The Scientific Revolution
1543 – 1687

Causes of the Scientific Revolution:
The Scientific Revolution was a time when many new discoveries were made in science and philosophy. While only affecting the elite at first, the ideas developed during this time eventually spread to everyone in Europe.

- Scientists noticed issues with older theories and some even questioned older thinkers.
- Ancient scientists’ theories that disagreed with old theories were rediscovered by humanists.
- New technology used in everyday life was implemented in scientific fields.
- Competition brewed between areas who wanted to use technology as a weapon of war.

Scientists:

- **Nicolas Copernicus (1473-1543)**: Polish priest and astronomer who suggested that the sun was at the center of the universe and was revolved around by planets in circular orbits. Because many of his ideas contradicted the Bible, he did not publish his *The Revolution of Heavenly Bodies* (1543) until his death.
- **Johannes Kepler (1571-1630)**: Reworked Copernicus’s theory and used the observations of Tycho Brahe (1546-1601) to come up with the idea that planets orbit the sun in elliptical orbits. Kepler’s *First Law* stated this, while his *Second Law* stated that the planets moved through an equal amount of space in an equal amount of time.
- **Galileo Galilei (1546-1642)**: The first scientist to use the telescope, he discovered some of Jupiter’s moons. His works supported Copernicus, getting him in trouble with the Spanish Inquisition on multiple occasions. He was forced to recant and stay on house arrest, where he developed the *Theory of Inertia* and also developed the *scientific method*.
- **Isaac Newton (1642-1727)**: His *The Principa* described three laws of motion a law of universal gravitation. He also further developed the *scientific method*.

Parts Of The Scientific Method:

- **Empiricism**: Formalized by Francis Bacon (1561-1626), it was the theory that all knowledge came from self-experience.
- **Rationalism**: Advocated by Rene Descartes (1596-1650), it was the belief that opinions and actions should be based on reason and knowledge.

Effects:
The Scientific Revolution greatly changed human understanding, as individuals began to believe that the universe could be reduced to mathematical laws; the universe was no longer mysterious and unable to be understood.

- It was believed that people could control their own destiny.
- Natural laws could influence politics, economics, on ethics.
- Science became popular and many scientific societies emerged.
- Knowledge was gained from discoveries made during this time.
- More developments occurred as people began to question old theories or ways of thinking.
- There was a loss of faith among many after it was discovered that the earth was not the center of the universe.
Social Patterns and Culture:

Everyday Life:

- An increase in population in the seventeenth century led to:
  - Overcrowding
  - Larger Armies
  - More Crime
  - More Taxes

- Despite this, food prices did not rise, which greatly hurt peasants.
- An emphasis on education led to an improved literacy rate and the reading of more books.