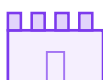


Scientific, Philosophical, and Political Developments

AP European History • Unit 4

AP European History



Scientific, Philosophical, and Political Developments

What we will cover

- 1 Contextualizing the Scientific Revolution and the Enlightenment
- 2 The Scientific Revolution
- 3 The Enlightenment
- 4 18th-Century Society and Demographics
- 5 18th-Century Culture and Arts
- 6 Enlightened and Other Approaches to Power

1

Contextualizing the Scientific Revolution and the Enlightenment

Scientific, Philosophical, and Political Developments

↳ Contextualizing the Scientific Revolution and the Enlightenment

Contextualizing the Scientific Revolution and the Enlightenment

Unit 4 rests on one claim, and it is worth learning in the CED's own words: the spread of **Scientific Revolution** 科学革命 concepts and practices, and the **Enlightenment's application of those concepts and practices to political, social, and ethical issues** 政治、社会与伦理问题, **fostered debate about the role of the individual in relation to the state and society**.

A method developed for studying nature was turned on human institutions, and the result was a set of arguments about what a government owes the people it rules.

2

The Scientific Revolution

Scientific, Philosophical, and Political Developments

↳ The Scientific Revolution

The Scientific Revolution

New ideas and methods in astronomy led **Copernicus** 哥白尼, **Galileo** 伽利略, and **Newton** 牛顿 to **question the authority of the ancients** 古人的权威 and develop a heliocentric view of the cosmos.

- Anatomical and medical discoveries by physicians including **William Harvey** 哈维 presented the body as an **integrated system** 整体系统, challenging inherited medical theory.
- **Francis Bacon** 培根 and **René Descartes** 笛卡尔 defined **inductive and deductive reasoning** 归纳与演绎推理 and promoted experimentation and the use of mathematics.

Scientific, Philosophical, and Political Developments

The Scientific Revolution

The Scientific Revolution, continued

The CED then adds a point students find surprising and examiners like: **alchemy and astrology continued to appeal** to elites and to some natural philosophers, partly because they shared with the new science the assumption that the natural world is governed by discoverable rules.

The Scientific Revolution was not a clean break, and saying so demonstrates real understanding of continuity.

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The Scientific Revolution

Induction and deduction, in opposite directions

BACON — induction
start from **observations**
collect many, look for the pattern
the general claim comes last

DESCARTES — deduction
start from a **certainty** you cannot doubt
reason forward, step by step
the particular claim comes last

Opposite directions of travel. What they share is the target: both refuse to settle a question by citing **the authority of the ancients**

Scientific, Philosophical, and Political Developments

The Enlightenment

3 The Enlightenment

Scientific, Philosophical, and Political Developments

The Enlightenment

A method built for nature, turned on society

The Scientific Revolution *method, built to study nature*

- observation and experiment
- mathematics as the language
- induction and deduction (Bacon, Descartes)
- authority of the ancients is questionable

↓ **applied to society**

The Enlightenment *the same method, turned on society*

- Political** natural rights, the social contract (Locke, Rousseau)
- Economic** free trade, a limited state (Adam Smith)
- Religious** deism, scepticism, atheism; faith becomes private
- Social** salons, print, a literate public debating in the open

The examinable limit: the same movement that argued for equality also produced contested arguments about women's proper role.

The same method, turned on society: political (natural rights), economic (free trade), religious (deism), social (**salons** 沙龙).

Scientific, Philosophical, and Political Developments

The Enlightenment

The Enlightenment

- **Political**: **Locke** 洛克 and **Rousseau** 卢梭 developed new political models based on **natural rights** 天赋权利 and the **social contract** 社会契约. Locke's theory conceived society as composed of individuals driven by self-interest, and argued the state's role was to protect their rights.
- **Economic**: mercantilist theory and practice were challenged by new ideas, including **Adam Smith's** 亚当·斯密, which espoused **free trade** 自由贸易 and a **limited role for the state** in the economy.
- **Religious**: intellectuals including **Voltaire** 伏尔泰 and **Diderot** 狄德罗 developed **deism, scepticism, and atheism** 自然神论、怀疑主义与无神论, and religion came to be seen increasingly as a **private rather than a public concern** 私人事务.
- **Social**: a variety of institutions, notably **salons** 沙龙, explored and disseminated Enlightenment culture.

Scientific, Philosophical, and Political Developments

The Enlightenment

One method, three domains

EMPIRICISM, SCEPTICISM, REASON — applied to human affairs

- POLITICS** — Locke and Rousseau: natural rights, the social contract
- ECONOMICS** — Adam Smith: free trade, a limited role for the state
- SOCIETY** — toleration, and debate about the individual's place in it

The method is the continuity; the **conclusions** are what differ by domain, and a source is always arguing in one of them

4

18th-Century Society and Demographics

Scientific, Philosophical, and Political Developments
└ 18th-Century Society and Demographics

18th-Century Society and Demographics

The demographic story has a clear before and after:

- In the seventeenth century, **small landholdings, low-productivity agriculture, poor transportation, and adverse weather** 不利天气 limited population growth and caused periodic subsistence crises.
- Although the rate of illegitimate births rose in the eighteenth century, growth was still limited by the **European marriage pattern** 欧洲婚姻模式 – late marriage and a significant proportion never marrying.
- As **infant and child mortality decreased** 婴幼儿死亡率 and commercial wealth increased, families dedicated more space and resources to **children** and their education.
- **Cities offered economic opportunities**, which attracted migration from rural areas, transforming urban life and creating new social problems.

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18th-Century Culture and Arts

Scientific, Philosophical, and Political Developments
└ 18th-Century Culture and Arts

18th-Century Culture and Arts

- Despite **censorship** 审查, increasingly numerous and varied printed materials served a growing **literate public** 识字公众 and produced a **public sphere** in which opinion could form outside the state.
- Natural sciences, literature, and popular culture increasingly exposed Europeans to **representations of peoples outside Europe**.
- The arts moved **from the celebration of religious themes and royal power to an emphasis on private life and the public good** 私人生活与公共福祉 – a shift in subject that tracks the shift in authority.
- The **consumer revolution** 消费革命 of the eighteenth century was shaped by a new concern for **privacy** 隐私 and encouraged the purchase of new goods for the home.

6

Enlightened and Other Approaches to Power

Scientific, Philosophical, and Political Developments
└ Enlightened and Other Approaches to Power

Enlightened and Other Approaches to Power

In the eighteenth century a number of states in eastern and central Europe experimented with **enlightened absolutism** 开明专制 – rulers adopting Enlightenment-inspired reforms in law, education, and administration **while retaining absolute authority**. The tension in that phrase is the examinable point.

By 1800 most governments in western and central Europe had **extended toleration to Christian minorities**, and in some states civil rights as well.

Adopted, and never given up

ADOPTED

legal and administrative reform
toleration extended to Christian minorities
the vocabulary of reason and improvement

NOT GIVEN UP

absolute authority over the decision itself
no representative body with a claim on it
the reform is a *grant*, and can be withdrawn

Reform **from** absolute power is not a step away from it. Prussia's rise is the case to test that on

7

Causation in the Age of the Enlightenment

Causation in the Age of the Enlightenment

The unit's reasoning skill is **causation**, applied to how these movements **challenged the existing European worldview**.

Exam tips

- Learn the CED's own sentence: the Enlightenment **applied Scientific Revolution methods to political, social, and ethical issues**. Many questions are answered by unpacking it.
- The Scientific Revolution was **not a clean break** – alchemy and astrology persisted. Continuity points score.
- Group Enlightenment outputs as **political, economic, religious, social**. Four labelled kinds beat a list of names.

Exam tips, continued

- Always note the **limits on equality**, especially regarding women. The CED names them explicitly.
- **Enlightened absolutism** is a tension, not a contradiction: reform without surrendering authority.
- The **public sphere** – print, literacy, salons – is the mechanism by which ideas became political. Use it to explain, not just to describe.