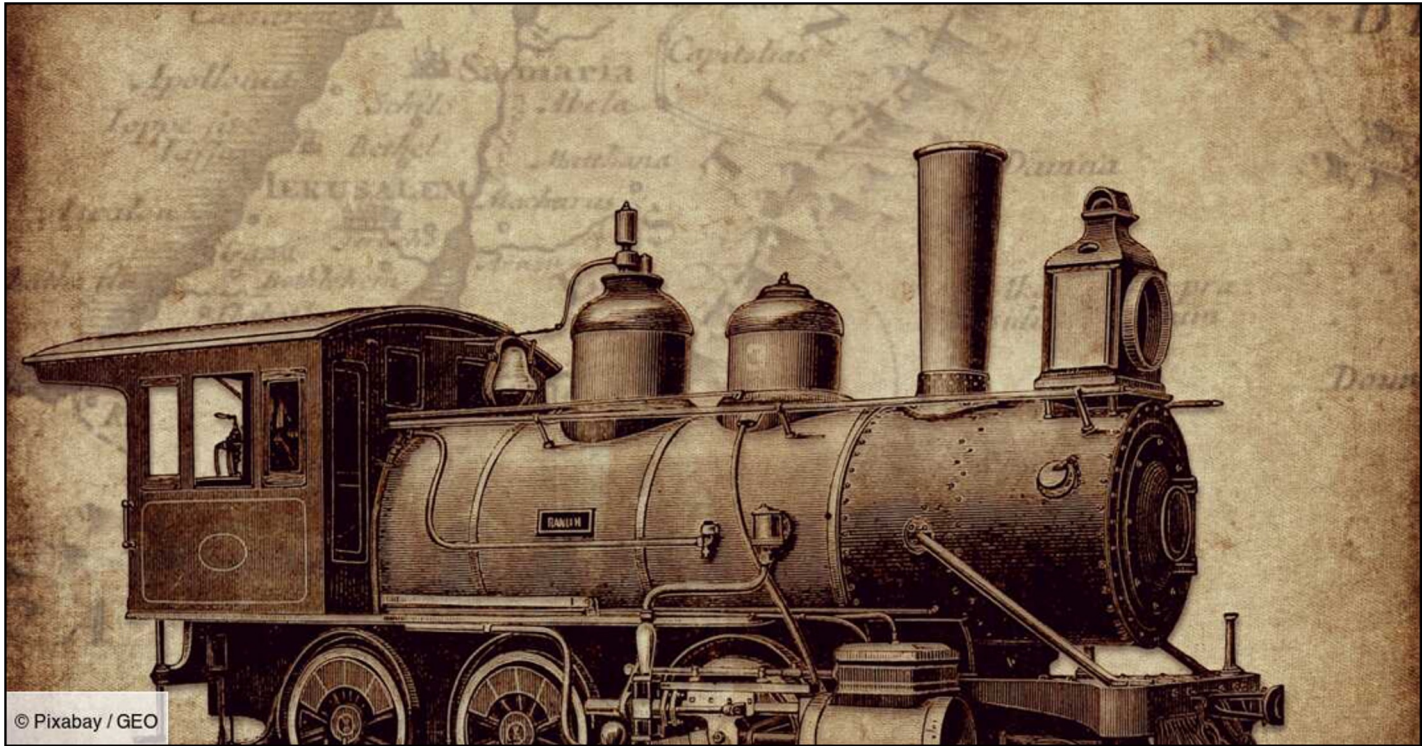


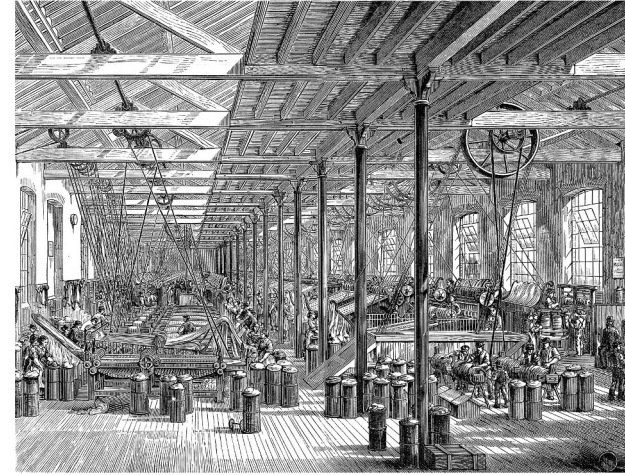
# The Industrial Revolution

## 1800 - 1870



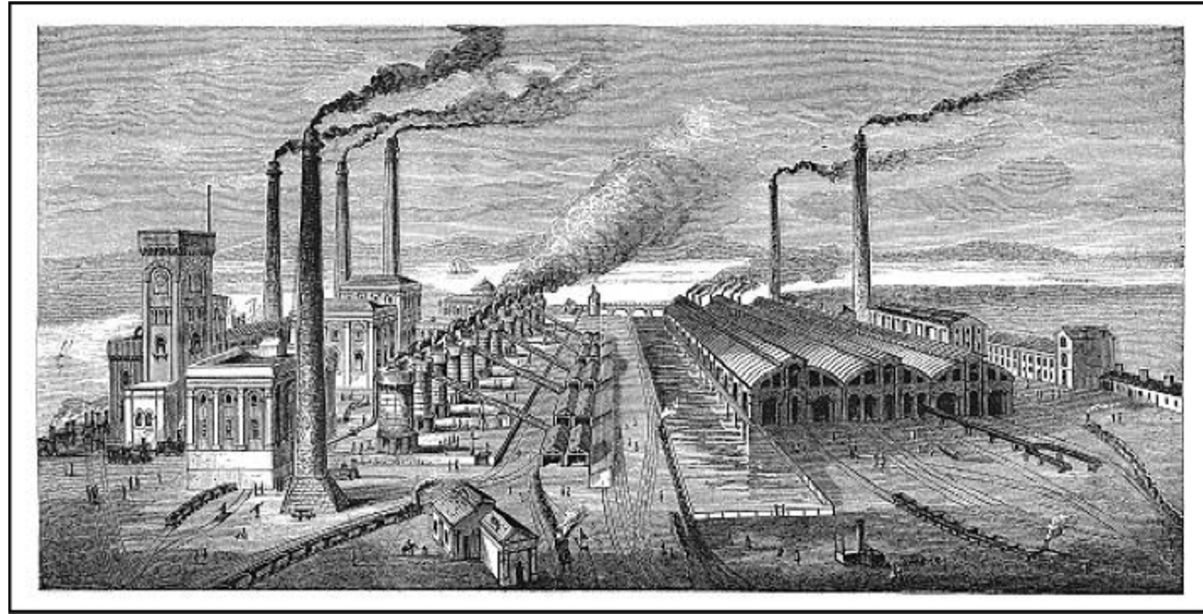
# The Industrial Revolution in Great Britain

- Between 1700 and 1800, Britain's manufacturing and transportation industries underwent profound changes that would impact the rest of Europe and later the Americas and Asia.
- New inventions + development of mechanized manufacturing + transportation, improved the way products were made and the speed at which people could travel.



# Coal

- Before the IR, wood was the main source of fuel in GB (heating houses, iron production, etc.)
- Coal burns more consistently and for longer.
- Cheaper + burns longer.



This 1880 engraving shows how an artist viewed a coal factory in Barrow, England. Without coal, the IR would not have been possible.

**Q:** What details does the artist reveal about how coal changed the environment during the IR?



# COAL MINING

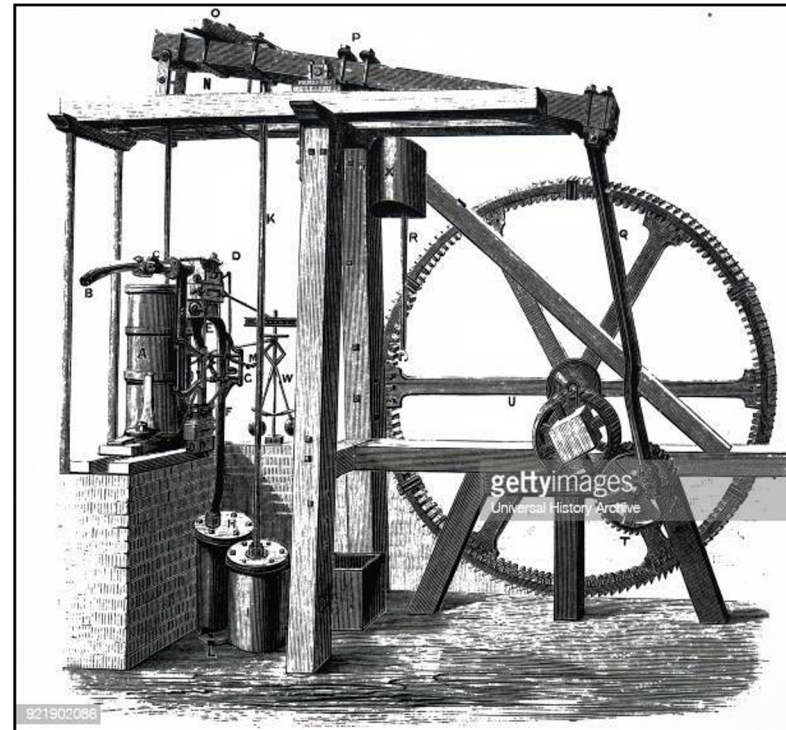


LE TEMPS DES MINES AU SUD DE N. MEXICO



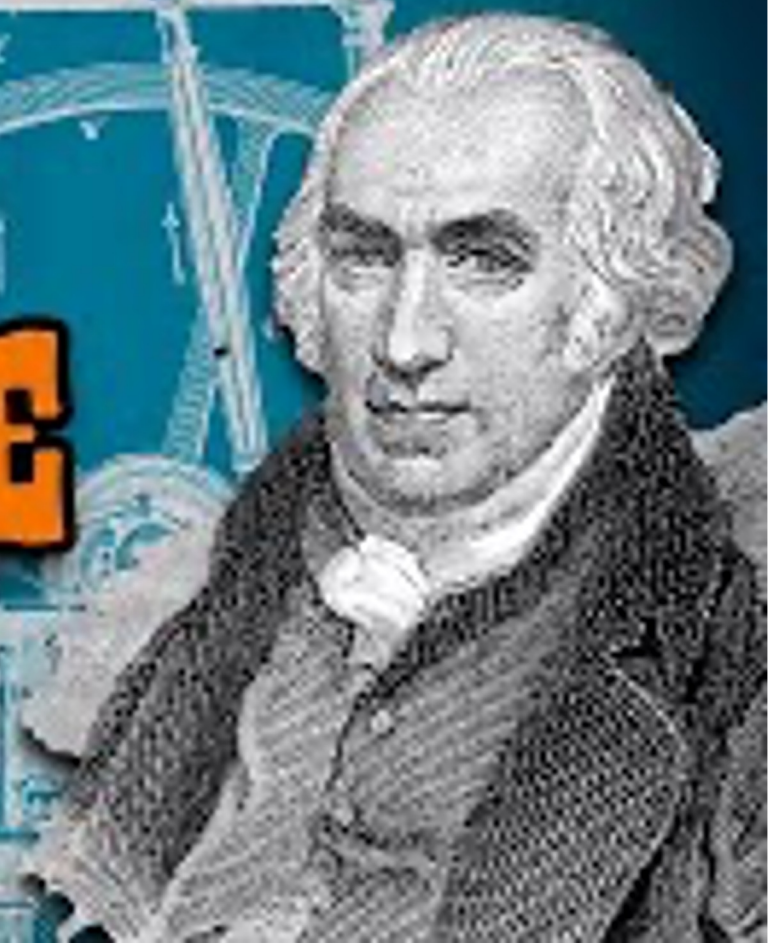
# Steam Engine

- The first was built in the early 1700s to pump water from the mines.
- Coal was burned to heat water and produce steam, which started the pistons, which moved up and down.
- In 1765, inventor James Watt made modifications, making the engine 4x more efficient.
- By the 1800s, over 500 Watt steam engines were in use in Britain.



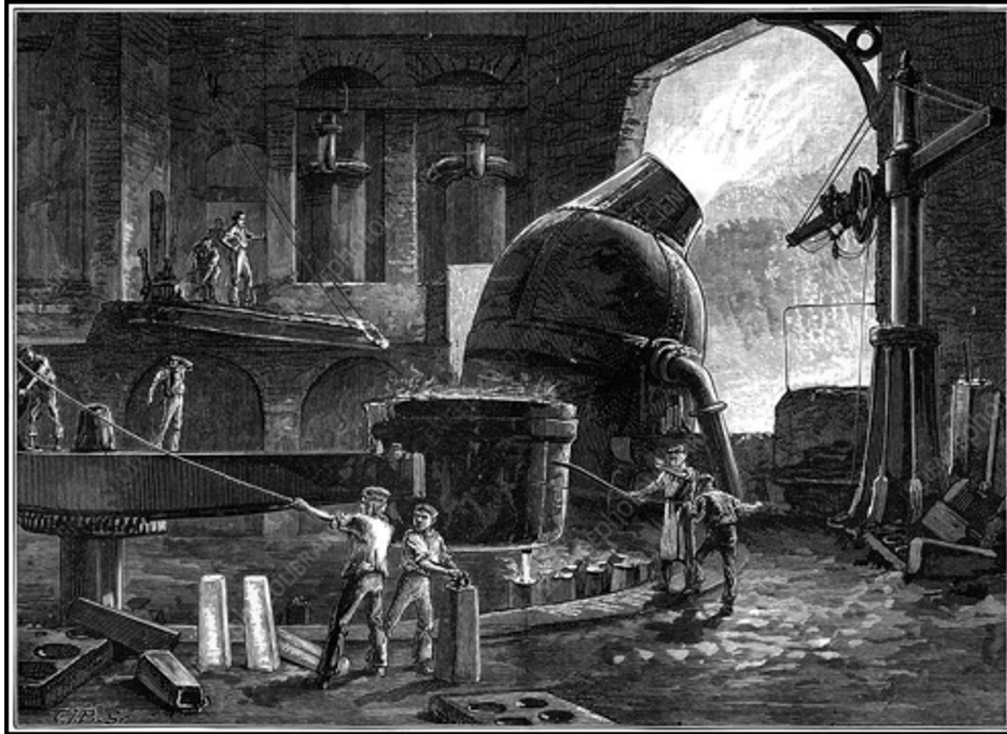
This is Watt's steam engine. The working power of the motor was measured in terms of the working power a horse. As a result, the unit of work production was called "Horse Power" , a term still used today.

# THE STEAM ENGINE



# Iron

- Since coal was used (cheaper, burns longer, etc.), iron became the most commonly used material to make machines, ships and bridges.



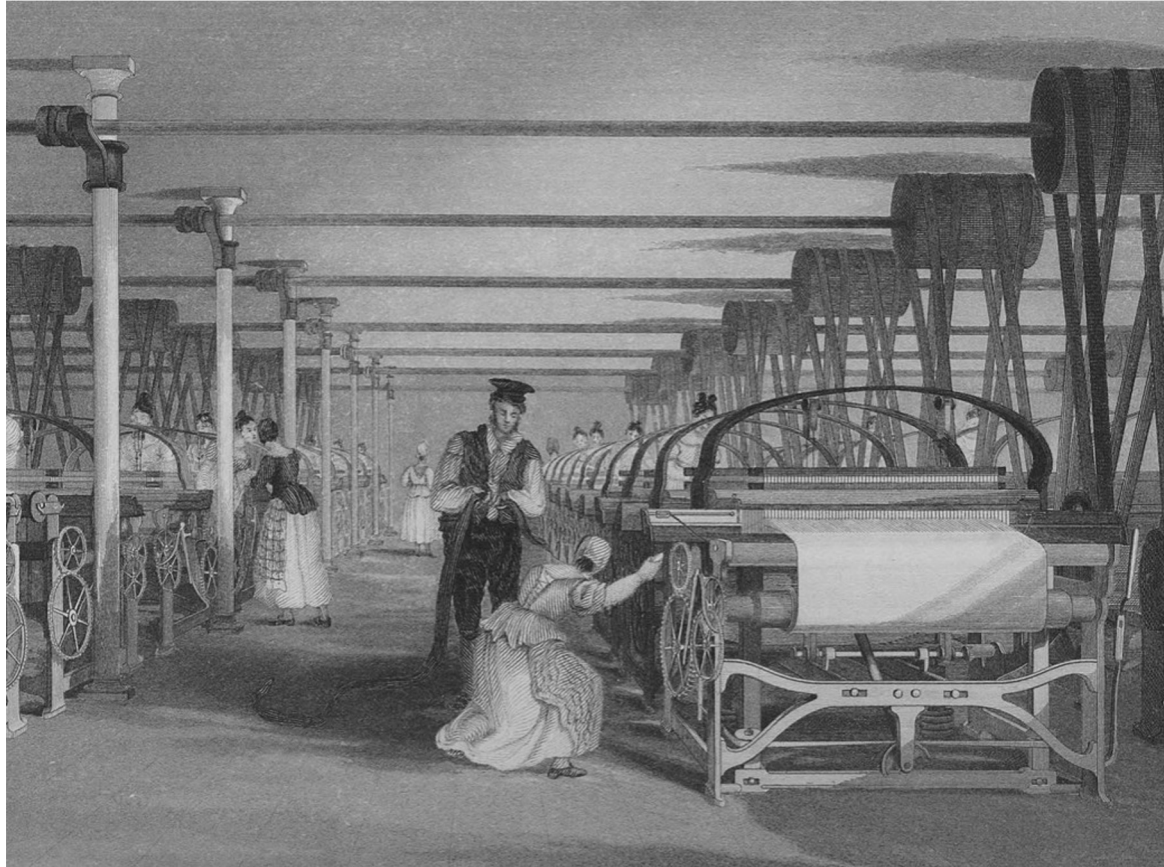
The furnace shown in the 1880 engraving is called a Bessemer converter, used for manufacturing steel.

How would the availability of steel have impacted people living in the 1800s?



# The factories

- Steam engines = source of energy = iron became affordable = inventors were able to develop machines that transformed the way goods were made.
- Textiles (fabrics or woven products) were the first to be mechanized!



# Factories

- Before IR, workers worked at home. They were paid for the products that they made.
- Next, textile machines required large work spaces, which led to the creation of factories, which were built in cities.
- Changes in the way goods were made + the way work was done transformed society. **Workers' lives were no long centered around a rural house and small shop, but around a factory in a city.**
- The workday was no longer dictated by sunrise and sunset, but by clocks and whistles that signal the start and end of the workday.



# Factory Workers

- Factories cost a lot of money to build and buy machines: The owners were profit-oriented.
- The owners try to get the best price.
- As a result, factory workers were often poorly paid and forced to work as quickly as possible. Women were paid less than half of what men earned.



This image shows an artist's rendering of workers at a spinning mill in Yorkshire, England, in 1851.

A silhouette of an industrial factory skyline against a bright orange and yellow sunset sky. Several tall smokestacks are visible, with one on the left emitting a thick plume of dark smoke that drifts across the sky.

# Factories during the Industrial Revolution

# Working conditions of factory workers

- Manufacturing work was divided into stages - workers did only part of the production process. This was called assembly line.
- This made the work repetitive.
- Workers were often exhausted from working as long as 15 hours/day, 6 days/week in dark, noisy factories with poor air circulation.

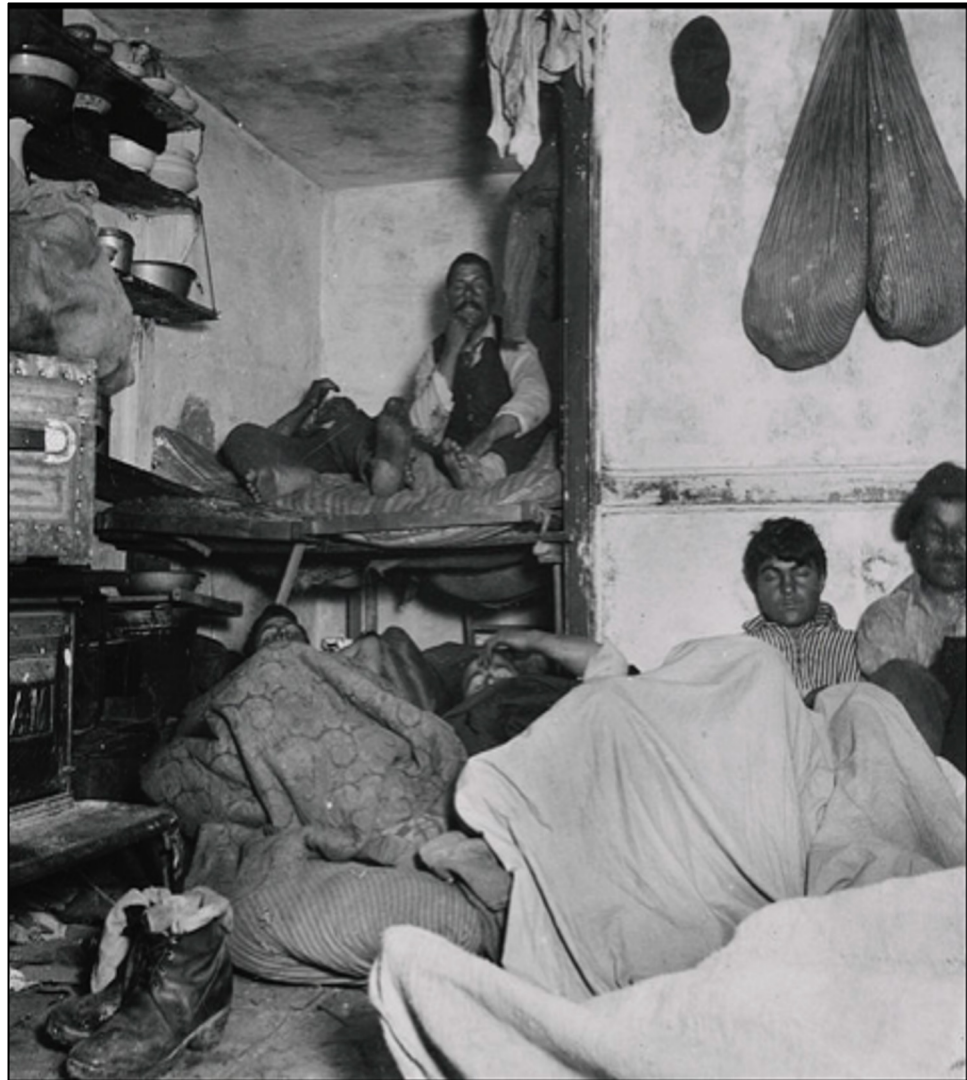


Factories were often filled with heavy, noisy machinery, and accidents were common. This image shows workers in a weaving workshop.

What dangers are visible in this image? Why could exhausted workers have accidents around machines like the one shown in the image?

# Living Conditions

- Not enough jobs and homes for the large number of people who moved from the country sides to the towns.
- The poor quality of life made people sick and weak. Sick workers were easy to replace.









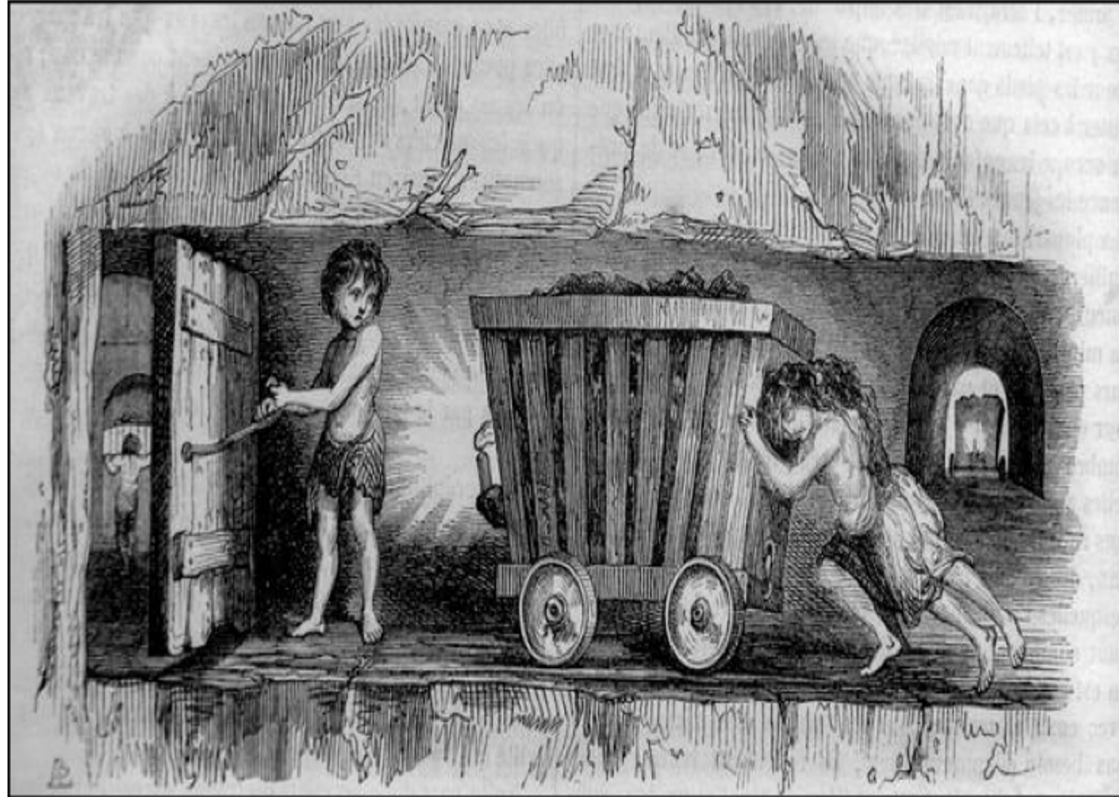


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# Child Labour

- In the 1800s, it was common for school-aged children to work, especially since the few schools that existed charged tuition that most families could not afford.
- Working conditions were difficult + salaries were very low.



This 1843 engraving shows how an artist viewed the inside of an English coal mine, Children worked in the coal mines because their small size allowed them to fit into small spaces. It was very dangerous work.

<https://youtu.be/ebs4cG20xkg>

<https://www.history.com/topics/industrial-revolution/the-industrial-revolution-video>