



Enlightenment and Revolution, 1550-1789

Enlightenment scientists and thinkers produce revolutions in science, the arts, government, and religion. New ideas lead to the American Revolution.



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Enlightenment and Revolution, 1550-1789

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SECTION 2 The Enlightenment in Europe

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The Scientific Revolution

In the mid-1500s, scientists begin to question accepted beliefs and make new theories based on experimentation.



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Section-1

The Scientific Revolution

The Roots of Modern Science

The Medieval View

- Most knowledge in Middle Ages comes from Bible, Greek/Roman sources
- Supports **geocentric theory**—moon, sun, planets revolve around earth

A New Way of Thinking

- Renaissance prompts new ways of thinking (1300–1600)
- **Scientific Revolution**—new way of viewing natural world—based on observation, inquiry
- New discoveries, overseas exploration open up thinking
- Scholars make new developments in astronomy, mathematics



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A Revolutionary Model of the Universe

The Heliocentric Theory

- Widely accepted geocentric theory challenged as inaccurate
- Copernicus develops **heliocentric theory**—planets revolve around sun
- Later scientists mathematically prove Copernicus to be correct

Galileo's Discoveries

- Italian scientist **Galileo Galilei** makes key advances in astronomy
 - makes discovery about planet surfaces, supports heliocentric theory



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A Revolutionary Model of the Universe *{continued}*

Conflict with the Church

- Church attacks Galileo's work, fears it will weaken people's faith
- Pope forces Galileo to declare his and other new findings are wrong



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The Scientific Method

A Logical Approach

- Revolution in thinking leads to development of **scientific method**
-series of steps for forming, testing scientific theories

Bacon and Descartes

- Thinkers Bacon and Descartes help to create scientific method
- Bacon urges scientists to experiment before drawing conclusions
- Descartes advocates using logic, math to reason out basic truths



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Newton Explains the Law of Gravity

Newton's Theories

- English scientist **Isaac Newton** develops theory of motion-states same forces rule motion of planets, matter in space, earth
- Motion in space, earth linked by the law of universal gravitation-holds that every object in universe attracts every other object
- Newton views universe as a vast, perfect mechanical clock



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The Scientific Revolution Spreads

Scientific Instruments

- Scientists develop microscope, barometer, thermometer
- New instruments lead to better observations, new discoveries

Medicine and the Human Body

- Andreas Vesalius improves knowledge of anatomy
- Edward Jenner produces world's first vaccination—for smallpox

Discoveries in Chemistry

- Robert Boyle argues that matter is made of many different particles
- Boyle's law reveals interaction of volume, temperature, gas pressure



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The Enlightenment in Europe

A revolution in intellectual activity changes Europeans' view of government and society.



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The Enlightenment in Europe

Two Views on Government

New Ways of Thinking

- Scientific Revolution spurs reassessment of many prevailing ideas
 - Europeans seek insights into society during 1600s, 1700s
- Leads to the **Enlightenment**—a movement stressing reason and thought

Hobbes's Social Contract

- Hobbes distrusts humans, favors strong government to keep order
- Promotes **social contract**—getting order by giving power to monarch



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Two Views on Government *{continued}*

Locke's Natural Rights

- Philosopher **John Locke** says government gets power from the people
- Stresses that people have a right to overthrow an unjust government



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The Philosophes Advocate Reason

Beliefs of the Philosophes

- The **philosophes** are French social critics in the mid-1700s
- Value reason, nature, happiness, progress, liberty

Voltaire Combats Intolerance

- **Voltaire**—influential philosophe, pen name of François Marie Arouet
- Publishes many works arguing for tolerance, reason
- Makes powerful enemies and is imprisoned twice for his views



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The Philosophes Advocate Reason *{continued}*

Montesquieu and the Separation of Powers

- **Montesquieu**—French writer who admires Britain's government system
- Favors separation of powers to keep one body from running government

Rousseau: Champion of Freedom

- **Rousseau**—philosophe who favors individual freedom, direct democracy
- Views social contract as agreement by free people to form government

Beccaria Promotes Criminal Justice

- Italian philosopher Cesare Beccaria works to reform justice system
- Calls for speedy trials, greater rights for criminal defendants



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Women and the Enlightenment

Views on Women's Education Change

- Many Enlightenment thinkers take traditional views of women's role
- Prominent writer **Mary Wollstonecraft** urges greater rights for women:
 - argues women need quality education to be virtuous and useful
 - urges women to go into traditionally male professions like politics
- Some wealthy women use their status to spread Enlightenment ideas



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Legacy of the Enlightenment

Role of the Philosophes

- The philosophes are not activists, but inspire major revolutions

Belief in Progress

- Scientific breakthroughs show human capacity to improve society

A More Secular Outlook

- New knowledge of the world leads people to question religious ideas
- Voltaire and others criticize beliefs and practices of Christianity



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Legacy of the Enlightenment *{continued}*

Importance of the Individual

- People place more emphasis on individual rights, abilities
- Reason becomes a central concept for philosophers, rulers



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The Enlightenment Spreads

Enlightenment ideas spread through the Western world and profoundly influence the arts and government.



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The Enlightenment Spreads

A World of Ideas

Intellectual Life in Paris

- Paris becomes center of the Enlightenment during 1700s
- City is home to **salons**—gatherings where thinkers discuss ideas

Diderot's *Encyclopedia*

- Philosophe Denis Diderot begins publishing Encyclopedia in 1751
 - set of books to which Enlightenment thinkers contribute essays
- Encyclopedia articles anger French government, Catholic Church
- Encyclopedia helps spread Enlightenment ideas across Europe



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New Artistic Styles

Neoclassical Style Emerges

- Pre-Enlightenment art style is **baroque**—grand, ornate design
- Enlightenment style is **neoclassical**, based on Greek/Roman themes

Changes in Music and Literature

- Classical music emerges; lighter, more elegant than earlier style
 - led by composers such as Haydn, Mozart, Beethoven
- Novel emerges; works of fiction with detailed plots and characters
- Samuel Richardson's Pamela considered first true English novel



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Enlightenment and Monarchy

Enlightened Despots

- Spirit of the Enlightenment prompts rise of **enlightened despots**:
 - monarchs who embrace Enlightenment values to strengthen their rule

Frederick the Great

- Frederick II, king of Prussia, reforms education and justice system
- Grants religious freedom, abolishes torture, fails to end serfdom

Joseph II

- Joseph II of Austria allows freedoms of worship and the press
- Abolishes serfdom, but the practice is reinstated after his death



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Enlightenment and Monarchy *{continued}*

Catherine the Great

- **Catherine the Great**—enlightened ruler of Russia, 1762–1796
- Seeks to abolish capital punishment and torture, but effort fails
- Responds to peasant revolt by giving nobles more power over serfs

Catherine Expands Russia

- In foreign affairs, Catherine successfully expands Russian empire
- Gains port access for Russia by seizing northern coast of Black Sea
- Seizes large parts of Poland, increasing empire's size



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The American Revolution

Enlightenment ideas help spur the American colonies to shed British rule and create a new nation.



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The American Revolution

Britain and Its American Colonies

The American Colonies Grow

- American colonies grow large and populous during 1600s, 1700s
- Colonies thrive economically through trade with Europe
 - Britain's Navigation Act restricts that trade (1651)
 - other trade laws add restrictions, taxes
- Colonists identify less and less as British subjects



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Americans Win Independence

British–Colonial Tensions Arise

- Britain, American colonies win French and Indian War in 1763
- Britain taxes colonists to help pay war debts
- Colonists argue that British cannot tax them without their consent

Growing Hostility Leads to War

- Colonists protest tea tax with “Boston Tea Party” in 1773
- Colonists meet in Philadelphia to address British policies (1774)
- British and Americans exchange fire at Lexington and Concord in 1775



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Americans Win Independence *{continued}*

The Influence of the Enlightenment

- Colonial leaders push for independence, rely on Enlightenment ideas
- **Declaration of Independence**—document justifying colonial rebellion
- Leader **Thomas Jefferson** writes Declaration, uses ideas of Locke

Success for the Colonists

- Despite British military might, colonists have advantages:
 - motivating cause of freedom
 - French assistance
 - war's expense for Britain
- British surrender at Yorktown in 1781; colonists win the war



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Americans Create a Republic

A Weak National Government

- Articles of Confederation set government plan for new republic
- Articles create legislature only, no executive or judicial branches
- Result is weak national government fails to provide unity and order

A New Constitution

- Leaders call Constitutional Convention in 1787 to revise articles
- Group instead creates a new government under U.S. Constitution
- Constitution contains many political ideas of the Enlightenment



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Americans Create a Republic *{continued}*

The Federal System

- Constitution creates three branches of government
- Provides **checks and balances**—ensures branches share power equally
- Promotes **federal system**—power divided between nation and states

The Bill of Rights

- Some fear too much national power, few protections of rights
- Leaders win support for Constitution by adding a **Bill of Rights**
-ten amendments to Constitution that protect freedoms



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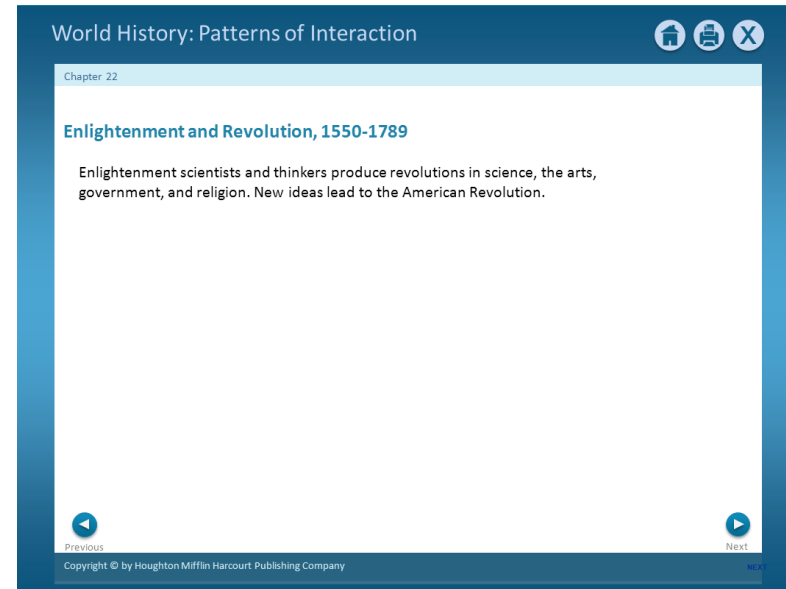
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