**Why did Industrial Revolution begin in England?**

The Industrial Revolution brought the United Kingdom into an era of technology and productivity. It created wealth for many but social problems and poverty for others.

**Causes of the Industrial Revolution:**

The historian **Arnold Toynbee** created the idea that, in the years between 1780 and 1830, there was an 'Industrial Revolution'.

* **Toynbee** (1884) and the first historians of the Industrial Revolution thought that the industrial growth had been stimulated by Britain's trade. There was a need to develop more manufactured goods and ready-made markets around the world through the British Empire.
* **A. H. John** (1961) thought that growth had been stimulated by the Agricultural Revolution. This had increased the population and therefore domestic demand.
* **W.W. Rostow** (1960) traced the growth of output back to capital investment, which had allowed expansion and innovation.
* **Musson and Robinson** (1969) credited science and technology. They thought that technological advancement made improvement in industry inevitable.
* Recently, the African historian **Joseph Inikori** (1987) has focused on the profits made by the slave traders, which provided money for investment in British industry.

**Agriculture and growth of population**

* England was an agricultural country. Climate and weather were suited to certain crops like potato, turnips and clover.
* Removal of common property rights of land, new systems of cropping, breeding of live-stocks were introduced
* Rapid growth of population and expansion of the frontier opened large number of farms. Clearing land for farms became the major preoccupation of farmers.
* After 1800s, cotton became the chief crop in Southern plantations which became the chief crop of export.

**Inventions and innovations in the Industrial Revolution:**

The Industrial Revolution involved innovation, capital investment and **increased output**:

**Textiles**

* John Kay’s Flying Shuttle was a very successful innovation in weaving. Spinning technology needed frequent development over the next fifty years before weaving experienced further major changes.
* James Hargreaves' Spinning Jenny (1764) and later [**Richard Arkwright's**](http://www.bbc.co.uk/history/historic_figures/arkwright_richard.shtml)Water Frame (1769), Samuel Crompton's Mule (1779) were spinning machines that all improved upon the quality and quantity of spun yarn.[**Edmund Cartwright's**](http://www.bbc.co.uk/history/historic_figures/cartwright_edmund.shtml)Power Loom (1785) was the first steam-powered weaving machine. Many of these inventions were powered by [**James Watt's**](http://www.bbc.co.uk/history/historic_figures/watt_james.shtml)steam engines (1765).
* Large purpose-built factories were a new idea, eg Arkwright's Mill at Cromford, full of machines.
* Output increased 15-fold in the century 1815-1914.

**Iron and steel**

* Abraham Darby smelted iron using coke (1709), Henry Cort's puddling process made wrought iron (1784) and Henry Bessemer's Bessemer converter (1856) and the Gilchrist-Thomas process (1879) made steel.
* Huge ironworks, eg Richard Crawshay's Cyfartha works in South Wales and John Roebuck's Carron Works in Scotland.
* Production of 'pig' iron increased 30-fold in the century 1815-1914.

**Coal**

* Better coal mining techniques allowed deeper mines, eg 'roof and pillar' working to support the roof, upcast and downcast shafts to provide ventilation and the Davy Lamp (1815) invented by **[Humphry Davy](http://www.bbc.co.uk/history/historic_figures/davy_humphrey.shtml)** to help prevent gas explosions.
* In 1914, the coal industry employed a million men in 3,000 collieries.
* Production of coal increased 20-fold in the century 1815-1914.

**Steam power**

* In around 1712, [**Thomas Newcomen**](http://www.bbc.co.uk/history/historic_figures/newcomen_thomas.shtml) built the first commercially successful steam engine to pump water out of mines.
* James Watt made steam engines much more efficient in the 1760s and 1770s giving huge savings on fuel. His other improvements meant steam engines could replace water and horse power in a wide variety of industries, which in turn allowed factories to be built anywhere.

**Establishment of Banks**

* The Bank of England was founded in 1694 and became the centre of the country’s financial system.
* By 1784, there were more than a hundred provincial banks in England.
* By the 1820s, there were more than 600 banks in the provinces with over 100 banks in London alone.
* On the eve of the Civil War, these had increased to 1500-1600. These offered opportunities to form joint stocks and commercial banks replaced private banks.
* All these banks granted loans to citizens to start their business in all fields.