WESTERN CIVILIZATION · STUDY GUIDE

Exam 5 Study Guide

This guide covers three centuries in which Europe went global and rebuilt both the state and the way it knew things. Chapter 9 follows ships, microbes, silver, sugar and enslaved people across the oceans, and the arguments Europeans had about it. Chapter 10 follows kings who claimed undivided power, assemblies that checked them, scientists who redrew the cosmos, and writers who turned reason on society. Read the "what to know" paragraphs, study the diagram, then work each case with the steps covered. Finish with the self-tests and the cram sheet.

WHAT THIS GUIDE COVERS

- Chapter 9 · why a poor Europe went to sea, borrowed tools and the volta do mar, Portugal from Ceuta to Calicut, Columbus and Tordesillas, the trading-post empire, the conquests of Mexico and Peru, demographic collapse, the Columbian Exchange, Potosí silver, labor systems, the Middle Passage, joint-stock companies, mercantilism, the price revolution and the moral debate.
- Chapter 10 · absolutism and its limits under Louis XIV, the fiscal-military state, Prussia, Russia and Austria, England from the Petition of Right to 1689, credit and consent, Copernicus to Newton, Bacon and Descartes, the Royal Society, Enlightenment texts and the public sphere, enlightened absolutism, variolation and vaccination, and the contradictions of slavery, race and women's rights.

CHAPTER 9

Exploration, Encounter and Empire

Read it in full: **Chapter 9 in the textbook**. Practice it in the lab: **The Line and the Coast** and **Where Did It Go?**.

What to know

From 1400 to 1700 the Atlantic became a highway. What followed was entanglement, not tidy discovery: microbes, silver, sugar, enslaved people, maps, horses and potatoes moving in currents no monarch controlled. The population of the Americas collapsed by perhaps eighty percent, about

12.5 million Africans were put on ships bound west, and Chinese demand pulled American silver across the Pacific.

In 1400 Europe was not the richest or most advanced region. Ming China had about twice Latin Christendom's people, and Zheng He's fleets (1405 to 1433) were far larger than Columbus' ships. Europe went to sea because it was peripheral and hungry for spices, silk, sugar and gold bought through many middlemen. The Reconquista, ending with Granada in January 1492, supplied a crusading vocabulary and institutions. The tools were mostly borrowed: the compass from China, the astrolabe from Islamic astronomers, the lateen sail from Mediterranean and Indian Ocean shipping. The Portuguese integrated them in the **caravel** and learned the **volta do mar**, swinging far out to catch winds home. Educated Europeans knew the earth was round; Columbus's critics were right that it was bigger than he thought.

Portugal began by taking Ceuta (1415), then crept down Africa: Elmina fortified in 1482, Dias round the Cape in 1488, and **Vasco da Gama** at Calicut in 1498. The first large cargo of enslaved Africans was auctioned at Lagos in 1444, and the sugar plantation worked by enslaved Africans was built on Madeira, São Tomé and the Canaries before Columbus sailed. Portugal's **trading-post empire** (Goa 1510, Malacca 1511, Hormuz 1515) held choke points and sold passes (the cartaz), but never controlled most Asian trade.

Columbus, backed by Castile, landed in the Bahamas on 12 October 1492 and died insisting he had reached Asia. Vespucci called it a new world, and Waldseemüller's 1507 map named it America. The **Treaty of Tordesillas** (1494) drew a line 370 leagues west of the Cape Verde Islands; Brazil, reached by Cabral in 1500, fell on the Portuguese side. No other power accepted the treaty.

Cortés (1519 to 1521) and **Pizarro** (1532 to 1533) won with small forces because of indigenous allies (tens of thousands of Tlaxcalans; Malintzin as translator), an Inca civil war, and above all smallpox, which struck Tenochtitlan in 1520 and had already killed Huayna Capac. Steel and horses mattered at the margin. The population of the Americas, estimated at 40 to over 100 million in 1492, fell by 80 to 95 percent in the hardest-hit regions. Disease did most of the killing, but forced labor, war and dispossession raised mortality and prevented recovery: a compound catastrophe.

Alfred Crosby named the two-way transfer the **Columbian Exchange** (1972). East went potatoes, maize, cassava, tomatoes, chilies and tobacco; west went wheat, sugarcane, coffee, horses, cattle and pathogens. Horses remade Comanche and Lakota societies. In 1545 the Cerro Rico at **Potosí** opened; the Americas produced about 80 percent of the world's silver from 1500 to 1800. The mercury patio process and the **mita** labor draft made it possible, and Ming China's demand pulled much of the silver east, including by the Manila galleon (1565 to 1815).

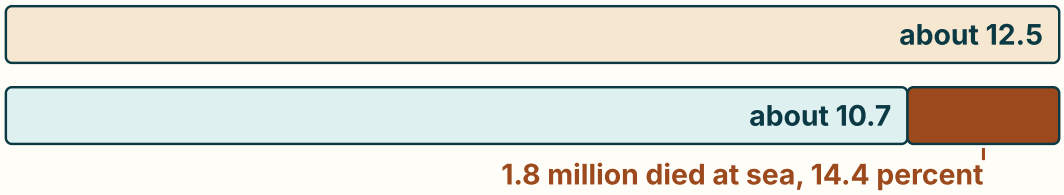
The **encomienda** gave conquistadors tribute and labor from indigenous people; the New Laws of 1542, pushed by Las Casas, banned indigenous slavery. Where populations collapsed and the crop was sugar, planters turned to Africa. Atlantic **chattel slavery** was hereditary, lifelong and racially defined. About 12.5 million Africans were embarked from 1501 to 1866 and about 10.7 million survived the **Middle Passage**. Brazil received nearly half; British North America under 4 percent. African merchants and states supplied captives at the coast, but the demand, capital, ships and plantations were European.

Spain spent its silver on wars and defaulted repeatedly. The Dutch built better institutions: the Amsterdam Exchange Bank (1609) and the **joint-stock company**, the VOC (1602), with permanent, tradable shares and sovereign powers; it enforced a nutmeg monopoly on the Banda Islands by massacre in 1621. Empires differed: Spanish viceroyalties, Portuguese factories and Brazil, French fur-trade alliances, English settler farms. **Mercantilism** held that wealth is fixed and colonies serve the mother country. Prices rose about sixfold from 1500 to 1650 (the **price revolution**), from silver, population growth and debasement. Montesinos (1511), Las Casas against Sepúlveda at Valladolid (1550 to 1551), Vitoria and Montaigne argued about whether any of it was just.

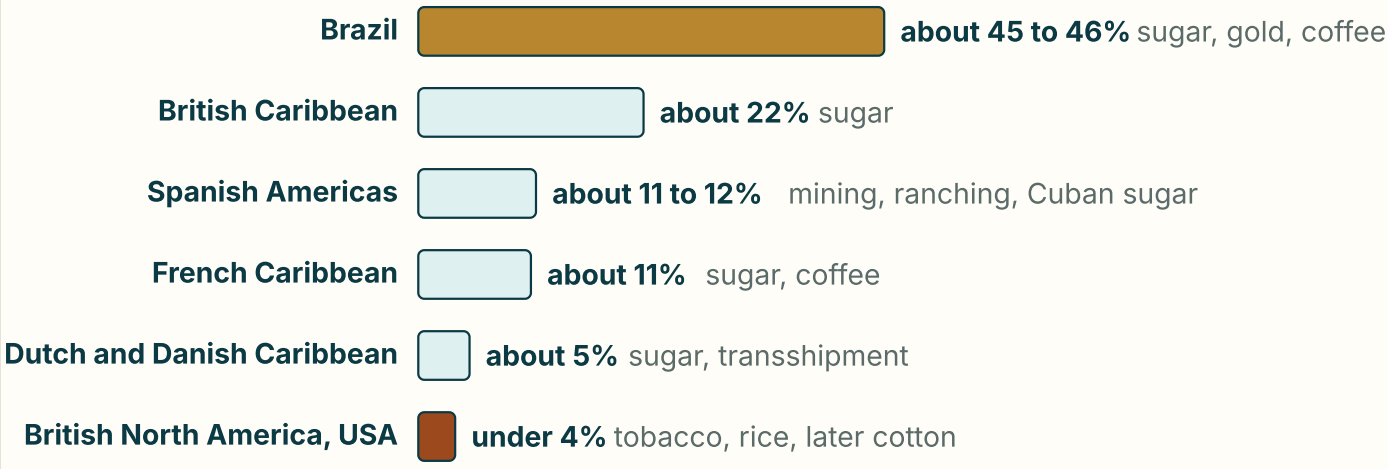
LOCK THESE IN

- Europe went to sea because it was peripheral, using mostly borrowed tools and the volta do mar.
- Columbus' critics were right about the earth's size; nobody thought it was flat.
- Tordesillas 1494: line 370 leagues west of Cape Verde; Brazil to Portugal.
- Conquest turned on allies, civil war and smallpox more than on steel.
- Population collapse of 80 to 95 percent: disease plus forced labor and dispossession.
- Potosí silver, pulled by Ming China's demand, made the first global trade circuit.
- About 12.5 million embarked, 10.7 million landed; Brazil about half, British North America under 4 percent.
- The joint-stock company (VOC 1602) let latecomers overtake Iberia.

Embarked and landed, 1501 to 1866 (millions of people, drawn to scale)



Where those who survived the crossing landed (share of arrivals, drawn to scale)



Figures from the chapter, based on the Trans-Atlantic Slave Trade Database.
Millions more died on marches and in barracoons before boarding; they are not shown.
Under 4 percent is about 390,000 people.

Sugar drove the trade. Brazil and the Caribbean received the great majority of the people who survived the crossing; under 4 percent landed in what became the United States.

Key terms and comparisons

Power	Model	Main assets by 1700	Chief instrument
Portugal	Trading posts plus plantation Brazil	Goa, Macau, Angola, Brazil	Royal monopoly, cartaz
Spain	Territorial, extractive	Mexico, Peru, Philippines, Caribbean	Viceroyalties, flota, encomienda and mita
Netherlands	Commercial monopoly	Batavia, Ceylon, Cape, Surinam	VOC and WIC joint-stock companies
England	Settler colonies plus company trade	Mainland colonies, Barbados, Jamaica	EIC, Navigation Acts, charters
France	Fur trade plus sugar islands	New France, Saint-Domingue, Louisiana	Alliances, royal companies

Terms to know

Term	Meaning
Volta do mar	Swinging far into the Atlantic to catch winds home
Cartaz	Portuguese pass required of Asian shipping
Columbian Exchange	Two-way transfer of plants, animals, people and microbes
Encomienda	Grant of indigenous tribute and labor to a Spaniard
Mita	Rotational labor draft supplying Potosí
Chattel slavery	Hereditary, lifelong, racially defined slavery
Mercantilism	Fixed wealth; export surplus; colonies serve the center
Price revolution	Roughly sixfold rise in prices, about 1500 to 1650

Worked cases

WORKED CASE 1 · THE ARITHMETIC OF THE MIDDLE PASSAGE

About 12.5 million Africans were embarked between 1501 and 1866 and about 10.7 million disembarked. How many died at sea, and what share is that?

STEP 1 · SUBTRACT

12.5 − 10.7 = **1.8 million** deaths at sea.

STEP 2 · DIVIDE BY THOSE EMBARKED

1.8 ÷ 12.5 = 0.144, or **14.4 percent**, the chapter's roughly 15 percent.

STEP 3 · BRITISH NORTH AMERICA

About 390,000 landed there: 0.39 ÷ 10.7 = 3.6 percent, under 4 percent.

STEP 4 · WHAT THE NUMBERS LEAVE OUT

Millions more died on marches to the coast and in barracoons before boarding.

CONCLUSION

Sugar, not cotton, drove most of the trade, and Brazil and the Caribbean were the main destinations.

WORKED CASE 2 · EXPLAINING THE CONQUEST OF MEXICO

A student says 500 Spaniards beat the Mexica because of guns and steel. Build a better answer.

STEP 1 · ALLIES

The Mexica ran a resented tribute empire; tens of thousands of Tlaxcalans fought with Cortés.

STEP 2 · A TRANSLATOR

Malintzin (doña Marina) made alliances and negotiation possible.

STEP 3 · DISEASE

Smallpox struck Tenochtitlan in 1520 and killed the emperor Cuitláhuac.

STEP 4 · TECHNOLOGY IN ITS PLACE

Steel and horses gave shock advantages; firearms were slow and unreliable.

CONCLUSION

Contingency stacked on catastrophe, not European invincibility. The final siege was overwhelmingly an indigenous army.

WORKED CASE 3 · HOW FAST WAS THE PRICE REVOLUTION?

Prices rose about sixfold between 1500 and 1650. What average yearly rate is that?

STEP 1 · SET IT UP

Over 150 years, (1 + r) raised to the 150th power = 6.

STEP 2 · SOLVE

1 + r = 6 to the power 1/150 = 1.012, so r is about **1.2 percent a year**.

STEP 3 · COMPARE

That matches the chapter's one to two percent a year: modest today, shocking then.

STEP 4 · WHO LOST

Wages lagged, and laborers' real income fell by perhaps half; landlords and commercial farmers gained.

CONCLUSION

Causes are mixed: American silver, population recovery and debasement together.

TRAPS PEOPLE FALL INTO

- **Saying Columbus proved the earth was round.** Sphericity was standard since antiquity; the flat-earth story is from the 1800s.
- **Calling 1400 Europe the world's leader.** Ming China, the Ottomans and Indian states were larger and richer.
- **Crediting conquest to guns.** Allies, civil war and smallpox mattered more.
- **Using disease as an alibi.** It explains the scale of death, not the loss of land, labor and autonomy.
- **Centering the slave trade on the United States.** Under 4 percent landed there; Brazil took nearly half.
- **Saying the Americas invented plantation slavery.** It was prototyped on Madeira and São Tomé.
- **Treating the price revolution as silver alone.** Population growth and debasement also drove it.
- **Treating the moral debate as modern.** Montesinos, Las Casas, Vitoria and Montaigne argued at the time.

Chapter 9 self-test · ten items

1. Why did Europeans want a sea route to Asia?

A. To find land for Europe's growing population

B. To escape plague, which had not reached the coasts

C. To cut out the middlemen who took a share of every sale

D. To spread the Renaissance arts to Chinese cities

C. To cut out the middlemen who took a share of every sale Venetian, Mamluk and Indian Ocean traders each took a cut; a sea route would bypass them all.

2. What was the volta do mar?

A. A Spanish tax on all American silver shipped home to Seville
B. A treaty line dividing the ocean in two
C. Sailing far out into the Atlantic to catch winds home
D. A Portuguese pass sold to Asian ships

C. Sailing far out into the Atlantic to catch winds home It turned African voyages from one-way trips into repeatable round trips.

3. What did Columbus' critics at court actually object to?

A. His plan to sail north around Europe
B. His wish to land on the African coast
C. His claim that the earth was a sphere and not a flat disk
D. His estimate of the earth's size was far too small

D. His estimate of the earth's size was far too small They were right about distance. He was saved by two continents he did not know existed.

4. Why does Brazil speak Portuguese?

A. The Tordesillas line put its eastern bulge on Portugal's side
B. Brazil was first settled by Portuguese Jews
C. Portugal bought Brazil from Spain in 1580
D. The pope gave all of South America to Portugal in one bull of 1493

A. The Tordesillas line put its eastern bulge on Portugal's side The 1494 line ran 370 leagues west of Cape Verde; Cabral reached Brazil in 1500.

5. What best describes Portugal's empire in Asia?

A. A territorial empire ruling India's interior
B. Fortified ports that controlled sea lanes and sold passes
C. A partnership of equals with the Mughals
D. A set of large settler farming colonies spread across Southeast Asia

B. Fortified ports that controlled sea lanes and sold passes The Estado da Índia held Goa, Malacca and Hormuz; on land the Portuguese were weak.

6. Which factor killed most indigenous people in the Americas?

A. Famine caused by a single bad harvest
B. Volcanic eruptions in the Andes
C. Epidemic disease against populations with no immunity
D. Pitched battles with Spanish soldiers and their many allies

C. Epidemic disease against populations with no immunity Disease did most of the killing, while forced labor and dispossession raised mortality and blocked recovery.

7. Which crop most helped population growth in northern Europe?

A. Sugarcane
B. The potato
C. Coffee
D. Rice from Asia

B. The potato It gave more calories per acre than grain on poor northern soils.

8. Where did much of Potosí's silver end up, and why?

A. China, because its taxes were paid in silver
B. England, because of the Navigation Acts
C. Spain, because the crown banned exports
D. Portugal, because of the Tordesillas treaty

A. China, because its taxes were paid in silver Ming demand set a silver price about double Europe's, so silver flowed east, including by the Manila galleon.

9. Roughly what share of enslaved Africans landed in British North America?

A. About 45 percent
B. Under 4 percent
C. About 20 percent
D. About 11 percent

B. Under 4 percent About 390,000 of 10.7 million. Brazil took nearly half; the British Caribbean about a fifth.

10. What advantage did the Dutch VOC have over royal monopolies?

A. It had the only ships in Europe that could round the Cape of Good Hope
B. It was funded entirely by American silver
C. It refused to use force against rival traders
D. Permanent, tradable shares pooled capital and spread risk

D. Permanent, tradable shares pooled capital and spread risk Permanent capital and delegated sovereign powers let it out-organize the Portuguese.

Absolutism, the Scientific Revolution and the Enlightenment

Read it in full: **Chapter 10 in the textbook**. Practice it in the lab: **The Credit of Kings** and **Which Cosmos Survives**.

What to know

From about 1600 to 1789 Europeans rebuilt the machinery of the state and the machinery of knowing. Kings taxed harder and drilled larger armies, while England and the Dutch Republic gave power to assemblies and made public credit the sinew of power. Astronomers and physicians replaced Aristotle's cosmos with a mathematical one, and writers turned the same methods on law, religion and trade.

Absolutism holds that sovereignty is indivisible and lies in a monarch answerable to God alone (Bossuet; earlier Bodin, and Hobbes on secular grounds). After the Fronde (1648 to 1653), **Louis XIV** governed personally from 1661. "L'état, c'est moi" is almost certainly invented. Absolute did not mean total: Louis could not end clergy and noble tax exemptions or fire officials who owned their posts. His real tools were **intendants**, Colbert's finance and mercantilism, an army grown from about 70,000 to over 340,000 on paper, and Versailles, which turned warrior nobles into courtiers. This was the **fiscal-military state**.

Others copied unevenly. In Prussia the Great Elector traded the Junkers power over serfs for political compliance; Frederick William I drilled 80,000 soldiers from about 2.2 million people. **Peter the Great** built St Petersburg (from 1703), the Table of Ranks (1722) and a Holy Synod, and won at Poltava (1709), while serfdom deepened in the east. Austria ruled a composite monarchy; Spain declined.

England took another path. Charles I accepted the Petition of Right (1628) and then ruled without Parliament. Civil war (1642) led to his trial and execution in 1649, a republic and Cromwell, and the Restoration (1660). When James II, a Catholic, had a son in 1688, William of Orange landed: the **Glorious Revolution**. The **Bill of Rights** (1689) required Parliament's consent for taxes and a peacetime army. Locke's Two Treatises argued for natural rights and government by consent. With the Bank of England (1694) and a funded debt, Britain borrowed more cheaply than France:

consent was cheaper than coercion. Poland's liberum veto showed that limits on rulers need a working executive.

Copernicus (1543) put the sun at the center but kept circles. **Tycho** measured precisely; **Kepler** showed elliptical orbits with the sun at one focus and equal areas in equal times (1609), plus a period and distance rule (1619). **Galileo** saw Jupiter's moons and the phases of Venus (1610); his 1633 condemnation mixed evidence, personality, Church authority and Roman politics. **Newton**'s Principia (1687) unified motion on earth and in the heavens with universal gravitation.

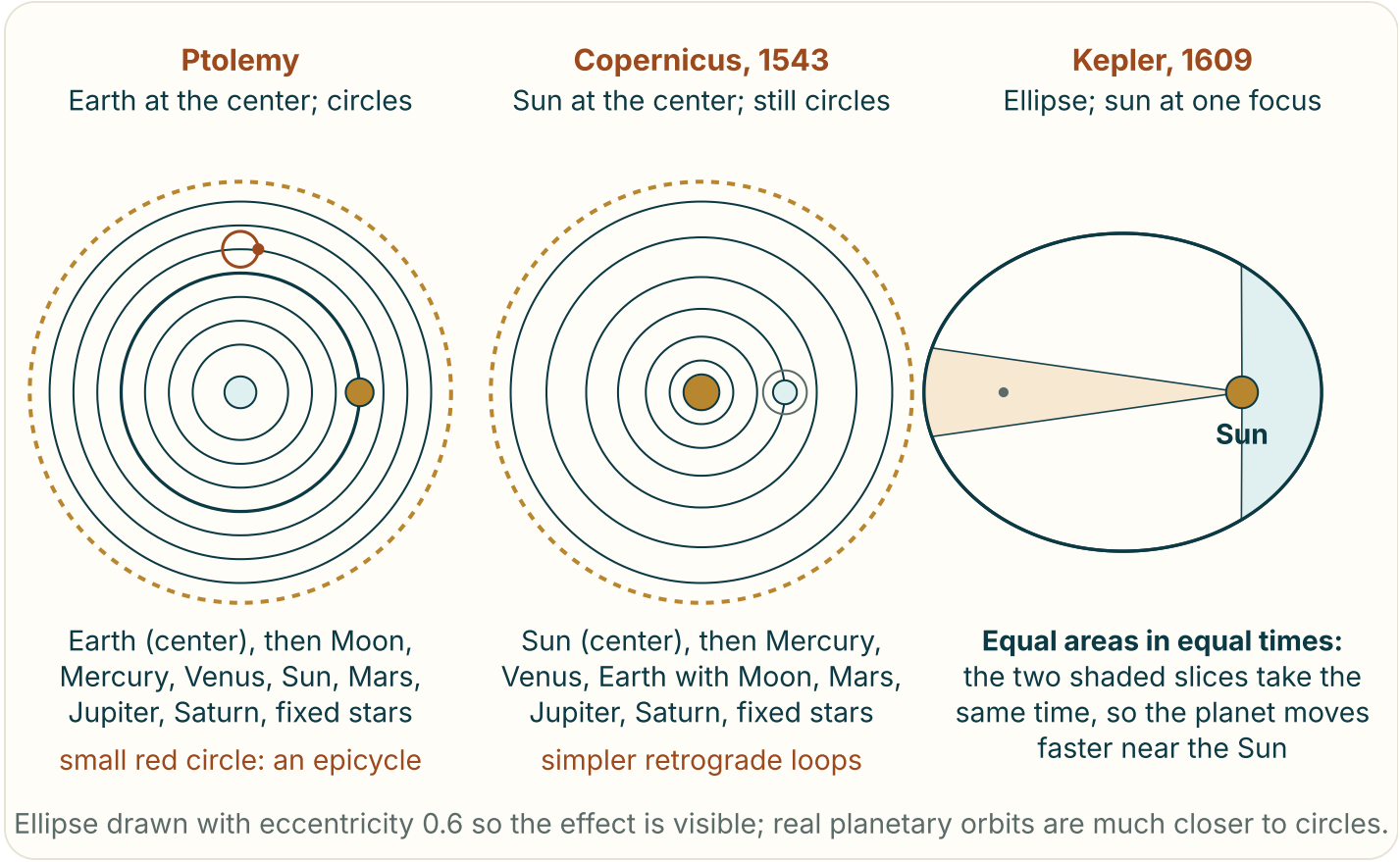
Method split two ways: **empiricism** (Bacon, 1620: build up from observation) and **rationalism** (Descartes, 1637: doubt, then deduce). Harvey proved circulation (1628) by experiment and arithmetic; Hooke named the cell (1665). The **Royal Society** (motto Nullius in verba) and the Philosophical Transactions (1665) made claims public, credited and checkable. Women were kept largely outside; no woman was a full fellow until 1945.

The **Enlightenment** bet that reason could find the laws of society. Locke's blank slate made reform thinkable; Kant's motto was sapere aude, dare to know. **Montesquieu** (1748) urged separation of powers; **Voltaire** fought the Calas verdict; the **Encyclopédie** (1751 to 1772) spread critique through cross-references; **Rousseau** grounded legitimacy in the general will; **Beccaria** (1764) opposed torture and the death penalty; **Smith** (1776) explained the division of labor. The **public sphere** of coffeehouses, salons and smuggled books carried it all. It was an argument, not a creed.

Enlightened absolutism borrowed the language without giving up power. Frederick II abolished torture (1754) but seized Silesia and tightened serfdom; Catherine II wrote the Nakaz (1767) but confirmed noble privilege (1785); Joseph II's toleration and abolition of personal serfdom were mostly repealed after 1790. The surest gains were medical: Lind's scurvy trial (1747), variolation (Lady Mary Wortley Montagu; Boston 1721, about 2 percent deaths among the inoculated against 14 percent) and **Jenner**'s vaccination (1796). The same century peaked in the slave trade and invented racial classification, while Equiano, Olympe de Gouges and Mary Wollstonecraft demanded that universal rights apply to all.

LOCK THESE IN

- Absolutism claimed undivided sovereignty; in practice it negotiated with entrenched privilege.
- Intendants, a standing army and Versailles were Louis XIV's real tools.
- England 1689: Parliament controls taxes and armies; consent made credit cheaper.
- Copernicus 1543, Kepler 1609 and 1619, Galileo 1610, Newton 1687.
- Empiricism builds up from observation (Bacon); rationalism deduces from first principles (Descartes).
- The Royal Society made knowledge public, credited and repeatable.
- Montesquieu, Voltaire, Rousseau, Beccaria, Smith, Kant: an argument held in public.
- Enlightened absolutism: real reforms, real limits; Joseph II's decrees did not stick.



From circles to laws. Copernicus moved the center but kept circles; Kepler, using Tycho's data, found ellipses and equal areas in equal times, which Newton later derived from gravitation.

Key terms and comparisons

Text	Author and year	Central claim	Effect
The Spirit of the Laws	Montesquieu, 1748	Separate and balance the powers	US Constitution; French debates
Encyclopédie	Diderot and d'Alembert, 1751 to 1772	All useful knowledge belongs to the public	Model for reference works; spread of critique
The Social Contract	Rousseau, 1762	Sovereignty lies in the general will	Jacobins; democratic theory
On Crimes and Punishments	Beccaria, 1764	Certain, proportionate punishment; no torture	Penal codes in Tuscany and Austria
The Wealth of Nations	Smith, 1776	Specialization and exchange create wealth	Free trade; economics
What Is Enlightenment?	Kant, 1784	Dare to think; free public use of reason	The movement's self-definition

States and science

Term	Meaning
Intendant	Royal commissioner over a French district
Fiscal-military state	Government built to raise money for war
Bill of Rights (1689)	No taxes, army or suspended laws without Parliament
Liberum veto	One Polish deputy could void a session
Heliocentrism	Sun at the center of planetary motion
Empiricism; rationalism	Knowledge from observation; from deduction
Variolation; vaccination	Mild smallpox infection; cowpox (Jenner)

Worked cases

WORKED CASE 1 · WHY BRITAIN COULD OUTSPEND FRANCE

France was larger and richer, yet Britain kept winning long wars. Explain using the chapter.

STEP 1 · WHO GUARANTEES THE DEBT

After 1689 Parliament controlled taxes and audited the budget, so the king could not repudiate debts alone.

STEP 2 · THE LENDER'S VIEW

A borrower who cannot default at will is a better credit risk, so lenders accept lower interest.

STEP 3 · THE TOOLS

The Bank of England (1694) and a funded national debt.

STEP 4 · THE RESULT

Cheaper borrowing let a smaller country pay for longer wars.

CONCLUSION

Consent was cheaper than coercion. Dividing sovereignty increased the state's power.

WORKED CASE 2 · WHAT KEPLER ADDED

Copernicus and Kepler both put the sun at the center. What did Kepler change?

STEP 1 · COPERNICUS

Sun at the center, but planets still move on circles and epicycles.

STEP 2 · THE DATA

Kepler used Tycho's precise observations of Mars.

STEP 3 · FIRST LAW

Orbits are ellipses with the sun at one focus.

STEP 4 · SECOND AND THIRD LAWS

A planet sweeps equal areas in equal times, so it moves faster near the sun; period and distance follow a fixed ratio (1619).

CONCLUSION

Kepler replaced circles with quantitative laws, which Newton later derived from gravitation.

WORKED CASE 3 · READING THE BOSTON INOCULATION NUMBERS

In Boston in 1721 Boylston inoculated about 240 people. Deaths ran about 2 percent among the inoculated and 14 percent among the naturally infected. Compare the expected deaths for a group of 240.

STEP 1 · INOCULATED

240 × 0.02 = **4.8**, about 5 deaths.

STEP 2 · NATURAL INFECTION

240 × 0.14 = **33.6**, about 34 deaths.

STEP 3 · THE RATIO

14 ÷ 2 = 7, so the death rate was about seven times higher without inoculation.

STEP 4 · THE METHOD

Count cases, compare groups, publish the numbers so strangers can check them.

REMEMBER

Onesimus, an enslaved African, had described the West African practice to Cotton Mather years earlier.

TRAPS PEOPLE FALL INTO

- **Equating absolute with totalitarian.** Louis XIV could not touch noble and clergy tax exemptions.
- **Quoting "L'état, c'est moi" as fact.** It is almost certainly a later invention.
- **Calling 1689 England a democracy.** Perhaps four or five percent could vote; it was accountable, not democratic.
- **Saying Copernicus proved ellipses.** He kept circles; Kepler found ellipses.
- **Treating Galileo's trial as pure science against faith.** Politics, personality and Church authority all mattered.

- **Calling the Enlightenment a single creed.** It was an argument; Rousseau and Hume attacked other philosophes.
- **Saying the philosophes caused the French Revolution.** They supplied a vocabulary; the fiscal crisis gave the opening.
- **Ignoring the contradictions.** The same era built rights and racial classification.

Chapter 10 self-test · ten items

1. What did absolutism claim?

A. Sovereignty is indivisible and rests in the monarch alone
B. Sovereignty belongs to the general will of the people
C. Sovereignty is shared between king and Parliament
D. Sovereignty lies with the pope over all kings

A. Sovereignty is indivisible and rests in the monarch alone Bossuet, Bodin and Hobbes each defended undivided sovereignty.

2. What was Louis XIV's most important administrative tool?

A. A national bank guaranteed by the nobles
B. A free press that praised his policies
C. Intendants who reported straight to the royal council
D. Elected provincial assemblies with full powers over all taxes

C. Intendants who reported straight to the royal council Intendants could override local officials; Versailles managed the nobles.

3. What bargain defined Brandenburg-Prussia?

A. Bishops gave up their land in return for seats at the royal court
B. Towns gave up taxes in return for free trade
C. Junkers gave up resistance in return for power over serfs
D. Peasants gave up land in return for freedom

C. Junkers gave up resistance in return for power over serfs The nobility paid little tax, ruled their serfs and later dominated the officer corps.

4. What did the Bill of Rights of 1689 require?

A. Universal male suffrage in all national and local elections
B. Parliament's consent for taxes and a peacetime army
C. Royal power to suspend laws at will
D. A Catholic heir for the English throne

B. Parliament's consent for taxes and a peacetime army It also barred Catholics from the throne and protected free speech in Parliament.

5. Why could Britain borrow more cheaply than France?

A. Britain had far larger silver mines than France
B. British kings refused to fight foreign wars
C. France had no banks or merchants of its own
D. Parliament guaranteed and audited the national debt

D. Parliament guaranteed and audited the national debt Lenders trusted a government that could not default at will.

6. What did Kepler show about planetary orbits?

A. They are ellipses with the sun at one focus
B. They are circles carried on crystal spheres
C. They are perfect circles around the earth
D. They are spirals that slowly move outward

A. They are ellipses with the sun at one focus Using Tycho's Mars data, he abandoned circles.

7. Which observation directly refuted the Ptolemaic arrangement?

A. Dark spots on the face of the sun
B. Mountains on the surface of the moon
C. The full cycle of the phases of Venus
D. The four moons that orbit Jupiter

C. The full cycle of the phases of Venus Galileo saw the phases late in 1610; they did not refute Tycho's compromise model.

8. How does empiricism differ from rationalism?

A. It rejects mathematics as a guide to nature
B. It deduces knowledge from doubt and first principles
C. It accepts ancient authorities without testing
D. It builds knowledge up from observation and experiment

D. It builds knowledge up from observation and experiment Bacon was the empiricist; Descartes the rationalist.

9. What did Beccaria argue in 1764?

A. Power should be split into three branches
B. Certain punishment deters better than severe punishment
C. Sovereignty lies in the general will
D. National wealth comes from hoarding gold and silver bullion

B. Certain punishment deters better than severe punishment He also demanded the end of torture and the death penalty.

10. Why is Joseph II's reign called instructive?

A. He refused to make any reforms at all
B. He abolished serfdom across all of Europe
C. He gave all power to an elected parliament in Vienna for good
D. His reforms by decree were largely repealed after his death

D. His reforms by decree were largely repealed after his death Imposed on Church, nobles and non-German subjects at once, the reforms did not stick.

ONE PAGE

Cram sheet

Everything from chapters 9 and 10 in one place. Cover the right column and see if you can rebuild each row.

Dates to know

Item	Date	Note
Ceuta; Elmina; Dias	1415; 1482; 1488	Portugal down Africa
Columbus; Tordesillas	1492; 1494	Line 370 leagues west of Cape Verde
Da Gama at Calicut; Cabral in Brazil	1498; 1500	Sea route; Portuguese Brazil
Cortés; Pizarro	1519 to 1521; 1532 to 1533	Allies, disease, civil war
Potosí; New Laws; Valladolid	1545; 1542; 1550 to 1551	Silver; Las Casas
VOC; Bank of Amsterdam	1602; 1609	Joint-stock company
Copernicus; Kepler; Galileo	1543; 1609 and 1619; 1610	Heliocentrism to ellipses
Execution of Charles I; Restoration	1649; 1660	English revolution
Louis XIV's personal rule	1661 to 1715	Intendants, Versailles
Newton's Principia; Bill of Rights	1687; 1689	Gravitation; consent
Spirit of the Laws; Social Contract	1748; 1762	Separation of powers; general will
Wealth of Nations; Jenner	1776; 1796	Markets; vaccination

Terms to know

Term	Meaning
Volta do mar	Wide Atlantic arc to catch winds home
Columbian Exchange	Two-way transfer after 1492
Middle Passage	Atlantic crossing; roughly 15 percent died
Joint-stock company	Permanent, tradable shares
Absolutism	Undivided sovereignty in a monarch
Fiscal-military state	Revenue machine for war
Empiricism; rationalism	Observation; deduction
Public sphere	Salons, coffeehouses, journals
Enlightened absolutism	Reform language, sovereign power kept

Arguments that score points

Question	The strong answer
Why did Europe go to sea?	Peripheral, hungry for Asian goods, borrowed tools
Why did the conquests succeed?	Allies, civil war, smallpox
Where did the silver go?	East, pulled by Ming China
Why did the Dutch overtake Portugal?	Institutions: the joint-stock company
Was absolutism total?	No; it bargained with privilege
Why did Britain win long wars?	Consent made credit cheap
What was the Enlightenment?	A public argument, not a creed

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