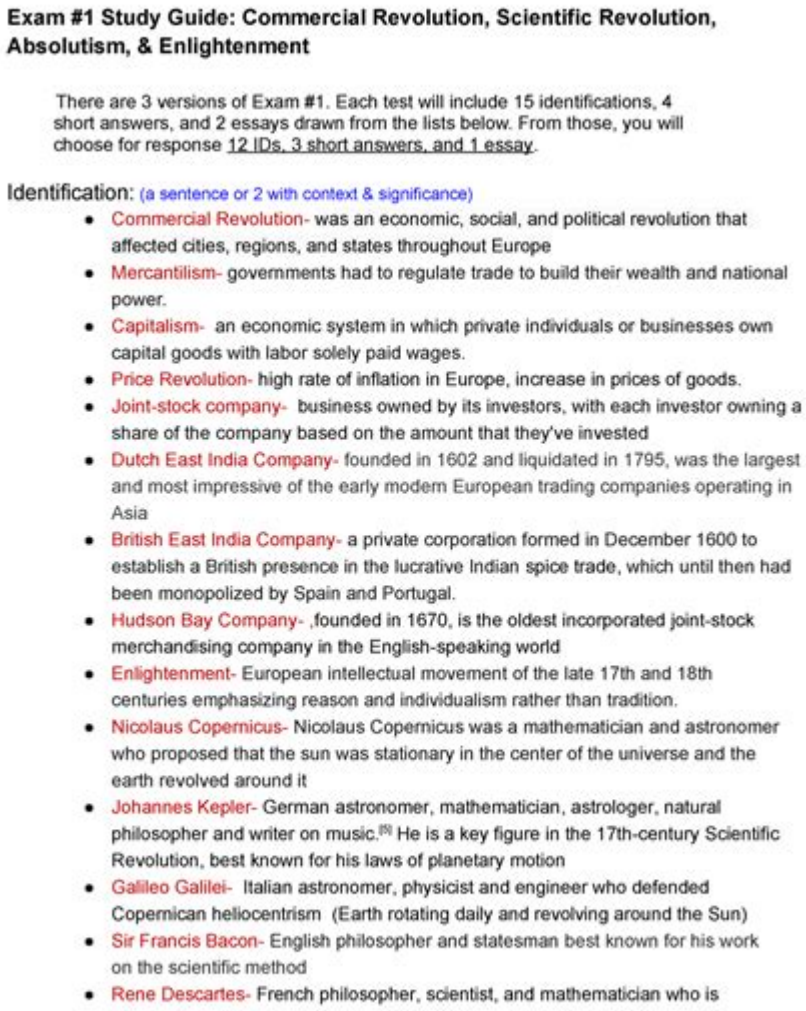
Study Guide Scientific Revolution Answers



Exam #1 Study Guide: Commercial Revolution, Scientific Revolution, Absolutism, & Enlightenment

There are 3 versions of Exam #1. Each test will include 15 identifications, 4 short answers, and 2 essays drawn from the lists below. From those, you will choose for response 12 IDs, 3 short answers, and 1 essay.

Identification: (a sentence or 2 with context & significance)

- Commercial Revolution- was an economic, social, and political revolution that affected cities, regions, and states throughout Europe
- Mercantilism- governments had to regulate trade to build their wealth and national power.
- Capitalism- an economic system in which private individuals or businesses own capital goods with labor solely paid wages.
- Price Revolution- high rate of inflation in Europe, increase in prices of goods.
- Joint-stock company- business owned by its investors, with each investor owning a share of the company based on the amount that they've invested
- Dutch East India Company- founded in 1602 and liquidated in 1795, was the largest and most impressive of the early modern European trading companies operating in Asia
- British East India Company- a private corporation formed in December 1600 to establish a British presence in the lucrative Indian spice trade, which until then had been monopolized by Spain and Portugal.
- Hudson Bay Company- ,founded in 1670, is the oldest incorporated joint-stock merchandising company in the English-speaking world
- Enlightenment- European intellectual movement of the late 17th and 18th centuries emphasizing reason and individualism rather than tradition.
- Nicolaus Copernicus- Nicolaus Copernicus was a mathematician and astronomer who proposed that the sun was stationary in the center of the universe and the earth revolved around it
- Johannes Kepler- German astronomer, mathematician, astrologer, natural philosopher and writer on music.[5] He is a key figure in the 17th-century Scientific Revolution, best known for his laws of planetary motion
- Galileo Galilei- Italian astronomer, physicist and engineer who defended Copernican heliocentrism (Earth rotating daily and revolving around the Sun)
- Sir Francis Bacon- English philosopher and statesman best known for his work on the scientific method
- Rene Descartes- French philosopher, scientist, and mathematician who is

Study guide scientific revolution answers are essential for anyone looking to deepen their understanding of one of the most transformative periods in human history. The Scientific Revolution, which spanned from the late Renaissance to the 18th century, marked a significant shift in the way people viewed the world and their place in it. This article will provide a comprehensive study guide that outlines key concepts, influential figures, and major discoveries during this era, along with answers to common questions that arise in the study of the Scientific Revolution.

Understanding the Scientific Revolution

The Scientific Revolution was a period characterized by a surge in scientific thought and inquiry. This era laid the groundwork for modern science and changed the way humans

understood the natural world. The movement was marked by several key developments:

- The shift from a geocentric (Earth-centered) view of the universe to a heliocentric (Sun-centered) model.
- The establishment of the scientific method as a systematic way to approach scientific inquiry.
- Major advancements in various fields such as astronomy, physics, biology, and chemistry.

Key Figures of the Scientific Revolution

Several notable figures played pivotal roles during the Scientific Revolution. Understanding their contributions can help clarify the evolution of scientific thought.

1. Nicolaus Copernicus (1473-1543)

Copernicus is best known for proposing the heliocentric model of the solar system in his seminal work, De revolutionibus orbium coelestium. His theory suggested that the Earth and other planets revolve around the Sun, challenging the long-held Aristotelian view.

2. Galileo Galilei (1564-1642)

Often referred to as the "father of modern observational astronomy," Galileo made significant improvements to the telescope and conducted groundbreaking observations, including the moons of Jupiter. His support for the heliocentric model led to conflict with the Catholic Church.

3. Johannes Kepler (1571-1630)

Kepler built on Copernicus's work and formulated three laws of planetary motion, which described the orbits of planets around the Sun as elliptical rather than circular. His laws provided a mathematical foundation for celestial mechanics.

4. Isaac Newton (1642-1727)

Newton's contributions to the Scientific Revolution culminated in his work, Philosophiæ Naturalis Principia Mathematica. He formulated the laws of motion and universal

gravitation, which unified celestial and terrestrial mechanics, establishing a comprehensive framework for understanding physical phenomena.

Major Discoveries and Innovations

The Scientific Revolution was marked by numerous discoveries that transformed scientific thought. Here are some of the most significant:

- **Heliocentrism:** The realization that the Sun is at the center of the solar system.
- **Gravity:** Newton's law of universal gravitation explained how objects attract each other.
- **Scientific Method:** A systematic approach to experimentation and observation developed by thinkers like Francis Bacon and René Descartes.
- **Advancements in Anatomy:** Figures like Andreas Vesalius revolutionized the study of human anatomy through detailed dissections.
- **Optics:** Discoveries in light and vision, including the work of Johannes Kepler on lenses and the formation of images.

The Impact of the Scientific Revolution

The Scientific Revolution had profound implications for society, philosophy, and religion. Its impact can be categorized into several key areas:

1. Change in Worldview

The shift from a religious and superstitious understanding of the world to a more empirical and rational approach fundamentally changed how people perceived nature and their place in the universe. This laid the groundwork for the Enlightenment, a period characterized by a focus on reason and individualism.

2. Development of Scientific Institutions

As scientific inquiry gained prominence, institutions dedicated to research and education emerged. The Royal Society in England and the Académie des Sciences in France became centers for scientific discourse and collaboration, helping to formalize scientific study.

3. Challenges to Authority

The findings of the Scientific Revolution often contradicted established religious and political authorities. This led to tensions and conflicts, such as Galileo's trial by the Inquisition, highlighting the struggle between science and traditional beliefs.

Common Questions and Answers

Understanding the Scientific Revolution can raise various questions. Here are some of the most frequently asked questions along with their answers.

What were the key factors that led to the Scientific Revolution?

Several factors contributed to the Scientific Revolution, including:

1. The Renaissance's revival of classical learning and humanism.
2. The invention of the printing press, which facilitated the spread of new ideas.
3. Increased observation and exploration of the natural world, including voyages of discovery.
4. Support from wealthy patrons and emerging scientific societies.

How did the Scientific Revolution influence the Enlightenment?

The Scientific Revolution laid the intellectual foundation for the Enlightenment by promoting the use of reason and empirical evidence. Enlightenment thinkers drew on scientific methodologies and ideas to challenge traditional authority and advocate for individual rights and freedoms.

What is the significance of the Scientific Method?

The Scientific Method is a systematic approach to inquiry that emphasizes observation, experimentation, and the formulation of hypotheses. Its significance lies in its ability to produce reliable and repeatable results, which are crucial for the advancement of scientific knowledge.

Conclusion

In summary, **study guide scientific revolution answers** provide valuable insights into a crucial period in the evolution of human thought. By exploring the key figures, discoveries, and impacts of the Scientific Revolution, students can gain a deeper appreciation for how this era has shaped modern science and our understanding of the universe. Whether you are a student preparing for an exam or a curious learner seeking to expand your knowledge, understanding the Scientific Revolution is essential for grasping the foundations of contemporary scientific practice.

Frequently Asked Questions

What were the main causes of the Scientific Revolution?

The main causes of the Scientific Revolution include the Renaissance's emphasis on humanism, the invention of the printing press, advancements in mathematics and astronomy, and the challenge of traditional authorities, such as the Church.

Who are some key figures of the Scientific Revolution?

Key figures of the Scientific Revolution include Nicolaus Copernicus, Galileo Galilei, Johannes Kepler, Isaac Newton, and Francis Bacon, each contributing significantly to the development of modern science.

What was the heliocentric theory and who proposed it?

The heliocentric theory is the astronomical model that places the Sun at the center of the universe, proposed by Nicolaus Copernicus, which challenged the geocentric model that placed the Earth at the center.

How did the Scientific Revolution impact religion?

The Scientific Revolution led to conflicts between scientific discoveries and religious beliefs, as many findings contradicted the traditional teachings of the Church, ultimately contributing to a more secular world view.

What role did the scientific method play during the Scientific Revolution?

The scientific method, developed by thinkers like Francis Bacon and René Descartes, emphasized empirical observation and experimentation, which allowed for systematic investigation and verification of scientific theories.

What was Isaac Newton's contribution to the Scientific Revolution?

Isaac Newton's contribution included the formulation of the laws of motion and universal gravitation, which provided a comprehensive framework for understanding physical

phenomena and laid the groundwork for classical mechanics.

How did the Scientific Revolution influence the Enlightenment?

The Scientific Revolution laid the intellectual groundwork for the Enlightenment by promoting reason, skepticism of authority, and the pursuit of knowledge through empirical evidence, which influenced thinkers in philosophy, politics, and social sciences.

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