



# Unit 4

## The Scientific Revolution and the Enlightenment

# Scientific Revolution

- Greek dependence on **logic**; *the use of reasoning to describe relationships*
- **Scientific Revolution**; *beginning in the sixteenth century, the series of discoveries about the nature of the world and the universe that broke with traditional teachings based on religion or the works or classical authorities.*

# ***Experimental (Scientific) Method***

- developing a theory regarding some aspect of the physical environment, formulating a hypothesis that can be tested, conducting the test under controlled conditions, and observing the results from which conclusions will be drawn.

# New Concepts

- **Geocentric** (having or representing the Earth as a centre) vs. **Heliocentric** (having or representing the Sun as a centre)
- Work of: Copernicus,(heliocentric) Brahe(observatory), Kepler(elipse), Galilei(telescope), Newton(gravity)

# New Concepts

- ***Inductive method*** (reasoning from particular facts or examples to a general conclusion)
  - For example, “Previous accidents of this sort were caused by instrument failure, and therefore, this accident was caused by instrument failure.”
- ***Deductive method*** (reasoning from a general proposition to a specific instance)
  - For example, “John must be in either the museum or in the cafeteria. He is not in the cafeteria; therefore he is must be in the museum.”

# New Concepts

- ***Empiricism***: a reliance upon experience, that is, the use of experiment and observation in the search for knowledge
- ***Deism***: a belief that God had created a universe which , like a machine, runs according to fixed laws.

# Enlightenment

- The major intellectual movement of the late 17<sup>th</sup> and most of the 18<sup>th</sup> centuries
- ***Materialistic Philosophy***: where one tries to explain everything in the universe in terms of matter and motion; forces then can be detected by human senses.

# Age of Reason

- ***Philosophes***: the liberal French philosophers of the Enlightenment
- Belief in deism, humanitarians (one who wishes to improve the living standards of all humanity), belief that the future could be better than the past



# Prominent Individuals

- Hobbes: chaos, contracts
- Locke: Natural rights, “blank minds”
- Rousseau: Social Contract
- Voltaire: “enlightened despot” (an absolute ruler who understands and applies the principles of the Enlightenment in government), common sense, freedom of thought
- Montesquieu: division of powers
- Diderot: Encyclopédie
- Physiocrats, Adam Smith: “Laissez-faire”

# Threatened Institutions

- Church skepticism (disbelief):
  - Agnostic: one who questions whether or not there is a God because material proof is lacking
  - Atheist: one who denies the existence of God

# Arts

- Revival of Greek classicism
- Classical Style (beauty through structure)
  - Bach, Handel, Haydn, Mozart