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Notes for UG semester 4

Scientific Revolution: Meaning and Major Scientists

Meaning of the Scientific Revolution

The Scientific Revolution refers to a major transformation in scientific thinking that took place in Europe between the 16th and 17th centuries. During this period, traditional beliefs based on Church authority and ancient texts were replaced by observation, experimentation, and reason.

It laid the foundation of modern science and greatly influenced the Enlightenment.

Major Scientists and Their Contributions

1. Nicolaus Copernicus (1473–1543)

Copernicus proposed the heliocentric theory, stating that the Sun is the center of the universe and the Earth revolves around it. This challenged the traditional geocentric view supported by the Church.

2. Galileo Galilei (1564–1642)

Galileo supported Copernicus using astronomical observations with the telescope.

He emphasized experimentation and scientific method and is known as the father of modern science.

3. Johannes Kepler (1571–1630)

Kepler discovered the three laws of planetary motion, proving that planets move in elliptical orbits. His work strengthened the heliocentric theory.

4. Isaac Newton (1643–1727)

Newton formulated the laws of motion and the law of universal gravitation.

His book Principia explained the universe through mathematical laws and unified earlier scientific discoveries.

5. Francis Bacon (1561–1626)

Bacon emphasized the scientific method based on observation and experimentation.

He argued that knowledge should be used for the progress of society.

Conclusion

The Scientific Revolution changed the way people understood nature and knowledge. It promoted reason, scientific method, and rational thinking, and prepared the ground for the Enlightenment and modern scientific development.