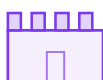


Scientific, Philosophical, and Political Developments

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

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.

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.

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**

3 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).

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.

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

The Enlightenment's method, and Prussia's rise

empiricism 经验主义	knowledge from observation and experiment
rationalism 理性主义	knowledge from reasoning, from first principles
scepticism 怀疑主义	withholding assent from what cannot be shown – turned on tradition and on the church
human reason	applied to nature, then to society, then to government – one method, three domains
alongside it	demographic, environmental, medical and technological changes reshaped everyday experience
Prussia rose to power	as the Holy Roman Empire's sovereignty was limited at Westphalia, leaving space for a militarised state to expand

The Enlightenment's claim is about **method**, not conclusions – which is why thinkers using it disagreed so sharply about what it implied.

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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.

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Enlightened and Other Approaches to Power

Scientific, Philosophical, and Political Developments └ Enlightened and Other Approaches to Power	
Enlightened and Other Approaches to Power	Adopted, and never given up
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 <i>while retaining absolute authority</i>. The tension in that phrase is the examinable point. By 1800 most governments in western and central Europe had <i>extended toleration to Christian minorities</i>, and in some states civil rights as well.	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 <i>grant</i>, 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

Scientific, Philosophical, and Political Developments └ Causation in the Age of the Enlightenment	
7 Causation in the Age of the Enlightenment	Causation in the Age of the Enlightenment
	The unit's reasoning skill is <i>causation</i>, applied to how these movements <i>challenged the existing European worldview</i>.

Scientific, Philosophical, and Political Developments └ Causation in the Age of the Enlightenment	
Worked example – an idea that undermines an authority	Exam tips
“Explain one way in which Enlightenment thought challenged existing political authority in the eighteenth century.” ■ Full marks: “Locke’s theory of natural rights and the social contract held that government exists to protect individuals’ rights and derives its authority from their consent – which directly undermined the claim that a monarch’s authority came from God, because it made legitimacy conditional on performance.” ■ Identify the challenge, then trace what it displaced. An idea challenges an authority only by contradicting the specific claim that authority rests on. Name that claim.	■ Learn the CED’s own sentence: the Enlightenment <i>applied Scientific Revolution methods to political, social, and ethical issues</i>. Many questions are answered by unpacking it. ■ The Scientific Revolution was <i>not a clean break</i> – alchemy and astrology persisted. Continuity points score. ■ Group Enlightenment outputs as <i>political, economic, religious, social</i>. 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.

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Recap

Period 4 – key takeaways

1 Method

Scientific Revolution methods applied to society

2 Outputs

political, economic, religious, social – four kinds

3 Limits

equality was limited, especially for women

4 Public sphere

print, literacy, salons made ideas political

Check yourself

- 1 What sentence unpacks the Enlightenment?
- 2 Name the four kinds of Enlightenment output.
- 3 What limit must you always note?
- 4 What is the public sphere for?

Answers: SR methods on political/social/ethical issues ▪ political, economic, religious, social
▪ women / equality ▪ turning ideas into politics