalism inherently exploited workers. Factory owners, the bourgeoisie, profited by paying workers, the proletariat, far less than the value their labor produced. The surplus value enriched the wealthy while keeping workers in poverty. Marx envisioned a classless society where workers controlled the means of production. He resisted capitalism through critical theory. |