

# TOPIC 5.3: CAUSES OF THE INDUSTRIAL REVOLUTION

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**Learning Objective 1:**

- Explain how environmental and other factors contributed to industrialization from 1750-1900.

2

- A. A variety of factors contributed to the growth of industrial production and eventually resulted in the Industrial Revolution.

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**Pre-Industrial England (Context)**


- Mainly rural
- Cottage industries



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**Environmental Causes**

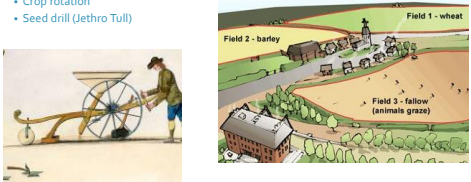
- Mineral resources
- Rivers



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**Agricultural Causes**

- Agricultural Revolution
- Crop rotation
- Seed drill (Jethro Tull)



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### Economic Causes

- New colonies led to accumulation of private capital



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### Urbanization

- Population growth
- Enclosure Movement



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### Technology and Transportation

- Topic 5.4

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- B. The development of the factory system concentrated production in a single location and led to an increasing degree of specialization of labor.

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### Richard Arkwright

- Weaving machines in central location
- Located on water source



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## TOPIC 5.4: TECHNOLOGY OF THE INDUSTRIAL AGE

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## Learning Objective 1:

- Explain how technology shaped economic production over time.

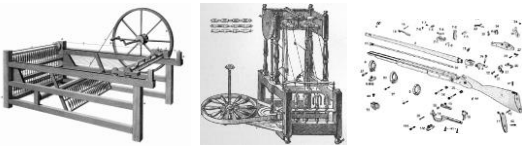
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- A. The development of machines made it possible to take advantage of both existing and new discovered resources of energy stored in fossil fuels.

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## Early Machines

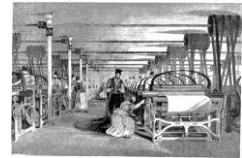
- Spinning jenny (James Hargreaves)
- Water frame
- Interchangeable parts



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## Effects of Machines

- Division/specialization of labor
- Rise of unskilled labor



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- B. The "Second Industrial Revolution" led to new methods in the production of steel, chemicals, electricity, and precision machinery during the second half of the 19<sup>th</sup> century.

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## Second Industrial Revolution

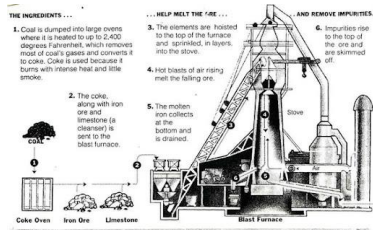
- Shift from textiles to industrial goods



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## Steel

- Bessemer Process



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## Oil

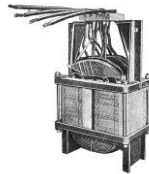
- Starts with kerosene for heat, light
- Leads to engines for transport



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## Electricity

- Thomas Edison – light bulb
- George Westinghouse - transformer



- C. Railroads, steamships, and the telegraph led to increased trade and migration.

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## Railroads



## Communication

- Samuel Morse – telegraph
- Alexander Graham Bell – telephone
- Guglielmo Marconi - radio

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