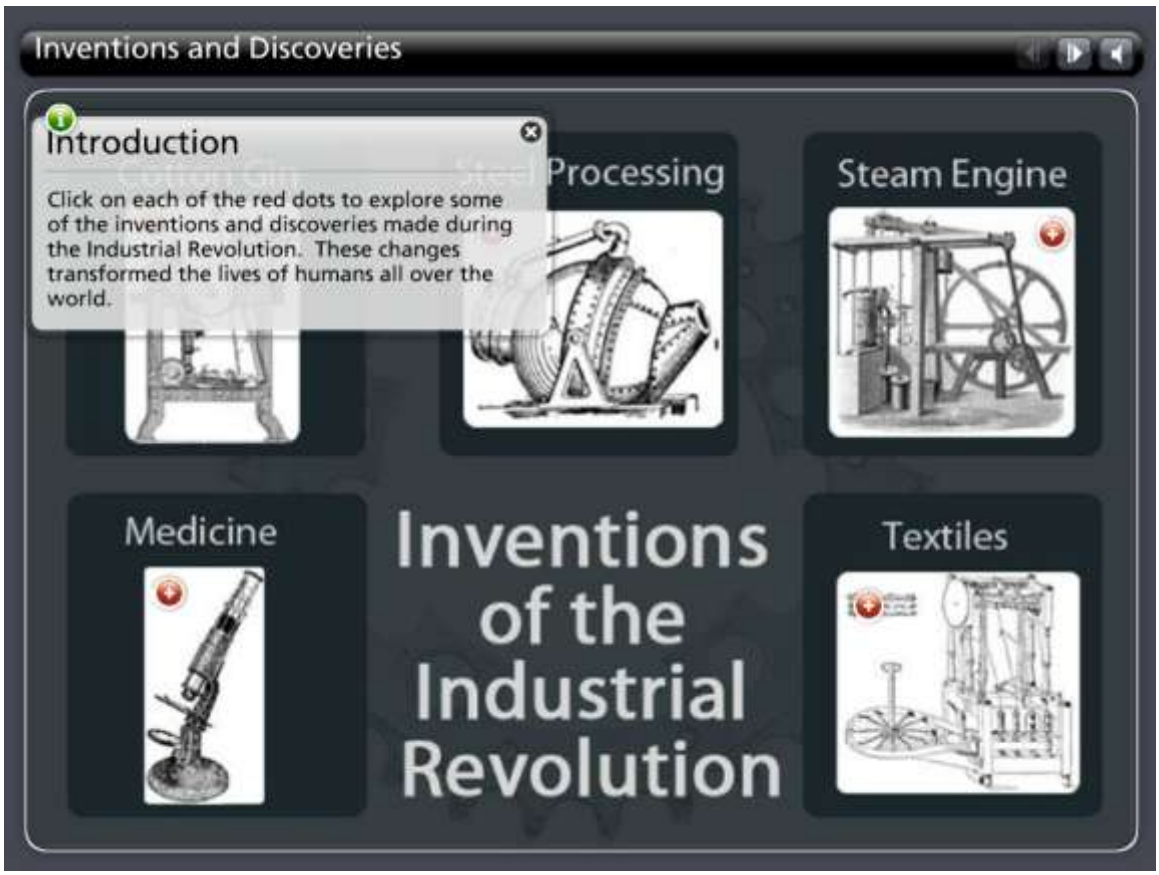
# Module 7: The Industrial Revolution and Its Impact
## Topic 1 Content: Inventions and Discoveries

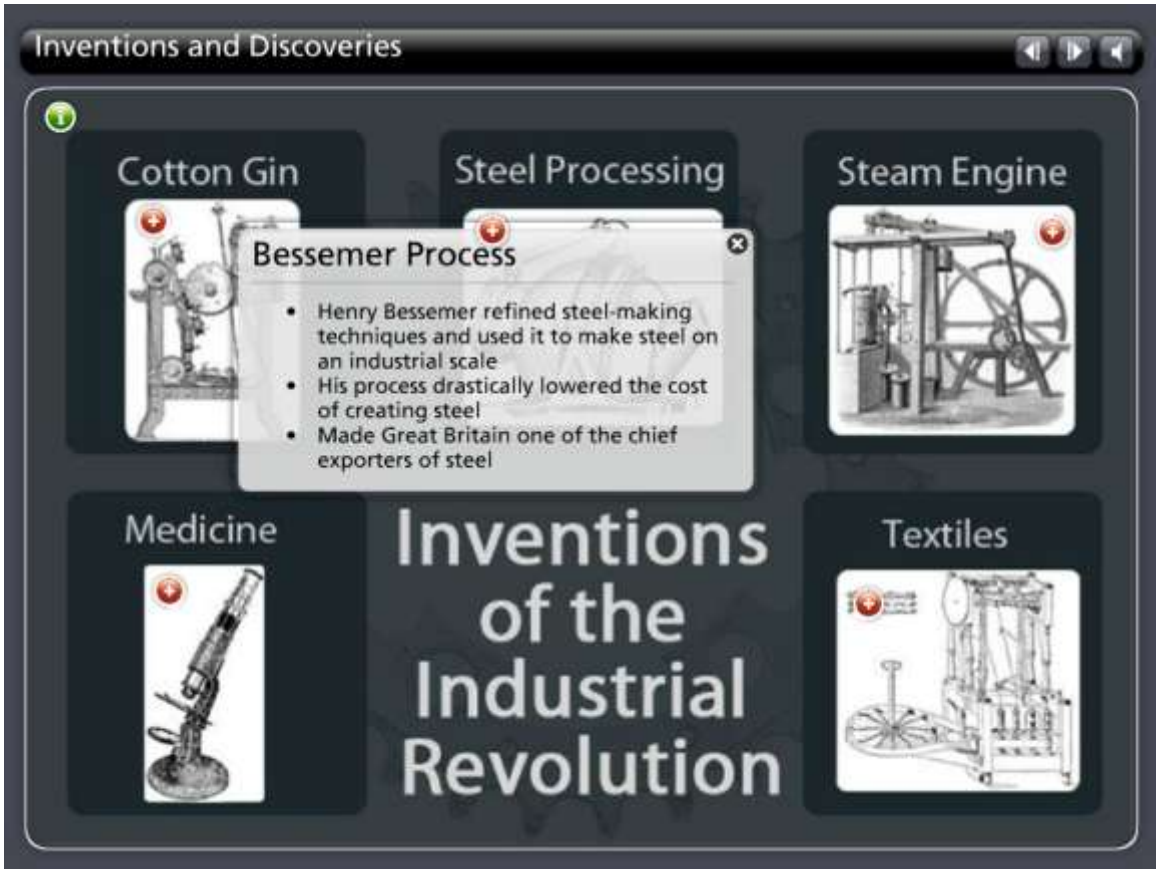
### Introduction



## Whitney's Cotton Gin

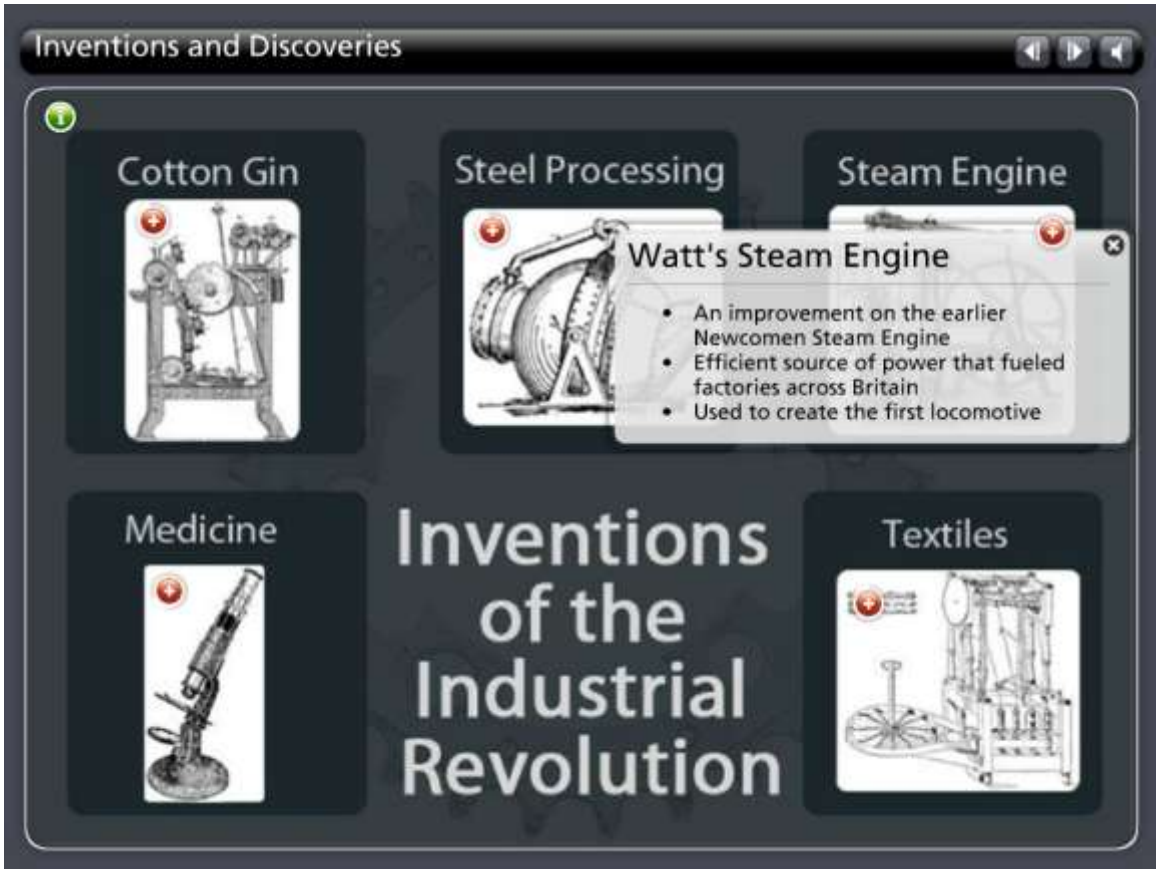

An American by the name of Eli Whitney invented the cotton gin that separated the seeds from picked cotton. This device allowed more people to start growing cotton because it was much more profitable. As a result, America became the major supplier of raw cotton to England. Since most of the cotton in America was grown on land using slave labor, the demand for slaves grew in order to produce more cotton.

## Bessemer Process



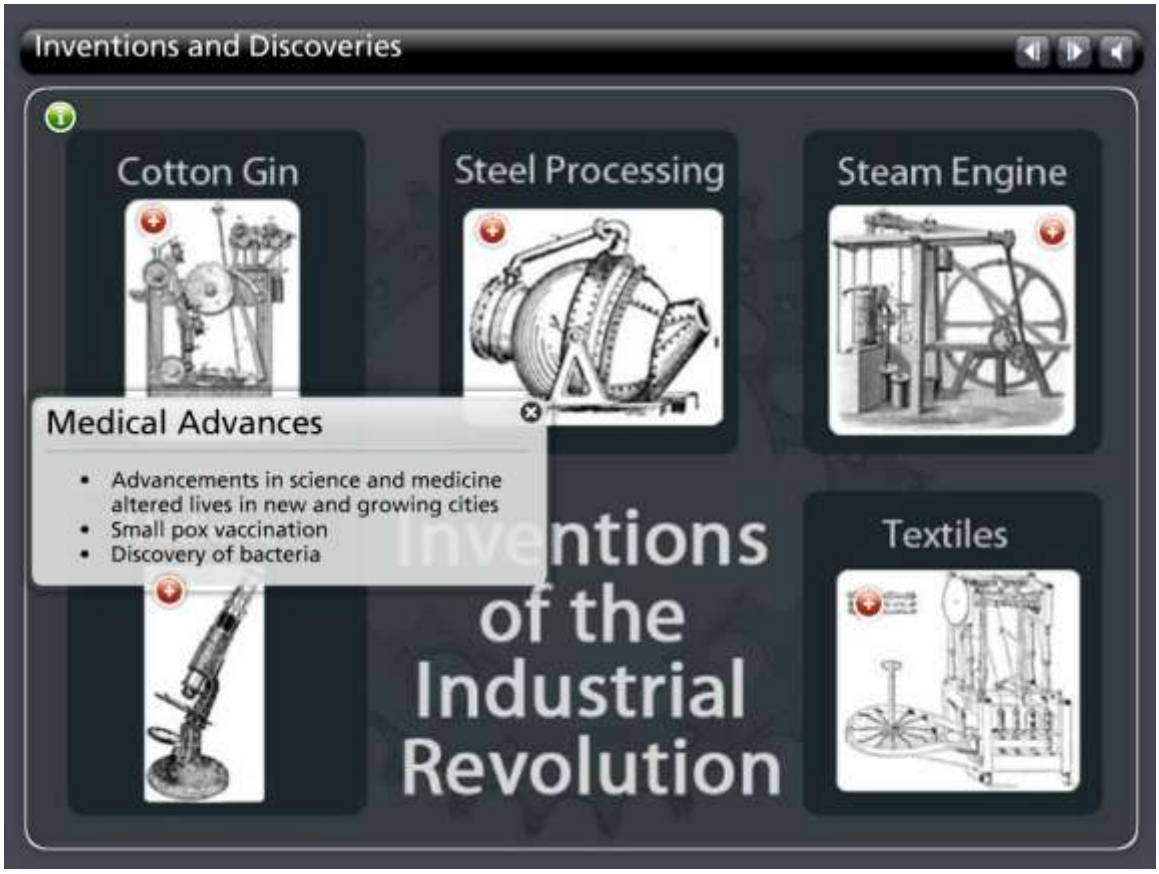

Henry Bessemer refined existing techniques for making steel and developed a process for making it on an industrial scale. His patented process drastically lowered the cost of creating steel and helped make Great Britain one of the chief exporters of steel. As steel production increased because of its lower cost, its use transformed all aspects of life, from newly built bridges to the creation of new industries.

## Watt's Steam Engine




Later inventors such as James Watt would improve the design of the Newcomen Steam Engine, and eventually steam power was used to create the first locomotive that could travel at a record speed of five miles per hour. The steam engine locomotive led to the creation of railroads, which began to spread across England. Rail transport significantly affected society and increased industrial development as it became faster and cheaper to transport supplies, raw materials, and manufactured goods. The railroad industry provided thousands of new jobs, and more people were able to travel much farther distances than ever before.

## Medical Advances



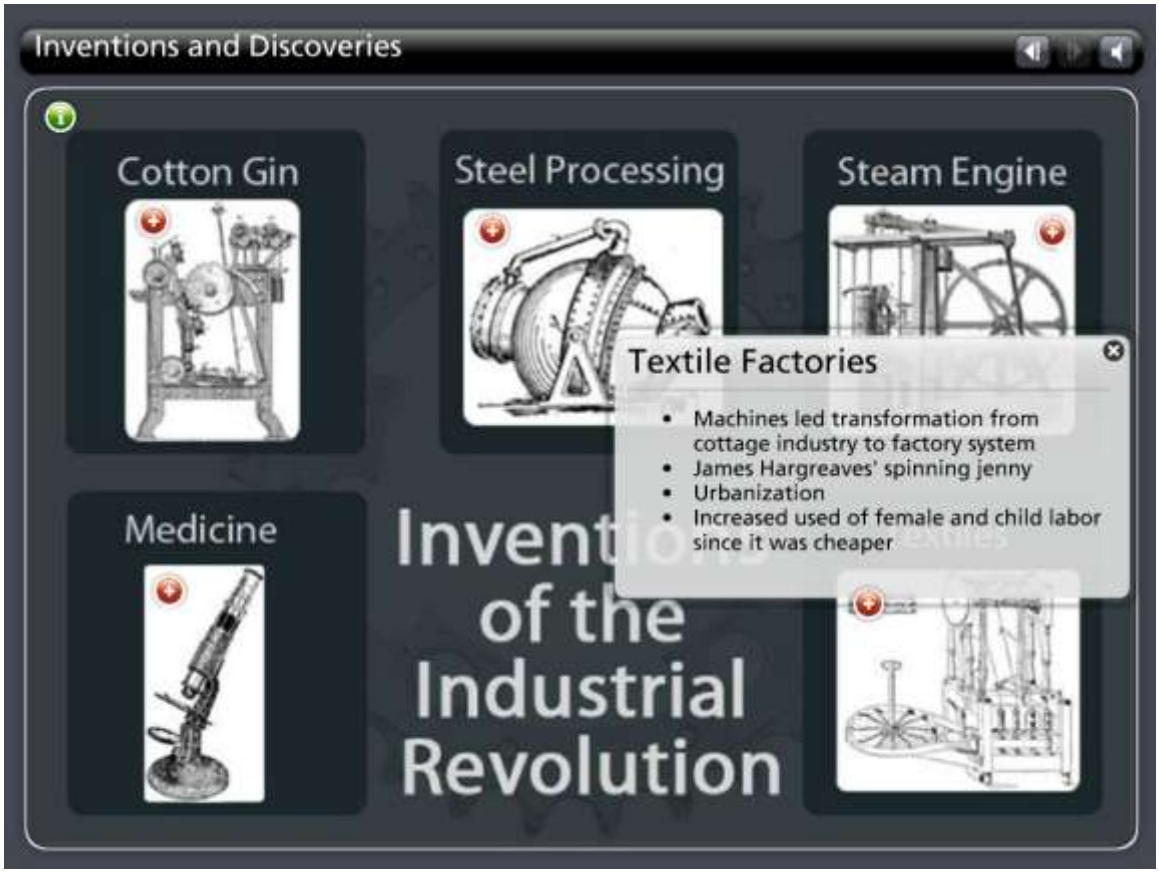

During the Industrial Revolution, advancements in science and medicine altered the lives of people living in the new and growing cities. Two of the most important were the development of the smallpox vaccination and the discovery of bacteria.

Edward Jenner first came up with his idea for vaccines from the popular myth that milkmaids did not contract the smallpox virus after being exposed to the cowpox virus. To test his theory, he gave cowpox to a child, and then a few weeks later, gave the child the smallpox virus. The child was immune to the deadly smallpox virus, and therefore, did not contract the virus. This discovery was the foundation for his smallpox vaccination.

Remember that during the Age of Discovery, the Native American populations declined rapidly because Europeans brought smallpox with them from the old world. Eventually, the smallpox vaccination led to the eradication of the disease by the 1970s. It became the first disease eliminated in human history.

Another important scientific development during this time came about after Louis Pasteur discovered bacteria in wine, beer, and milk. This led to his development of a process called pasteurization, in which a liquid is heated to a certain temperature, thereby killing enough of the bacteria to make the food safe.

## Textile Factories




A number of inventions transformed the textile industry from a cottage industry, in which most of the work took place in people's homes, to a factory system, in which people operated large, expensive machines in factories.

One such invention was James Hargreaves' spinning jenny, which allowed the spinning and weaving of cloth to be done by machines rather than by hand. These inventions had a dramatic impact on people's lives as they moved to cities to become workers running the machines in the new factories rather than working from home. As work became mechanized, many businesses hired women and children since they could pay them lower salaries.