

## **VI. The Industrial Revolution**

### A. Definition

1. A “revolution” is a period in history where an important change occurs quickly.
2. The “Industrial Revolution” is a rapid change in human “industry”--the work that people do in order to live on earth.
3. This revolution has many parts. It involves changes in the ways that people make food, water, clothing, shelter, and medicine, but also in the way they make other things – such as means of transportation and communication – that help people obtain these things.

### B. How Clothes Are Made

1. For thousands of years of recorded history, clothing was made the same way.
  - a) Wool and cotton, was farmed, and cleaned.
  - b) Then a person would have to “spin” a thread from a clump of this material
  - c) After “spinning” came weaving, where threads were combined together to make cloth.
  - d) From there cloth, was cut and sewn into clothing.
2. This was a very slow process, because a woman could only spin one thread at a time.

### C. The Textile Revolution: Spinning, Weaving, and Ginning

1. The first revolution in cloth-making came in the area of spinning, when a man named James Hargreaves invented a machine called the “Spinning Jenny.” Using this machine a woman could spin eight or even sixteen threads at once.
2. Another inventor, Samuel Crompton, improved on this design by creating the “Spinning Mule,” which could allow a single person to spin 200 threads at once.
3. When these inventions were put in factories with powerful engines driving the spinning machines, a single person could create 4000 threads at once!
4. The new challenge was to be able to weave all this thread!
5. Edmund Cartwright, another inventor, created the “Power Loom,” which could weave cloth 200 times faster than a person.
6. Finally, Ely Whitney, an American inventor invent the “Cotton Gin,” which allowed a worker to clean 5000 times more cotton than before, thus providing more raw material for spinning and weaving.

### D. The Importance of Transportation

1. One needs means of transportation in life as much as one needs food, water, clothing, shelter and medicine because one needs transportation in order to reach these things!
2. To reach a hospital, one takes a car, or – in an emergency – an ambulance. Trucks bring food to supermarkets. Water is transported to our homes in pipelines and pipes. The materials to construct our homes are brought in trains and trucks. Clothing (now mostly made in China and Taiwan) is brought to America in boats.

### E. Basic Forms of Transportation

1. Before the Industrial Revolution, humans could transport materials on their own backs, or by using animals such as horses. Some people used wheels to make carts.
2. Travel over the oceans was limited to sail ships using wind power. To travel down a river one could use the current, but not going upstream!

## F. The Transportation Revolutions

1. In 1764, Samuel Watt, a Scottish inventor, created a steam engine that could be attached to ships or carts and used as a motor.
2. Steamships were built which used the same kind of engine, and could thus travel against the wind and upstream.
3. The first train that used such an engine to transport people from Liverpool to London in England was able to make the journey in 10 hours, where previously it took 60 hours by carriage.
4. In 1869, the first transcontinental railroad was created across the United States.
5. After trains, came automobiles, planes, and spaceships.
6. The fastest a human being could move before the industrial revolution was 25 miles/hr. Now, in a spaceship, a person can move at the speed of 25,000 miles/hr!

## G. The Importance of Communication Technology

1. One needs means of communication to survive, whether this means calling 9-11 to reach the fire department, or calling Nconnects.com to reach a history teacher and get educated!
2. Books, music, television, and the Internet, allow us to gain knowledge, relax, and find inspiration to work.

## H. The Communication Revolution and the “Speed of Ideas and Information”

1. Before the Industrial Revolution, a letter could be taken from one city to another at a speed of 4 miles/hr. The Pony Express could do it at 8 miles/hr.
2. In 1832, an inventor named Samuel Morse, wondered if information could be passed along a wire using electricity, which moves “instantaneously.” He invented the telegraph that sent a signal at the speed of electricity, which is 400,000,000 mi/hr!
3. Then Alexander Graham Bell discovered how to send sound along an electrical wire, thus inventing the telephone.
4. The last great advance was accomplished when Guglielmo Marconi, discovered how to send sound on “radio waves” in 1902.