CHAPTER 16
AP® FOCUS & ANNOTATED CHAPTER OUTLINE

AP® FOCUS

The following information provides a "cheat sheet" for you to use when teaching this chapter.

Many historians would argue that the subject matter of this chapter—the Scientific Revolution and the Enlightenment—established Europe's unique and soon-to-be dominant position in the world, and defined the key values and intellectual orientation of the West. There's rarely been an AP examination without an essay question on the Scientific Revolution, the Enlightenment, or the enlightened monarchs, who are also discussed in this chapter. It's important for students to understand the connections between and among the movements and to master not only the general trends of these three movements but also the ideas and actions of specific individuals.

ANNOTATED CHAPTER OUTLINE

The following annotated chapter outline will help you review the major topics covered in this chapter.

I. The Scientific Revolution

A. Why Europe?

1. In 1500 scientific activity flourished in many parts of the world. With the expansion of Islam into the lands of the Byzantine Empire in the seventh and eighth centuries, Muslim scholars inherited ancient Greek learning, which itself was built on centuries of borrowing from older civilizations in Egypt, Babylonia, and India.
2. The re-establishment of stronger monarchies and the growth of trade in the High Middle Ages contributed to a renewal of learning in Western Europe.
3. As Europeans began to encroach on Islamic lands in Iberia, Sicily, and the eastern Mediterranean, they became aware of the rich heritage of ancient Greek learning in these regions and the ways scholars had improved upon received knowledge.
4. A number of European cities created universities in which Aristotle's works dominated the curriculum.
5. As Europe recovered from the ravages of the Black Death, the Renaissance provided a crucial foundation for the Scientific Revolution.
6. Scholars called humanists, working in the bustling mercantile city-states of Italy, emphasized the value of acquiring knowledge for the practical purposes of life.
7. The fall of Constantinople to the Ottomans in 1453 resulted in a great influx of little-known Greek works, as Christian scholars fled to Italy with their texts.
8. The navigational problems of long oceanic voyages in the age of expansion stimulated scientific research and invention. Inventors developed many new scientific instruments, such as the telescope, barometer, thermometer, pendulum clock, microscope, and air pump, which permitted more accurate observations and led to important new knowledge.
9. The invention of printing provided a faster and less expensive way to circulate knowledge.
10. Unlike the empires of the Muslim world and Qing China, Western Europe was politically fragmented into smaller competitive nations, which made it impossible for authorities to impose one orthodox set of ideas and thus allowed individuals to question dominant patterns of thinking.

B. Scientific Thought to 1500

1. Prior to the Scientific Revolution, many different scholars and practitioners were involved in aspects of what, in the nineteenth century, came to be called science.

2. One of the most important disciplines—natural philosophy, based primarily on the ideas of Aristotle—focused on fundamental questions about the nature of the universe, its purpose, and how it functioned.
3. According to the Christianized view of Aristotle, a motionless earth was fixed at the center of the universe and was encompassed by ten separate concentric crystal spheres, embedded with the moon, sun, five planets, and stars, which revolved around the earth.
4. Beyond the tenth sphere was Heaven, with the throne of God and the souls of the saved; Angels kept all of the spheres moving in perfect circles.
5. Aristotle's views also dominated thinking about physics and motion on earth.
6. Aristotle had distinguished between the world of the celestial spheres and earth—the sublunar world—with the celestial spheres consisting of a perfect, incorruptible "quintessence."
7. The earth was believed to be made up of four imperfect, changeable elements: air, fire, water, and earth.
8. Aristotelian thought also held that a uniform force moved an object at a constant speed and that the object would stop as soon as that force was removed.
9. Ptolemy's idea that the planets moved in small circles, called epicycles, along a larger circle—a surprisingly accurate model for predicting planetary motion—accounted for the gaps in the Aristotelian cosmology.
10. These two frameworks reveal the strengths and limitations of European knowledge on the eve of the Scientific Revolution. Europeans were not the first to use experimental methods—of which there was a long tradition in the Muslim world and elsewhere—but they were the first to separate scientific knowledge decisively from philosophical and religious beliefs and to accord mathematics a fundamental role in understanding the natural world.

C. The Copernican Hypothesis
1. The Polish cleric Nicolaus Copernicus (1473–1543) felt that Ptolemy's cumbersome and occasionally inaccurate rules of astronomy detracted from the majesty of a perfect creator.
2. Drawing on an alternative ancient Greek idea and without questioning the idea that circular motion was divine, Copernicus theorized that the stars and planets, including the earth, revolved around a fixed sun.
3. Copernicus did not publish *On the Revolutions of the Heavenly Spheres* until 1543, the year of his death.
4. The Copernican hypothesis had enormous scientific and religious implications, not only suggesting a universe of staggering size but also destroying the Aristotelian idea that the earthly sphere was quite different from the heavenly one.
5. Religious leaders varied in their response to Copernicus, some becoming avid Copernicans and others rejecting the notion that the earth moved, an idea that contradicted the literal reading of some passages of the Bible.
6. The Catholic Church, which had never held to literal interpretations of the Bible, did not officially declare the Copernican hypothesis false until 1616.
7. The appearance in 1572 of a new star that shone brightly for two years and of a new comet in 1577 seemed to contradict the idea that the heavenly spheres were unchanging and therefore perfect.

D. Brahe, Kepler, and Galileo: Proving Copernicus Right
1. The Danish noble Tycho Brahe (1546–1601) established himself as Europe's leading astronomer with his observations of the new star in 1572, and he gained the support of the king of Denmark to build the most sophisticated observatory of his day.

2. For twenty years Brahe meticulously observed the stars and planets with the naked eye, compiling much more complete and accurate data than ever before, but his limited understanding of mathematics and his death in 1601 prevented him from making much sense out of his mass of data.
3. Brahe's young assistant, Johannes Kepler (1571–1630), who rejected Ptolemy's observations, reworked Brahe's observations and developed three new revolutionary laws of planetary motion.
4. Kepler demonstrated that the orbits of the planets around the sun are elliptical rather than circular and that the planets do not move at a uniform speed in their orbits.
5. In 1619 Kepler put forth his third law: the time a planet takes to make its complete orbit is related precisely to its distance from the sun.
6. Whereas Copernicus had used mathematics to describe planetary movement, Kepler proved mathematically the precise relations of a sun-centered (solar) system, uniting for the first time the theoretical cosmology of natural philosophy with mathematics and demolishing the old system of Aristotle and Ptolemy.
7. Galileo Galilei (1564–1642), a poor Florentine nobleman, also challenged the old ideas about motion, and he used mathematics to examine motion and mechanics in a new way.
8. His experiments demonstrated that a uniform force such as gravity produced a uniform acceleration and led to his law of inertia, proving Aristotelian physics wrong.
9. After making his own telescope, Galileo quickly discovered the first four moons of Jupiter, which provided new evidence to support the Copernican theory.
10. His observations of the moon led him to write in 1610 that the questions that had so long tormented philosophers "are exploded by the irrefutable evidence of our eyes."

E. Newton's Synthesis
1. By about 1640 the work of Brahe, Kepler, and Galileo had been largely accepted by the scientific community.
2. English scientist Isaac Newton (1642–1727) united the experimental and theoretical-mathematical sides of modern science.
3. Newton arrived at some of his most basic ideas about physics between 1664 and 1666, including his law of universal gravitation and the concepts of centripetal force and acceleration.
4. Newton's towering accomplishment was *Philosophicae Naturalis Principia Mathematica* (1687), in which he laid down his three laws of motion, using a set of mathematical laws that explain motion and mechanics.
5. The key feature of the Newtonian synthesis was the law of universal gravitation: every body in the universe attracts every other body in the universe in a precise mathematical relationship based on the objects' quantity of matter and the distance between them.
6. Newton's synthesis of mathematics with physics and astronomy united the whole universe in one coherent system, and it prevailed until the twentieth century.

F. Natural History and Empire
1. While they made advances in astronomy and physics, Europeans also embarked on the pursuit of knowledge about unknown geographical regions and the useful and valuable resources they contained. As the first to acquire a large overseas empire, the Spanish pioneered these efforts.
2. The Spanish crown sponsored many scientific expeditions to gather information and specimens, out of which emerged new discoveries that reshaped the fields of botany, zoology, cartography, and metallurgy, among others.
3. Plants were a particular source of interest because they offered tremendous profits in the form of spices, medicines, dyes, and cash crops.

4. Francisco Hernández, King Philip II's personal physician, filled fifteen volumes with illustrations of three thousand plants previously unknown in Europe and extensively interviewed local healers about the plants' medicinal properties, benefiting from centuries of Mesoamerican botanical knowledge.
5. Carl Linnaeus (1707–1778) of Sweden sent students on exploratory voyages around the world and, based on their observations and the specimens they collected, devised a system of naming and classifying living organisms still used today (with substantial revisions).

G. Magic and Alchemy

1. Recent historical research on the Scientific Revolution has focused on the contribution of ideas and practices that no longer belong to the realm of science, such as astrology and alchemy.
2. Many of the most celebrated astronomers also worked as astrologers. Astrology formed a regular part of the curriculum of medical schools because it was used as a diagnostic tool in medicine.
3. Early modern practitioners of magic strove to understand and control hidden connections they perceived among different elements of the natural world, such as that between a magnet and iron.
4. Johannes Kepler's duties as court mathematician included casting horoscopes for the royal family, and he guided his own life by astrological principles. He also wrote a fictional account of travel to the moon, written partly to illustrate the idea of a non-earth-centered universe, which may have contributed to the arrest and trial of his mother as a witch in 1620.
5. Newton is another example of the interweaving of ideas and beliefs. He was both intensely religious and also fascinated by alchemy (whose practitioners believed, among other things, that base metals could be turned into gold).
6. Critics complained that Newton's idea of universal gravitation was merely a restatement of old magical ideas about the innate sympathies between bodies; Newton himself believed that the attraction of gravity resulted from God's actions in the universe.

II. Important Changes in Scientific Thinking and Practice

A. The Methods of Science: Bacon and Descartes

1. Scholars in many fields used new methods to seek answers to long-standing problems, sharing their results in a community that spanned Europe and developing better ways of obtaining knowledge about the world.
2. The English politician and writer Francis Bacon (1561–1626) was the greatest early propagandist for the new experimental method.
3. Bacon argued that new knowledge had to be pursued through empirical research and set about formalizing the empirical method into the general theory of inductive reasoning known as empiricism.
4. In 1660 followers of Bacon created the Royal Society, which met weekly to conduct experiments and discuss the latest findings of scholars across Europe.
5. More speculative methods retained support, including those of French philosopher René Descartes (1596–1650) who, through an intellectual vision in 1619, saw that there was a perfect correspondence between geometry and algebra and that geometrical spatial figures could be expressed as algebraic equations and vice versa.
6. Descartes's discovery of analytic geometry provided scientists with an important new tool.
7. All occurrences in nature could be analyzed as matter in motion, and according to Descartes, the total "quantity of motion" in the universe was constant.
8. His greatest achievement was to develop his initial vision into a philosophy of knowledge and science.

9. Descartes decided that it was necessary to doubt everything and to use deductive reasoning from self-evident principles to ascertain scientific laws, ultimately reducing all substances to "matter" and "mind," a view of the world known as Cartesian dualism.
10. Bacon's inductive experimentalism and Descartes's deductive mathematical reasoning were insufficient on their own, but they were combined in the modern scientific method, which began to crystallize in the late seventeenth century.

B. Medicine, the Body, and Chemistry

1. The Scientific Revolution inspired renewed study of the microcosm of the human body and a reexamination of Galen's idea of the four humors.
2. Swiss physician and alchemist Paracelsus (1493–1541) was an early proponent of the experimental method and pioneered the use of chemicals and drugs to treat what he viewed as chemical, instead of humoral, imbalances.
3. Flemish physician Andreas Vesalius (1516–1564) studied anatomy by dissecting human bodies, and the two hundred precise drawings in his masterpiece *On the Structure of the Human Body* (1543) revolutionized the understanding of human anatomy.
4. English royal physician William Harvey (1578–1657) discovered the circulation of blood through the veins and arteries and was the first to explain that the heart worked like a pump.
5. Following Paracelsus's lead, Irishman Robert Boyle (1627–1691) undertook experiments to discover the basic elements of nature, which he believed was composed of atoms, and articulated Boyle's law (1662), which states that the pressure of a gas varies inversely with volume.

C. Science and Religion

1. During the Scientific Revolution, most practitioners were devoutly religious and saw their work as contributing to the celebration of God's glory rather than undermining it.
2. The concept of heliocentrism, which displaced the earth from the center of the universe, threatened the understanding of the place of mankind in creation as stated in Genesis. All religions derived from the Old Testament—Catholicism, Protestantism, Judaism, and Islam—thus faced difficulties accepting the Copernican system.
3. In 1616 the Holy Office placed the works of Copernicus and his supporters, including Kepler, on a list of books Catholics were forbidden to read.
4. Galileo Galilei silenced his views on heliocentrism for several years, until 1623 saw the ascension of Pope Urban VIII, a man sympathetic to the new science. Nevertheless, Galileo was tried for heresy by the papal Inquisition. He recanted, "renouncing and cursing" his Copernican errors.
5. At the same time, some Protestant countries, including the Netherlands, Denmark, and England, became quite "pro-science."

D. Science and Society

1. The advent of modern science had many consequences, including the rise of an international scientific community linked by common interests and shared values, as well as by journals and scientific societies.
2. The personal success of scientists and scholars depended on making new discoveries, and science became competitive.
3. The new scientific community became closely tied to the state and its agendas, as governments intervened to support and sometimes direct research.
4. At the same time, scientists developed a critical attitude toward established authority that would inspire thinkers to question traditions in other domains.

5. Many craftsmen became interested in emerging scientific ideas, and, in turn, the practice of science in the seventeenth century often relied on artisans' expertise in making instruments and conducting precise experiments.
6. New "rational" methods for approaching nature did not question traditional inequalities between the sexes, however, and the refusal of universities and professional organizations to accept women as members resulted in new barriers to equality.
7. Noteworthy exceptions included universities and academies in Italy that offered posts to women producing anatomical models and botanical and zoological illustrations.
8. Some female intellectuals fully engaged in the philosophical dialogue of the time through salons, experiments, and writing.

III. The Rise and Spread of Enlightenment Thought

1. The new worldview of the eighteenth-century Enlightenment grew out of a rich mix of diverse and often conflicting ideas that were debated in international networks.
2. Three concepts were central to Enlightenment thinking: (1) rationalism, a secular, critical way of thinking in which nothing was accepted on faith and everything was submitted to reason; (2) the use of the scientific method to discover the laws of human society and nature; and (3) progress, the idea that it was possible to create better societies and people.

A. The Early Enlightenment

1. The European Enlightenment (ca. 1690–1789) was a broad intellectual and cultural movement that gained strength gradually and reached its maturity around 1750.
2. Members of the generation that came of age in the decades after the publication of Newton's *Principia* in 1687 provided the link between the Scientific Revolution and a new outlook on life.
3. These Enlightenment thinkers believed that their era had gone far beyond antiquity and that intellectual progress was possible, and they set an agenda of human problems to be addressed through the methods of science.
4. A key crucible for Enlightenment thought was the Dutch Republic, with its proud commitment to religious tolerance and republican rule. French Protestants fled there when Louis XIV demanded that all Protestants convert to Catholicism.
5. From this haven of tolerance, Huguenots and their supporters began to publish tracts denouncing religious intolerance and suggesting that only a despotic monarch, not a legitimate ruler, would deny religious freedom. Their challenge to authority thus combined religious and political issues.
6. Pierre Bayle (1647–1706), a French Huguenot who took refuge in the Dutch Republic, examined the religious beliefs and persecutions of the past in his *Historical and Critical Dictionary* (1697), and he concluded that nothing can ever be known beyond all doubt, a view known as skepticism.
7. The Dutch Jewish philosopher Baruch Spinoza (1632–1677) came to believe that mind and body are united in one substance and that God and nature were two names for the same thing.
8. Spinoza envisioned a deterministic universe in which good and evil were merely relative values and human actions were shaped by outside circumstances, not free will.
9. Gottfried Wilhelm von Leibniz (1646–1716) adopted the idea of an infinite number of substances from which all matter is composed, and he optimistically declared in his *Theodicy* (1710) that the world must be "the best of all possible worlds" because it was created by an omnipotent and benevolent God.
10. Out of this period of intellectual turmoil came John Locke's *Essay Concerning Human Understanding* (1690), which introduced his theory that all ideas are derived from experience.

11. According to Locke, the human mind at birth is a blank tablet on which the environment, including education and social institutions, write the individual's understanding and beliefs.
12. Locke's essay contributed to the theory of sensationalism, the idea that all human ideas and thoughts are produced as a result of sensory impressions.

B. The Influence of the Philosophes

1. The Enlightenment's spirit of inquiry and debate owed a great deal to the philosophes (the French word for philosophers), a group of intellectuals who proclaimed that they were bringing the light of reason to their ignorant fellow humans.
2. France became a hub of the Enlightenment for three reasons:
   (1) French was the international language of the educated classes; (2) Louis XV's unpopularity generated calls for reform among the educated elite; and (3) the French philosophes made it their goal to reach a larger audience of elites.
3. The baron de Montesquieu (1689–1755) brilliantly pioneered this approach in *The Persian Letters*, a social satire published in 1721 consisting of amusing letters supposedly written by two Persian travelers who, through Montesquieu, criticized European customs and beliefs.
4. Disturbed by the growth in absolutism under Louis XIV and inspired by the example of the physical sciences, Montesquieu set out to apply the critical method to the problem of government in *The Spirit of Laws* (1748).
5. Montesquieu focused on the conditions that would promote liberty and prevent tyranny and argued for a separation of powers, with political power divided and shared by a variety of classes and legal estates.
6. Although Montesquieu was apprehensive of the uneducated poor and was clearly no democrat, his theory of separation of powers in government had a great impact on the constitutions of the young United States in 1789 and of France in 1791.
7. The most famous and perhaps most representative philosophe was François Marie Arouet, who was known by the pen name Voltaire (1694–1778).
8. Voltaire formed a mutually beneficial relationship with Gabrielle-Emilie Le Tonnelier de Breteuil, marquise du Châtelet (1706–1749), a gifted noblewoman who studied physics and mathematics and published scientific articles and translations, but was excluded from the Royal Academy of Sciences.
9. Voltaire wrote various works praising England and popularizing English science and, in true Enlightenment style, mixed the glorification of science and reason with an appeal for better individuals and institutions.
10. Like most of the philosophes, however, Voltaire was a reformer, not a revolutionary, in politics; he was pessimistic about the ability of humans to govern themselves, concluding that the best one could hope for was a good monarch, and did not believe in social and economic equality in human affairs.
11. Voltaire clearly believed in God, but he was a deist and, like most of the philosophes, hated all forms of religious intolerance, which he believed led to fanaticism.
12. The greatest and most representative intellectual achievement of the philosophes was a group effort—the seventeen-volume *Encyclopedia: The Rational Dictionary of the Sciences, the Arts, and the Crafts*, edited by Denis Diderot (1713–1784) and Jean le Rond d'Alembert (1717–1783).
13. The *Encyclopedia*, published between 1751 and 1772, set out to teach people how to think critically through seventy-two thousand articles by leading scientists, writers, skilled workers, and progressive priests that treated every aspect of life and knowledge.

14. The encyclopedists were convinced that greater knowledge would result in greater human happiness, for knowledge was useful and made possible economic, social, and political progress.
15. Reflecting the new worldview of the Enlightenment, the *Encyclopedia* exalted science and the industrial arts, while questioning religion and criticizing intolerance, injustice, and outdated social institutions.
16. The *Encyclopedia* was widely read, especially in less-expensive reprint editions, and extremely influential.

C. Enlightenment Movements Across Europe

1. The Enlightenment, conceived as a Republic of Letters, was a cosmopolitan set of networks stretching from Western Europe to its colonies in the Americas, to Russia and eastern Europe, and along the routes of trade and empire to Africa and Asia.
2. Outside of France, Protestant, Catholic, and Jewish thinkers sought to reconcile reason with faith.
3. A distinctive "Catholic Enlightenment" aimed to renew and reform the Church from within through divine grace, instead of human will.
4. The Scottish Enlightenment was marked by an emphasis on common sense and scientific reasoning and was stimulated by the creation of the first public educational system in Europe.
5. Building on Locke's teachings on learning, David Hume (1711–1776) argued that the human mind is really nothing but a bundle of impressions that originate only in sensory experiences and our habits of joining these experiences together.
6. Because our ideas reflect only our sensory experiences, our reason cannot tell us anything about questions that cannot be verified by sensory experience (in the form of controlled experiments or mathematics), such as the origin of the universe or the existence of God.
7. Paradoxically, Hume's rationalistic inquiry ended up undermining the Enlightenment's faith in the power of reason.
8. Adam Smith, another major figure of the Scottish Enlightenment, argued that the thriving commercial life of the eighteenth century produced civic virtue through competition, fair play, and individual autonomy.
9. In *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776), Smith attacked the laws and regulations that, he argued, prevented commerce from reaching its full capacity.
10. Inspired by philosophers of moral sentiments, as well as by physiological studies of the role of the nervous system in human perception, the celebration of sensibility became an important element of eighteenth-century culture. The proper relationship between reason and the emotions became a key question.
11. After 1760 Enlightenment ideas were debated in the German-speaking states, often in dialogue with Christian theology.
12. Immanuel Kant (1724–1804), the greatest German philosopher of his day, posed the question of the day in his 1784 pamphlet *What Is Enlightenment*? He answered, "*Sapere Aude*" (dare to know)!
13. Kant argued that if intellectuals were granted the freedom to exercise their reason publicly in print, enlightenment would almost surely follow.
14. Kant was not a revolutionary and thus tried to reconcile absolute monarchical authority and religious faith with a critical public sphere, insisting that individuals must obey all laws, no matter how unreasonable.
15. In northern Italy Cesare Beccaria (1738–1794) pleaded for reform of the penal system, decrying the use of torture, arbitrary imprisonment, and capital punishment and advocating the prevention of crime over the reliance on punishment.

IV. The Social Life of the Enlightenment

A. Global Contacts

1. Seventeenth-century Jesuit missionaries served as a conduit for transmission of knowledge to the West about Chinese history and culture.
2. The philosopher and mathematician Leibniz corresponded with Jesuits stationed in China, coming to believe that Chinese ethics and political philosophy were superior but that Europeans had equaled China in science and technology.
3. Voltaire and some other philosophes revered China as an ancient culture replete with wisdom and learning, ruled by benevolent absolutist monarchs. They enthusiastically embraced Confucianism as a natural religion in which universal moral truths were uncovered by reason.
4. Montesquieu and Diderot criticized China as a despotic land ruled by fear.
5. Attitudes toward Islam and the Muslim world were similarly mixed. Some deists praised Islam as superior to Christianity and Judaism in its rationality, compassion, and tolerance. Others, including Spinoza, saw Islamic culture as superstitious and favorable to despotism.
6. Mary Wortley Montagu, writer and wife of the English ambassador to the Ottoman Empire, challenged prevailing ideas by depicting Turkish people as sympathetic and civilized.

B. Enlightenment Debates About Race

1. The Scientific Revolution's insistence on careful empirical observation unleashed the urge to classify nature, a primary catalyst for new ideas about race.
2. In *The System of Nature* (1735), Swedish botanist Carl von Linné argued that nature was organized into a God-given hierarchy.
3. As scientists developed more elaborate taxonomies of plant and animal species, they also began to classify humans into hierarchically ordered "races" and to investigate the origins of race.
4. The comte de Buffon argued that humans originated with one species that then developed into distinct races due largely to climatic conditions.
5. In *Of Natural Characters* (1748), David Hume argued that "all other species of men" were "naturally inferior to the whites."
6. Immanuel Kant shared and elaborated Hume's views about race in *On the Different Races of Man* (1775), claiming that the white inhabitants of northern Germany were the closest descendants of the supposedly original race.
7. Using the word "race" to designate biologically distinct groups of humans, akin to distinct animal species, was new.
8. Europeans had long believed themselves culturally superior to the "barbaric" peoples of Africa and, since 1492, the New World; these emerging ideas about racial difference claimed Europeans were biologically superior as well.
9. Scientific racism helped legitimate and justify the tremendous growth of slavery that occurred during the eighteenth century; if one "race" of humans was fundamentally different and inferior, its members could be seen as particularly fit for enslavement.
10. The abbé Raynal's *History of the Two Indies* (1770) fiercely attacked slavery and the abuses of European colonization.
11. Denis Diderot adopted Montesquieu's technique of criticizing European attitudes through the voice of outsiders in his dialogue between Tahitian villagers and their European visitors.
12. Challenging claims of white superiority, Scottish philosopher James Beattie (1735–1803) pointed out that Europeans had started out as savage as nonwhites and that many non-European peoples in the Americas, Asia, and Africa had achieved high levels of civilization.

13. Former slaves such as Olaudah Equiano published eloquent memoirs testifying to the horrors of slavery and the innate equality of all humans.

C. Women and the Enlightenment

1. Dating back to the Renaissance *querelle des dames*, the debate over women's proper role in society and the nature of gender differences continued to fascinate Enlightenment thinkers.
2. In the 1780s, the marquis de Condorcet, a celebrated mathematician and contributor to the *Encyclopedia*, went so far as to urge that women should share equal rights with men, while most philosophes accepted that women were intellectually and physically inferior to men.
3. Most suggested moderate reform at best, particularly in the arena of female education.
4. In 1694, Mary Astell published *A Serious Proposal to the Ladies*, which encouraged women to aspire to the life of the mind and proposed the creation of a women's college and harshly criticized the institution of marriage.
5. Women produced some 15 percent of published novels in the second half of the eighteenth century.
6. Women played a much more active role in the informal dimensions of the Enlightenment: conversation, letter-writing, travel, and patronage. A key element of their informal participation was as hostesses of salons (weekly meetings held in wealthy households, which brought together writers, aristocrats, financiers, and noteworthy foreigners for meals and witty discussions of the latest trends in literature, science, and philosophy).
7. Rococo (a style characterized by soft pastels, ornate interiors, sentimental portraits, and starry-eyed lovers protected by hovering cupids) was popular throughout Europe in the period from 1720 to 1780 and was particularly associated with the mistress of Louis XV, Madame de Pompadour, who used her position to commission paintings, furniture, and other luxury objects in the rococo style.
8. Rousseau's emphasis on the natural laws governing women echoed a wider shift in ideas about gender during this period, as doctors, scientists, and philosophers increasingly agreed that women's essential characteristics were determined by their sexual organs and reproductive functions.
9. Just as writers like Rousseau used women's "natural" passivity to argue for their subordinate role in society, so Kant and others used ideas about non-Europeans' "natural" inferiority to defend slavery and colonial domination.

IV. Enlightened Absolutism

1. Most Enlightenment thinkers outside of England and the Netherlands realistically concluded that benevolent absolutism offered the best opportunities for improving society.
2. Some eighteenth century absolutist rulers, who were encouraged and instructed by government officials interested in ideas for improving society, tried to reform their government in accordance with Enlightenment ideals, or enlightened absolutism.
3. The reigns of the most influential of the new-style monarchs in Prussia, Russia, and Austria illustrate both the achievements and limitations of enlightened absolutism.

A. Frederick the Great of Prussia

1. Frederick II (r. 1740–1786), commonly known as Frederick the Great, was determined to use the splendid army that he had inherited from his father, Frederick William I.
2. When the young Maria Theresa of Austria inherited the Habsburg dominions, Frederick invaded her rich province of Silesia, defying an agreement that had guaranteed her succession.
3. In 1742, as other greedy powers vied for her lands in the European War of the Austrian Succession (1740–1748), Maria Theresa was forced to cede almost all of Silesia to Prussia.

4. In 1756 Maria Theresa, seeking to regain Silesia, formed an alliance with the leaders of France and Russia and initiated the Seven Years' War (1756–1763), with the aim of conquering Prussia and dividing up its territory.
5. Frederick was miraculously saved when Peter III came to the Russian throne in 1762 and called off the attack against Frederick.
6. The terrible struggle of the Seven Years' War tempered Frederick's interest in territorial expansion and brought him to consider how more humane policies for his subjects might be a way to strengthen the state.
7. Frederick allowed his subjects freedom in their religious and philosophical beliefs and promoted the advancement of knowledge by improving his country's schools and permitting scholars to publish their findings.
8. Seeking to improve the lives of his subjects more directly, Frederick oversaw the simplification of Prussian law, abolition of torture, and improvement of legal procedures, and Prussian officials became famous for their hard work and honesty.
9. After the Seven Years' War ended in 1763, Frederick's government energetically promoted the reconstruction of agriculture and industry.
10. Frederick referred to himself as "the first servant of the state," justifying monarchy in terms of practical results.
11. Although he condemned serfdom, he accepted it in practice and did not free the serfs on his own estates; he also accepted and extended the privileges of the nobility.
12. In reforming Prussia's bureaucracy, Frederick drew on the principles of cameralism, which held that monarchy was the best form of government, that all elements of society should be placed at the service of the state, and that, in turn, the state should use its resources and authority to improve society.

B. Catherine the Great of Russia
1. Catherine the Great of Russia (r. 1762–1796) was one of the most remarkable rulers of her age, and the French philosophes adored her.
2. Catherine came to the throne through a coup in which her husband Peter III was murdered by her lover and his three brothers, all army officers unhappy about Peter's decision to withdraw Russian troops from the Seven Years' War.
3. Setting out to rule in an enlightened manner but without questioning absolutism, Catherine worked hard to continue Peter the Great's effort to bring the culture of western Europe to Russia, importing Western architects, musicians, and intellectuals.
4. An intellectual ruler, Catherine bought masterpieces of Western art, wrote plays, patronized Diderot and the *Encyclopedia*, and corresponded with Voltaire, setting the tone for the entire Russian nobility.
5. In domestic reform, she appointed a legislative commission to prepare a new law code, which was never completed, and she also restricted the practice of torture, allowed limited religious toleration, and tried to improve education and strengthen local government.
6. In 1773, however, a common Cossack soldier named Emelian Pugachev sparked a gigantic uprising of serfs that resulted in the slaughter of landlords and officials over a vast area of southwestern Russia.
7. Pugachev's rebellion was quickly put down by Catherine's army, but it also put an end to any intentions Catherine might have had about reforming the system.
8. After 1775 Catherine gave the nobles absolute control of their serfs, extending serfdom into new areas and freeing nobles forever from taxes and state service.

9. Catherine was extremely successful in her quest for territorial expansion, subjugating the last descendants of the Mongols and the Crimean Tartars and beginning the conquest of the Caucasus.
10. When Catherine's armies scored unprecedented victories against the Turks between 1768 and 1772, thereby threatening to disrupt the balance of power in Eastern Europe, Frederick of Prussia proposed that Turkey be let off easily and that Prussia, Austria, and Russia divide up Polish territory as compensation.
11. By 1795, after three partitions, the ancient republic of Poland had vanished from the map.

C. The Austrian Habsburgs
1. Another female monarch, Maria Theresa (r. 1740–1780) of Austria, set out to reform her nation, primarily through traditional power politics.
2. After losing Silesia in the long War of the Austrian Succession in 1748, Maria Theresa was determined to make the Austrian state stronger and more efficient.
3. Church reforms aimed to limit the papacy's influence, eliminate many religious holidays, and reduce the number of monasteries.
4. Administrative reforms strengthened the central bureaucracy, smoothed out provincial differences, and revamped the tax system; a cautious reduction in the power of lords over their serfs and peasant tenants improved the lot of the agricultural population.
5. Maria Theresa's son Joseph II (r. 1780–1790), drawing on Enlightenment ideas, moved forward rapidly when he came to the throne and abolished serfdom in 1781.
6. A decree in 1789 that allowed peasants to pay landlords in cash rather than through labor on their land was violently rejected by both the nobility and the peasants it was intended to help.
7. When a disillusioned Joseph died prematurely at forty-nine, his brother Leopold II (r. 1790–1792) canceled Joseph's radical edicts and reestablished the requirement that peasants perform forced labor for their lords.
8. By combining old-fashioned state-building with the culture and critical thinking of the Enlightenment, the eastern European absolutists of the later eighteenth century succeeded in expanding the role of the state in the life of society.
9. Their failure to implement humane and enlightened social policies suggests the inherent limitations in Enlightenment thinking about equality and justice, rather than deficiencies in their execution of Enlightenment programs.

D. Jewish Life and the Limits of Enlightened Absolutism
1. Europe's small Jewish populations lived under highly discriminatory laws that confined them to tiny, overcrowded ghettos, excluded them by law from most professions, and could order them out of a kingdom.
2. Still, many rulers relied on Jewish bankers for loans to raise armies and run their kingdoms, and Jewish merchants and traders were prominent in international trade.
3. In the eighteenth century, an Enlightenment movement known as the Haskalah emerged from within the European Jewish community, led by the Prussian philosopher Moses Mendelssohn (1729–1786), who advocated for freedom and civil rights for European Jews.
4. The Haskalah accompanied a period of controversial social change within Jewish communities that loosened rabbinic controls and increased interaction with Christians.
5. Arguments for tolerance won some ground, but a 1753 British law allowing naturalization of Jews was later repealed due to public outrage.
6. The most progressive reforms took place in Austria, where Joseph II instituted reforms intended to integrate Jews more fully into society, including eligibility for military service and removal of

special clothing requirements, but the reforms raised fears among traditionalists in the general population.

7. Although he permitted freedom of religion to his Christian subjects, Frederick the Great of Prussia firmly opposed any general emancipation for the Jews, as he did for the serfs.
8. In 1791 Catherine the Great established the Pale of Settlement, a territory including parts of modern-day Poland, Latvia, Lithuania, Ukraine, and Belarus, where most Jews were required to live.
9. France, during the time of the French Revolution, was the first European state to remove all restrictions on Jews.
10. Over the next hundred years, Jews gradually won full legal and civil rights throughout the rest of Western Europe.
11. Emancipation in Eastern Europe took even longer and aroused more conflict and violence.