The Industrial Revolution and Technology

For thousands of years,
people produced goods by hand.
Industrialization allowed this to
change, but what was being
industrialized?
Creativity exploded
as a large amount of goods
were now needed.
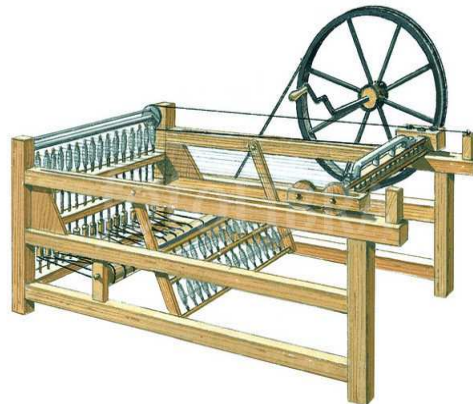New ideas and inventions
were revolutionizing industry.

Factories

Britain's textile (cloth) industry was the first industry to be transformed from hand-made to machine-made. Textile business owners or cloth merchants boosted production and profits by using newly invented machines that sped the process by which spinners and weavers made cloth.

Machines, as they became more industrialized and superior, the size also increased. Wealthy *entrepreneurs* set up large buildings known as **factories** to use them. Factories are a place where workers and machines are brought together to produce large amounts of goods.

Several inventions had changed the cotton industry. One machine, the *Spinning Jenny*, invented by James Hargreaves allowed one cloth spinner to work eight threads at one time. Comparing this machine to hand-made, the machine produced eight times as much.

Factories

1. How did the textile industry become the first to be industrialized?

2. What are factories?

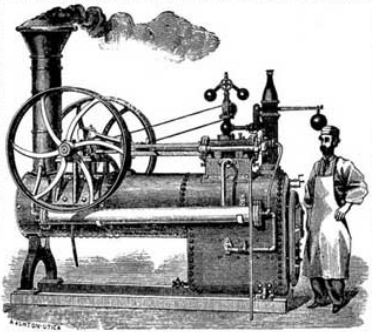3. Why were factories created?

4. How did new technology change the cotton industry?

Innovations in Energy

Industry required a large amount of power to operate. As machines grew larger, machines had to be placed in buildings known as **factories.** The machines that were in the factories were too big and required more power than a person could supply. These factories needed a new source of power.

Waterpower was the first source of power other than provided by humans. Waterpower was provided by streams and rivers. The moving water would power factories and their machines. Because of this, factories needed to be built by streams and rivers, forcing factories owners to build in certain areas.

Since waterpower did not allow for factories to be built where water was not, a search for an alternative source of power was in progress. In 1765, *James Watt* produced the **steam engine**. The steam engine provided a cheap source of power that quickly replaced water as a source of power.

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Innovations in Energy

1. What provided waterpower? How did they power factories?

2. Where did factories have to be built to use water as a source of power?

3. How did waterpower limit factories?

4. What new source of power replaced water? Why?

New Transportation

The introduction of the **steam engine** brought enormous change to the way people moved around. Transportation, once completed by walking or using an animal, was being transformed. New inventions for quicker water and land transportation revolutionized business and ordinary life.

The **steam engine** was used first successfully used on water by an American inventor named *Robert Fulton*. Fulton made his trip along New York's Hudson River. In response, England soon jumped on board and incorporated the **steam ship** into its culture. Water transportation improved with the creation of canals. The steam ship and its effects significantly cut the costs of transporting natural resources and finished goods.

Steam-driven machinery also powered a new source of land transportation. The **steam-driven locomotive** (a train) was introduced in 1820. George Stephenson began working on the world's first railroad in 1821 and by 1825 it was running, connecting coal fields to ports. Railroads, from this moment on, revolutionized life in Britain. Industrial growth and production increased because manufacturers, farmers, and fishermen were able to ship goods quick and cheap. New jobs were created to build new railroads. The everyday person was also impacted as travel was quicker and easier.

New Transportation

1. How did the steam engine impact the industrial revolution?

2. How did England respond to the steam engine?

3. What was the impact of the steam ship?

4. How did the steam-driven locomotive and railroads impact Britain?