

Module 18

Enlightenment and Revolution



Essential Question

In what ways were the ideas introduced by European scientists and thinkers between the 1500s and 1700s revolutionary?



About the Map: This 1660 map drawn by Dutch-German cartographer Andreas Cellarius shows the solar system as described by Polish astronomer Nicolaus Copernicus. Copernicus's concept of a heliocentric universe helped to set off the Scientific Revolution.

In this module you will learn how Enlightenment scientists and thinkers challenged old ideas in science, the arts, government, and religion.

What You Will Learn ...

Lesson 1: The Scientific Revolution. 710

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

Lesson 2: Enlightenment Thinkers 718

The Big Idea A revolution in intellectual activity changed Europeans' view of government and society.

Lesson 3: The Enlightenment Spreads. 725

The Big Idea Enlightenment ideas spread through the Western world and profoundly influenced the arts and government.

Lesson 4: The American Revolution 734

The Big Idea Enlightenment ideas helped spur the American colonies to shed British rule and create a new nation.

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VIDEOS, including...

- Isaac Newton: The Gravity of Genius
- Lessons of the Revolution

HISTORY.

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- ✓ Image with Hotspots: Enlightenment Thinking in Art
- ✓ Image with Text Slider: Enlightenment Ideas

Timeline of Events 1500–1800

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Europe and North America Events

World Events

1500



1543 Copernicus publishes heliocentric theory.

^ 1609 Galileo observes heavens through a telescope similar to this one.

1556 Golden Age of Mughal Empire begins in India. (portrait of Mughal princess) >



1587 Safavid leader Shah Abbas comes to the throne in Persia.

1603 Tokugawa Ieyasu becomes ruler in Japan.

1644 Manchus invade China and establish Qing Dynasty. (Qing ruler Lohan) >



1687 Newton publishes treatise on law of gravity.

1690 Locke publishes treatise on government.



< 1776 With Liberty Bell symbolizing their freedom, American colonies declare independence.

1699 Great Turkish War ends with Ottoman Empire giving up territory in Eastern Europe.

1722 Chinese emperor Kangxi dies after 61-year reign.

1783 Treaty of Paris is signed, ending the American Revolution.

1789 Revolution erupts in France.

1776 Tukolor Kingdom arises in the former Songhai region of West Africa.

1800



The Scientific Revolution

The Big Idea

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

Why It Matters Now

Such questioning led to the development of the scientific method still in use today.

Key Terms and People

geocentric theory
Scientific Revolution
heliocentric theory
Galileo Galilei
scientific method
Isaac Newton
deism

Setting the Stage

The period between 1300 and 1600 was a time of great change in Europe. The Renaissance, a rebirth of learning and the arts, inspired a spirit of curiosity in many fields. Scholars began to question ideas that had been accepted for hundreds of years. Meanwhile, the religious movement known as the Reformation prompted followers to challenge accepted ways of thinking about God and salvation. While the Reformation was taking place, another revolution in European thought had begun, one that would permanently change how people viewed the physical world.

The Roots of Modern Science

Before 1500, scholars generally decided what was true or false by referring to an ancient Greek or Roman author or to the Bible. Few European scholars challenged the scientific ideas of the ancient thinkers or the church by carefully observing nature for themselves.

The Medieval View During the Middle Ages, most scholars believed that the earth was an immovable object located at the center of the universe. According to that belief, the moon, the sun, and the planets all moved in perfectly circular paths around the earth. Common sense seemed to support this view. After all, the sun appeared to be moving around the earth as it rose in the morning and set in the evening.

This earth-centered view of the universe was called the **geocentric theory**. The idea came from Aristotle, a Greek philosopher from the fourth century BC. The Greek astronomer Ptolemy (TOL•a•mee) expanded the theory in the second century AD. In addition, Christianity taught that God had deliberately placed the earth at the center of the universe. Earth was thus a special place on which the great drama of life unfolded.

A New Way of Thinking Beginning in the mid-1500s, a few scholars published works that challenged the ideas of the ancient thinkers and the church. As these scholars replaced old assumptions with new theories, they launched a change in European thought that historians call the **Scientific Revolution**. The Scientific Revolution was a new way of thinking about the natural world. That way was based upon careful observation and a willingness to question accepted beliefs.

A combination of discoveries and circumstances led to the Scientific Revolution and helped spread its impact. During the Crusades, Europeans came in contact with the Muslim world. They learned about many advancements in mathematics and science developed by Muslim scholars, such as Arabic numerals, algebra, astronomical charts, and human anatomy. Then, during the Renaissance, European explorers traveled to Africa, Asia, and the Americas. They encountered peoples and animals previously unknown in Europe. These discoveries opened Europeans to the possibility that there were new truths to be found. The invention of the printing press during this period helped spread challenging ideas—both old and new—more widely among Europe’s thinkers.

The age of European exploration also fueled a great deal of scientific research, especially in astronomy and mathematics. Navigators needed better instruments and geographic measurements, for example, to determine their location in the open sea. As scientists began to look more closely at the world around them, they made observations that did not match the ancient beliefs. They found they had reached the limit of the classical world’s knowledge. Yet, they still needed to know more.

Reading Check
Analyze Effects
What impact did travel by Europeans have on the launching of the Scientific Revolution?

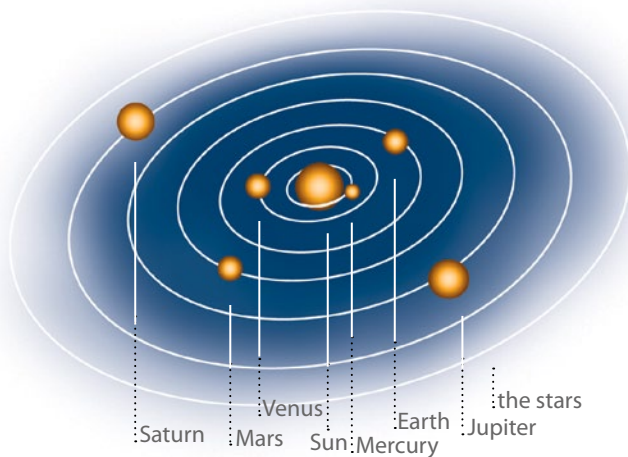
A Revolutionary Model of the Universe

An early challenge to accepted scientific thinking came in the field of astronomy. It started when a small group of scholars began to question the geocentric theory.

The Heliocentric Theory Although backed by authority and common sense, the geocentric theory did not accurately explain the movements of the sun, moon, and planets. This problem troubled a Polish cleric and astronomer named Nicolaus Copernicus (nik•uh•LAY•uhs koh•PUR•nuh•kuhs). In the early 1500s, Copernicus became interested in an old Greek idea that the sun stood at the center of the universe.

After studying planetary movements for more than 25 years, Copernicus reasoned that the stars, the earth, and the other planets revolved around the sun.

Copernicus’s **heliocentric**, or sun-centered, **theory** still did not completely explain why the planets orbited the way they did. He also knew that most scholars and clergy



This model shows how Copernicus saw the planets revolving around the sun.

would reject his theory because it contradicted their religious views. Copernicus did not publish his findings until 1543, the last year of his life. He received a copy of his book, *On the Revolutions of the Heavenly Bodies*, on his deathbed.

Even though it was revolutionary, Copernicus's book caused little stir at first. Over the next century and a half, other scientists built on the foundations Copernicus had laid. A Danish astronomer, Tycho Brahe (TEE•koh-brah), carefully recorded the movements of the planets for many years, noting their positions in the sky over time. Brahe produced mountains of accurate data based on his observations. However, it was left to his followers to make mathematical sense of them.

After Brahe's death in 1601, his assistant, a brilliant mathematician named Johannes Kepler (yo•HAHN•uhs-KEP•ler), continued his work. After studying Brahe's data, Kepler concluded that certain mathematical laws govern planetary motion. One of these laws showed that the planets must revolve around the sun in elliptical orbits instead of circles, as Copernicus had thought. Kepler's laws showed that Copernicus's basic ideas were true, however. They demonstrated mathematically that the planets revolve around the sun.

Galileo's Discoveries Italian scientist **Galileo Galilei** built on the new theories about astronomy. As a young man, Galileo learned that a Dutch lens maker had built an instrument that could enlarge far-off objects. Galileo built his own telescope in 1609 and used it to study the heavens.

Then, in 1610, he published a small book called *Starry Messenger*, which described his astonishing observations. Galileo announced that Jupiter had four moons and that the sun had dark spots. He also noted that the earth's moon had a rough, uneven surface. This shattered Aristotle's theory that the moon and stars were made of a pure, perfect substance. Galileo's observations, as well as his laws of motion, also clearly supported the theories of Copernicus.

Conflict with the Church Galileo's findings frightened both Catholic and Protestant leaders because they went against church teaching and authority. If people believed the church could be wrong about this, they might question other church teachings as well.

In 1616, the Catholic Church warned Galileo not to defend the ideas of Copernicus. Although Galileo remained publicly silent, he continued his studies. Then, in 1632, he published *Dialogue Concerning the Two Chief World Systems*. This book presented the ideas of both Copernicus and Ptolemy, but it clearly showed that Galileo supported the Copernican theory. The pope angrily summoned Galileo to Rome to stand trial before the Inquisition, a court held to suppress ideas and beliefs that conflicted with Catholic teachings.

Galileo stood before the court in 1633. Under the threat of torture, he knelt before the cardinals and read aloud a signed confession. In it, he agreed that the ideas of Copernicus were false.

Galileo's Confession

When he was called before a papal court, Galileo had to make a difficult decision. Should he continue to support the heliocentric theory and anger the Church or confess to wrongdoing and stop publishing his work? He chose the latter.

“With sincere heart and unpretended faith I abjure, curse, and detest the aforesaid errors and heresies [of Copernicus] and also every other error . . . contrary to the Holy Church, and I swear that in the future I will never again say or assert . . . anything that might cause a similar suspicion toward me.”

—Galileo Galilei,
quoted in *The Discoverers*



Analyze Historical Sources

In what two ways does Galileo seek to appease the Church in his confession?

Reading Check

Find Main Ideas

How did Kepler's findings support the heliocentric theory?

Galileo was never again a free man. He lived under house arrest and died in 1642 at his villa near Florence. However, his books and ideas still spread all over Europe. (In 1992, the Catholic Church officially acknowledged that Galileo had been right.)

The Scientific Method

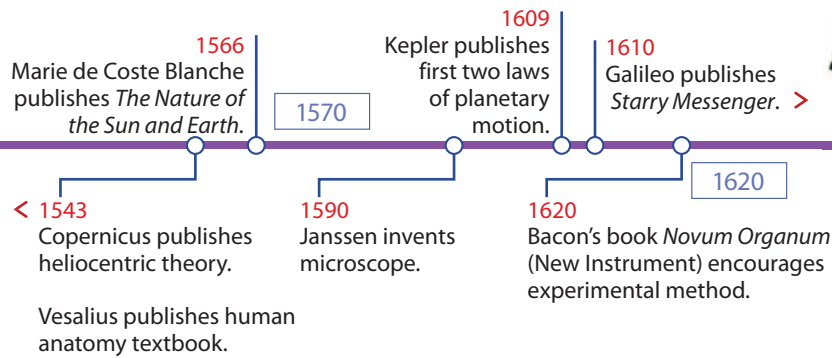
The revolution in scientific thinking that Copernicus, Kepler, and Galileo began eventually developed into a new approach to science called the **scientific method**. The scientific method is a logical procedure for gathering and testing ideas. It begins with a problem or question arising from an observation. Scientists next form a hypothesis, or unproved assumption. The hypothesis is then tested in an experiment or on the basis of data. In the final step, scientists analyze and interpret their data to reach a new conclusion. That conclusion either confirms or disproves the hypothesis.

The scientific method emphasizes two different types of thinking—deductive and inductive reasoning. Using deductive reasoning, scientists start with a theory and test the theory with experiments and observations. This is sometimes called “going from the top down.” When they look for patterns in data from experiments and observation and come up with conclusions, they are using inductive reasoning. This sometimes called “going from the bottom up.”

Major Steps in the Scientific Revolution



Nicolaus Copernicus began the Scientific Revolution with his heliocentric theory.



Bacon and Descartes The scientific method did not develop overnight. The work of two important thinkers of the 1600s, Francis Bacon and René Descartes, helped to advance the new approach.

Francis Bacon, an English statesman and writer, had a passionate interest in science. He believed that by better understanding the world, scientists would generate practical knowledge that would improve people's lives. In his writings, Bacon attacked medieval scholars for relying too heavily on the conclusions of Aristotle and other ancient thinkers. Instead of reasoning from abstract theories, he urged scientists to experiment and then draw conclusions. This approach is called empiricism, or the experimental method.

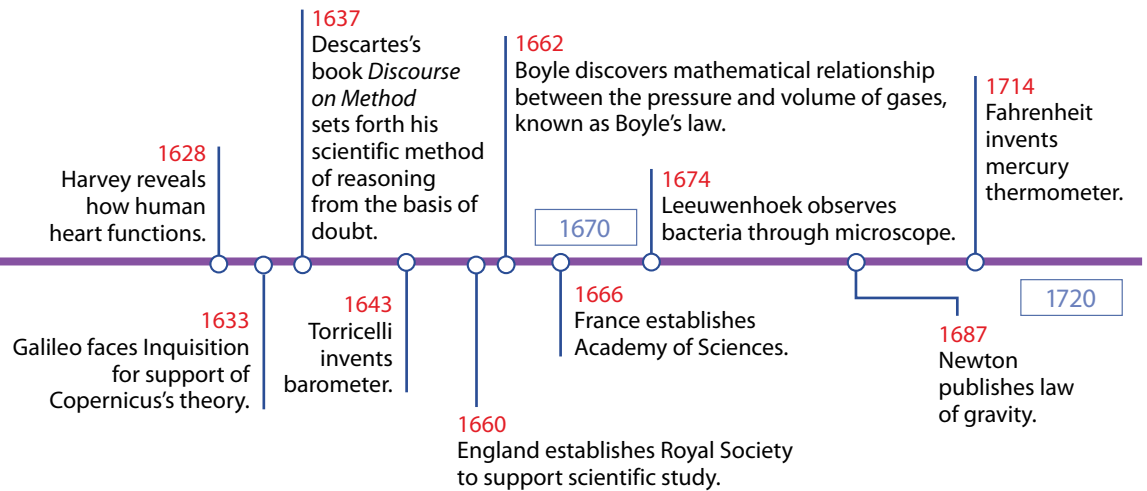
In France, René Descartes also took a keen interest in science. He developed analytical geometry, which linked algebra and geometry. This provided an important new tool for scientific research.

Like Bacon, Descartes believed that scientists needed to reject old assumptions and teachings. As a mathematician, however, he approached gaining knowledge differently from Bacon. Rather than using experimentation, Descartes relied on mathematics and logic. He believed that everything should be doubted until proved by reason. The only thing he knew for certain was that he existed—because, as he wrote, “I think, therefore I am.” From this starting point, he followed a train of strict reasoning to arrive at other basic truths.

The methodologies followed by modern sciences are based on the ideas of Bacon and Descartes. Scientists from the 1700s to the present have determined that observation and experimentation, together with general laws that can be expressed mathematically, can lead people to a better understanding of the natural world.

Reading Check

Contrast How did Descartes's approach to science differ from Bacon's?



Isaac Newton's law of gravity explained how the same physical laws govern motion both on earth and in the heavens.

Reading Check
Clarify Why was the law of gravitation important?

Newton Explains the Law of Gravity

By the mid-1600s, the accomplishments of Copernicus, Kepler, and Galileo had shattered the old views of astronomy and physics. Later, the great English scientist **Isaac Newton** helped to bring together their breakthroughs under a single theory of motion.

Newton studied mathematics and physics at Cambridge University. By the time he was 26, Newton was certain that all physical objects were affected equally by the same forces. Newton's great discovery was that the same force ruled motion of the planets and all matter on earth and in space. The key idea that linked motion in the heavens with motion on the earth was the law of universal gravitation. According to this law, every object in the universe attracts every other object. The degree of attraction depends on the mass of the objects and the distance between them.

In 1687, Newton published his ideas in a work entitled *The Mathematical Principles of Natural Philosophy* (sometimes known by its Latin title, *Principia Mathematica*). It was one of the most important scientific books ever written. The universe he described was like a giant clock. Its parts all worked together perfectly in ways that could be expressed mathematically. Newton believed that God was the creator of this orderly universe, the clockmaker who had set everything in motion. Many other scientists and philosophers during the Scientific Revolution, including Descartes, agreed with Newton's view of the role of God in the universe. This type of thinking was called **deism**, from the Latin word for God.

Changing Idea: Scientific Method

Old Science	New Science
Scholars generally relied on ancient authorities, church teachings, common sense, and reasoning to explain the physical world.	In time, scholars began to use observation, experimentation, and scientific reasoning to gather knowledge and draw conclusions about the physical world.

The Scientific Revolution Spreads

As astronomers explored the secrets of the universe, other scientists began to study the secrets of nature on earth. Careful observation and the use of the scientific method eventually became important in many different fields.

Scientific Instruments Scientists developed new tools and instruments to make the precise observations that the scientific method demanded. The first microscope was invented in 1590 by a Dutch maker of eyeglasses, Zacharias Janssen (YAHN•suhn). In the 1670s, a Dutch drapery merchant and amateur scientist named Anton van Leeuwenhoek (LAY•vuhn•huk) used a microscope to observe bacteria swimming in tooth scrapings. He also examined red blood cells for the first time.

In 1643, one of Galileo's students, Evangelista Torricelli (tawr•uh•CHEHL•ee), developed the first mercury barometer, a tool for measuring atmospheric pressure and predicting weather. In 1714, the German physicist Gabriel Fahrenheit (FAR•uhn•hyt) made the first thermometer to use mercury in glass. Fahrenheit's thermometer showed water freezing at 32°. A Swedish astronomer, Anders Celsius (SEHL•see•uhs), created another scale for the mercury thermometer in 1742. Celsius's scale showed freezing at 0°.

Medicine and the Human Body During the Middle Ages, European doctors had accepted as fact the writings of an ancient Greek physician named Galen. However, Galen had never dissected the body of a human being. Instead, he had studied the anatomy of pigs and other animals. Galen assumed that human anatomy was much the same. In the 1500s, a Flemish physician named Andreas Vesalius proved Galen's assumptions wrong. Vesalius dissected human corpses and published his observations. His book, *On the Structure of the Human Body* (1543), was filled with detailed drawings of human organs, bones, and muscles.



The famous Dutch artist Rembrandt painted *Anatomy Lesson of Dr. Nicolaes Tulp* in 1632 from an actual anatomy lesson. The corpse was that of a criminal.

Vocabulary
inoculation the act of injecting a germ into a person's body so as to create an immunity to the disease

In the late 1700s, British physician Edward Jenner introduced a vaccine to prevent smallpox. Inoculation using live smallpox germs had been practiced in Asia for centuries. While beneficial, this technique could also be dangerous. Jenner discovered that inoculation with germs from a cattle disease called cowpox gave permanent protection from smallpox for humans. Because cowpox was a much milder disease, the risks for this form of inoculation were much lower. Jenner used cowpox to produce the world's first vaccination.

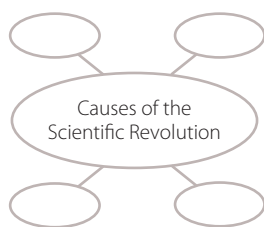
Discoveries in Chemistry Robert Boyle pioneered the use of the scientific method in chemistry. Boyle had studied classical ideas about chemistry and medieval ideas including alchemy. Alchemists believed that base metals such as lead and copper could be transformed into silver and gold. Using both observations and experimentation, Boyle attempted to apply the principles and methods of chemistry to the study of the natural world and to medicine. He is considered the founder of modern chemistry. In a book called *The Sceptical Chymist* (1661), Boyle challenged Aristotle's idea that the physical world consisted of four elements—earth, air, fire, and water. Instead, Boyle proposed that matter was made up of smaller primary particles that joined together in different ways. Boyle's most famous contribution to chemistry is Boyle's law. This law explains how the volume, temperature, and pressure of a gas affect each other.

The notions of reason and order, which spurred so many breakthroughs in science, soon moved into other fields of life. Philosophers and scholars across Europe began to rethink long-held beliefs about the human condition, most notably the rights and liberties of ordinary citizens. These thinkers helped to usher in a movement that challenged the age-old relationship between a government and its people and eventually changed forever the political landscape in numerous societies.

Reading Check
Make Inferences
Why were Galen's descriptions of human anatomy inaccurate?

Lesson 1 Assessment

1. **Organize Information** Which event or circumstance do you consider to be the most significant? Why?



2. **Key Terms and People** For each key term or person in the lesson, write a sentence explaining its significance.
3. **Analyze Issues** Why did the Catholic Church oppose the spreading of the heliocentric theory by scientists?

4. **Contrast** How did the scientific method differ from the approach generally followed by Medieval scholars?
5. **Draw Conclusions** "If I have seen farther than others," said Newton, "it is because I have stood on the shoulders of giants." Could this statement be said of most scientific accomplishments? Explain.
6. **Analyze Motives** Why might institutions of authority tend to reject new ideas developed by scientists and other thinkers?
7. **Form and Support Opinions** Do you agree with Galileo's actions during his Inquisition? Explain.



Enlightenment Thinkers

The Big Idea

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

Why It Matters Now

The various freedoms enjoyed in many countries today are a result of Enlightenment thinking.

Key Terms and People

Enlightenment
social contract
John Locke
philosophy
rationalism
Voltaire
Montesquieu
Rousseau

Setting the Stage

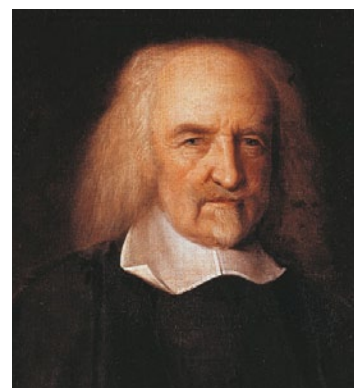
In the wake of the Scientific Revolution and the new ways of thinking it prompted, scholars and philosophers began to reevaluate old notions about other aspects of society. They sought new insight into the underlying beliefs regarding government, religion, economics, and education. Their efforts spurred the **Enlightenment**, a new intellectual movement that stressed reason and thought and the power of individuals to solve problems. Known also as the Age of Reason, the movement reached its height in the mid-1700s and brought great change to many aspects of Western civilization.

Two Views on Government

The Enlightenment started from some key ideas put forth by two English political thinkers of the 1600s, Thomas Hobbes and John Locke. Both men experienced the political turmoil of England early in that century. However, they came to very different conclusions about government and human nature.

Hobbes's Social Contract

Thomas Hobbes expressed his views in a work called *Leviathan* (1651). The horrors of the English Civil War convinced him that all humans were naturally selfish and wicked. Without governments to keep order, Hobbes said, there would be “war . . . of every man against every man” and life would be “solitary, poor, nasty, brutish, and short.”



Thomas Hobbes

Hobbes argued that to escape such a bleak life, people had to hand over their rights to a strong ruler. In exchange, they gained law and order. Hobbes called this agreement by which people created a government the **social contract**. Because people acted in their own self-interest, Hobbes said, the ruler needed total power to keep citizens under control. The best government was one that had the awesome power

of a leviathan (sea monster). In Hobbes's view, such a government was an absolute monarchy, which could impose order and demand obedience.

Locke's Natural Rights The philosopher **John Locke** held a different, more positive view of human nature. He believed that people could learn from experience and improve themselves. As reasonable beings, they had the natural ability to govern their own affairs and to look after the welfare of society. Locke criticized absolute monarchy and favored the idea of self-government.

According to Locke, all people are born free and equal, with three natural or human rights—life, liberty, and property. The purpose of government, said Locke, is to protect these rights. If a government fails to do so, citizens have a right to overthrow it. Locke's theory had a deep influence on modern political thinking. His belief that a government's power comes from the consent of the people is the foundation of modern democracy. Locke's ideas of popular sovereignty, or government by popular consent, and the right to rebel against unjust rulers helped inspire struggles for liberty in Europe and the Americas.

Changing Idea: The Right to Govern

Old Idea	New Idea
A monarch's rule is justified by divine right.	A government's power comes from the consent of the governed.

Locke's writings also led to new theories of education in Europe. Children are born with open minds, Locke wrote, and through education they can be taught society's important values. This type of thinking led some European rulers to issue edicts requiring young children to attend schools. Still, educational opportunities remained limited for girls or for those whose families did not belong to state churches.

The Philosophes Advocate Reason

The Enlightenment reached its height in France in the mid-1700s. Paris became the meeting place for people who wanted to discuss politics and share ideas. The social critics of this period in France were known as **philosophes** (FIHL•uh•sahfs), the French word for "philosophers." The philosophes believed that people could apply reason to all aspects of life, just as Isaac Newton had applied reason to science. Five concepts formed the core of their beliefs:

1. **Reason** Enlightenment thinkers, building on ideas set forth earlier by Descartes, believed truth could be discovered through reason or logical thinking. This concept is sometimes called **rationalism**.
2. **Nature** The philosophes believed that what was natural was also good and reasonable. Enlightenment thinkers such as Locke focused on the rights that people have in their natural state as human beings in order to live in dignity. These rights cannot be taken away by any society or government.

Reading Check

Contrast How does Locke's view of human nature differ from that of Hobbes?

Voltaire (1694–1778)

Voltaire befriended several European monarchs and nobles. Among them was Prussian king Frederick II. The two men seemed like ideal companions. Both were witty and preferred to dress in shabby, rumpled clothes.

Their relationship eventually soured, however. Voltaire disliked editing Frederick's mediocre poetry, while Frederick suspected Voltaire of shady business dealings. Voltaire eventually described the Prussian king as "a nasty monkey, perfidious friend, [and] wretched poet." Frederick in turn called Voltaire a "miser, dirty rogue, [and] coward."



While Voltaire and other writers during this period made satiric attacks with their pens, English artist William Hogarth used a paintbrush to make fun of social and political evils. In his painting *Canvassing for Votes*, he comments on political corruption. While the candidate flirts with the ladies on the balcony, his supporters offer a man money for his vote.

Montesquieu and the Separation of Powers Another influential French writer, the Baron de **Montesquieu** (MAHN•tuh•skyoo), devoted himself to the study of political liberty. Montesquieu believed that Britain was the best-governed and most politically balanced country of his own day. The British king and his ministers held executive power. They carried out the laws of the state. The members of Parliament held legislative power. They made the laws. The judges of the English courts held judicial power. They interpreted the laws to see how each applied to a specific case. Montesquieu called this division of power among different branches separation of powers.

Montesquieu oversimplified the British system. It did not actually separate powers this way. His idea, however, became a part of his most famous book, *On the Spirit of Laws* (1748). In his book, Montesquieu proposed that separation of powers would keep any individual or group from gaining total control of the government. "Power," he wrote, "should be a check to power." This idea later would be called checks and balances.

Montesquieu's book was admired by political leaders in the British colonies of North America. His ideas about separation of powers and checks and balances became the basis for the United States Constitution.

Rousseau: Champion of Freedom A third great philosophe, Jean-Jacques **Rousseau** (roo•SOH), was passionately committed to individual freedom. The son of a poor Swiss watchmaker, Rousseau won recognition as a writer of essays. A strange, brilliant, and controversial figure, Rousseau strongly disagreed with other Enlightenment thinkers on many matters. Most philosophes believed that reason, science, and art would improve life for all people. Rousseau, however, argued that civilization corrupted people's natural goodness. "Man is born free, and everywhere he is in chains," he wrote.

DOCUMENT-BASED INVESTIGATION Historical Source

Two Views on Laws in a Democracy

Both Rousseau and Montesquieu believed firmly that fair and just laws—not monarchs or unrestrained mobs—should govern society. In these quotes, Rousseau reflects on laws as part of the contract holding a democratic society together while Montesquieu sees laws as providing a necessary limitation of freedom.

"I . . . therefore give the name 'Republic' to every state that is governed by laws, no matter what the form of its administration may be: for only in such a case does the public interest govern, and the res publica [republic] rank as a reality. . . . Laws are, properly speaking, only the conditions of civil association. The people, being subject to the laws, ought to be their author: the conditions of the society ought to be regulated . . . by those who come together to form it."

—Jean-Jacques Rousseau,
The Social Contract

"It is true that in democracies the people seem to act as they please; but political liberty does not consist in an unlimited freedom. . . . We must have continually present to our minds the difference between independence and liberty. Liberty is a right of doing whatever the laws permit, and if a citizen could do what they [the laws] forbid he would be no longer possessed of liberty, because all his fellow-citizens would have the same power."

—Baron de Montesquieu,
The Spirit of Laws

Analyze Historical Sources

How do Rousseau and Montesquieu differ in their view of the role of laws in a democracy?

Major Ideas of the Enlightenment

Idea	Thinker	Impact
Natural and human rights—life, liberty, property	Locke	Fundamental to U.S. Declaration of Independence
Separation of powers	Montesquieu	France, United States, and Latin American nations use separation of powers in new constitutions
Freedom of thought and expression	Voltaire	Guaranteed in U.S. Bill of Rights and French Declaration of the Rights of Man and Citizen; European monarchs reduce or eliminate censorship
Civil rights, including abolishment of torture	Beccaria	Guaranteed in U.S. Bill of Rights; torture outlawed or reduced in nations of Europe and the Americas
Religious freedom	Voltaire	Guaranteed in U.S. Bill of Rights and French Declaration of the Rights of Man and Citizen; European monarchs reduce persecution

Interpret Charts

- Analyze Issues** What important documents reflect the influence of Enlightenment ideas?
- Evaluate Concepts** Which are the two most important Enlightenment ideas? Support your answer with reasons.

Rousseau believed that the only good government was one that was freely formed by the people and guided by the “general will” of society—a direct democracy. Under such a government, people agree to give up some of their freedom in favor of the common good. In 1762, he explained his political philosophy in a book called *The Social Contract*.

Rousseau’s view of the social contract differed greatly from that of Hobbes. For Hobbes, the social contract was an agreement between a society and its government. For Rousseau, it was an agreement among free individuals to create a society and a government.

Like Locke, Rousseau argued that legitimate government came from the consent of the governed. However, Rousseau believed in a much broader democracy than Locke had promoted. He argued that all people were equal and that titles of nobility should be abolished. Rousseau’s ideas inspired many of the leaders of the French Revolution who overthrew the monarchy in 1789.



Jean Jacques Rousseau

Beccaria Promotes Criminal Justice While Locke and Rousseau focused on natural or human rights, an Italian philosophe named Cesare Bonesana Beccaria (bayk•uh•REE•ah) wrote about people’s civil rights, the rights they deserved as citizens of a city or country. Turning his attention to the justice system, he reasoned that laws existed to preserve social order, not to avenge crimes. Beccaria regularly criticized common abuses of justice. They included torturing of witnesses and suspects, irregular proceedings in trials, and punishments that were arbitrary or cruel. He argued that a person accused of a crime should receive a speedy trial and that torture should never be used. Moreover, he said, the degree of punishment should be based on the seriousness of the crime. He also believed that capital punishment should be abolished.

Beccaria based his ideas about justice and civil rights on the principle that governments should seek the greatest good for the greatest number of people. His ideas influenced criminal law reformers in Europe and North America.

Reading Check

Form Generalizations

What did all of the philosophes see as the purpose and value of reason?

Lesson 2 Assessment

- 1. Organize Information** Which impact of the Enlightenment do you consider most important and why? Use an outline to help organize your thoughts.

Enlightenment in Europe
I. Two Views on Government
A.
B.
II. The Philosophes Advocate Reason
A.
B.
- 2. Key Terms and People** For each key term or person in the lesson, write a sentence explaining its significance.
- 3. Analyze Issues** Why did John Locke oppose the idea of an absolute monarch running a country’s government?
- 4. Draw Conclusions** What did social critics such as the philosophes hope to accomplish through their writings and art?
- 5. Synthesize** Explain how the following statement reflects Enlightenment ideas: “Power should be a check to power.”
- 6. Analyze Effects** Why was Voltaire’s use of satire effective?
- 7. Draw Conclusions** Do you think the philosophes were optimistic about the future of humankind? Explain.



The Enlightenment Spreads

The Big Idea

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

Why It Matters Now

An “enlightened” problem-solving approach to government and society prevails in modern civilization today.

Key Terms and People

salons
baroque
neoclassical
Mary Wollstonecraft
enlightened despot
Catherine the Great

Setting the Stage

The philosophes’ views about society often got them in trouble. In France, it was illegal to criticize either the Catholic Church or the government. Many philosophes landed in jail or were exiled. Voltaire, for example, experienced both punishments. Nevertheless, the Enlightenment spread throughout Europe with the help of books, magazines, and word of mouth. In time, Enlightenment ideas influenced everything from the artistic world to the royal courts across the continent.

A World of Ideas

In the 1700s, Paris was the cultural and intellectual capital of Europe. Young people from around Europe—and also from the Americas—came to study, philosophize, and enjoy the culture of the bustling city. The brightest minds of the age gathered there. From their circles radiated the ideas of the Enlightenment.

The buzz of Enlightenment ideas was most intense in the mansions of several wealthy women of Paris. In their large drawing rooms, these hostesses held regular social gatherings called **salons**. At these events, philosophers, writers, artists, scientists, and other intellects met to discuss ideas.

Diderot’s Encyclopedia The most influential of the salon hostesses in Voltaire’s time was Marie-Thérèse Geoffrin (zhuh•frehn). She helped finance the project of a leading philosophe named Denis Diderot (DEE•duh•roh). Diderot created a large set of books to which many leading scholars of Europe contributed articles and essays. He called it *Encyclopedia* and began publishing the first volumes in 1751.

The Enlightenment views expressed in the articles soon angered both the French government and the Catholic Church. Their censors banned the work. They said it undermined royal authority, encouraged a spirit of revolt, and fostered “moral corruption, irreligion, and unbelief.” Nonetheless, Diderot continued publishing his *Encyclopedia*.

Reading Check

Draw Conclusions

Why did the Catholic Church seek to censor the writings of Enlightenment thinkers?

The salons and the *Encyclopedia* helped spread Enlightenment ideas to educated people all over Europe. Enlightenment ideas also eventually spread through newspapers, pamphlets, and even political songs. Enlightenment ideas about government and equality attracted the attention of a growing literate middle class, which could afford to buy many books and support the work of artists.

Now and Then

Online Encyclopedias

These days, when people around the world want to explore new ideas and learn information about a wide range of subjects, they often click onto online encyclopedias. Some online encyclopedias are free, and some charge a monthly fee to access their entries. Wikipedia is the largest and most popular online encyclopedia. Wikipedia.com first went live on January 15, 2001. Its founder established a set of rules and invited people from around the world to submit entries on subjects on which they had expertise. A large number of volunteer editors were charged with reviewing content to make sure that writers provided sources for information, tried to be accurate, and were unbiased. The site's software keeps a log of any change made to any entry. In this way, Wikipedia tries to assure that no one tampers with entries, introduces errors, or vandalizes entries with a malicious intent.

Just as the popularity of Diderot's *Encyclopedia* spread throughout Europe, Wikipedia has become a worldwide source of information. As of August 2015, there were more than 3 million



entries in the English-language version of Wikipedia submitted or edited by more than 10 million contributors. Wikipedia is available in more than 250 other languages as well, including American Indian languages. While many students use Wikipedia to find information for their reports in school, most teachers question whether Wikipedia entries are totally accurate and require students to confirm the information in more reliable sources, such as Britannica.com.

New Artistic Styles

The Enlightenment ideals of order and reason were reflected in the arts—music, literature, painting, and architecture.

Neoclassical Style Emerges European art of the 1600s and early 1700s had been dominated by the style called **baroque**, which was characterized by a grand, ornate design. Baroque styles could be seen in elaborate palaces such as Versailles in France and in numerous paintings.

Under the influence of the Enlightenment, styles began to change. Artists and architects worked in a simple and elegant style that borrowed ideas and themes from classical Greece and Rome. The main artistic style of the late 1700s is therefore called **neoclassical** (“new classical”). Science played an important role in this trend: neoclassical artists were inspired by archaeological discoveries about the classical world.



These two buildings reflect the changes in architectural styles taking place during the Enlightenment. (Top) The Cathedral of Santa Agatha in Catania, Sicily, was designed in baroque style, with elaborate arches, marble statues, and angled panels. (Bottom) The neoclassical palace of Poland's last king, located in Warsaw, features classical columns and flat, blank walls.

Changes in Music and Literature Music styles also changed to reflect Enlightenment ideals. The music scene in Europe had been dominated by such composers as Johann Sebastian Bach of Germany and George Friedrich Handel of England. These artists wrote dramatic organ and choral music. During the Enlightenment, a new, lighter, and more elegant style of music known as *classical* emerged. Three composers in Vienna, Austria, rank among the greatest figures of the classical period in music. They were Franz Joseph Haydn, Wolfgang Amadeus Mozart, and Ludwig van Beethoven.

Writers in the 18th century also developed new styles and forms of literature. A number of European authors began writing novels, which are lengthy works of prose fiction. Their works had carefully crafted plots, used suspense, and explored characters' thoughts and feelings. These books were popular with a wide middle-class audience who liked the entertaining stories written in everyday language. Writers, including many women, turned out a flood of popular novels in the 1700s.

Samuel Richardson's *Pamela* is often considered the first true English novel. It tells the story of a young servant girl who refuses the advances of her master. Another English masterpiece, *Tom Jones*, by Henry Fielding, tells the story of an orphan who travels all over England to win the hand of his lady.

Reading Check

Contrast How did baroque and neoclassical architecture differ?

Women and the Enlightenment

During the Enlightenment period, European women generally had few legal or property rights. Although the philosophes challenged many assumptions about government and society, they often took a traditional view toward women. Rousseau, for example, developed many progressive ideas about education. However, he believed that a girl's education should mainly teach her how to be a helpful wife and mother. Other male social critics scolded women for reading novels because they thought it encouraged idleness and wickedness. Enlightenment writers even used scientific discoveries about female anatomy to support the view that women were only suited for domestic roles. Still, some male writers argued for more education for women and for women's equality in marriage.

Women writers also tried to improve the status of women. In 1694, the English writer Mary Astell published *A Serious Proposal to the Ladies*. Her book addressed the lack of educational opportunities for women. In later writings, she used Enlightenment arguments about government to criticize the unequal relationship between men and women in marriage. She wrote, "If absolute sovereignty be not necessary in a state, how comes it to be so in a family? . . . If all men are born free, how is it that all women are born slaves?"

During the 1700s, other women picked up these themes. Among the most persuasive was **Mary Wollstonecraft**, who published an essay called *A Vindication of the Rights of Woman* in 1792. In the essay, she disagreed with Rousseau that women's education should be secondary to men's. Rather, she argued that women, like men, need education to become virtuous and useful. Wollstonecraft also urged women to enter the male-dominated fields of medicine and politics.

Women made important contributions to the Enlightenment in other ways, such as the salons you read about earlier in this lesson.

One woman fortunate enough to receive an education in the sciences was Emilie du Châtelet (shah•tlay). Du Châtelet was an aristocrat trained as a mathematician and physicist. By translating Newton's work from Latin into French, she helped stimulate interest in science in France.

Enlightenment and Monarchy

From the salons, artists' studios, and concert halls of Europe, the Enlightenment spirit also swept through Europe's royal courts. Many philosophes, including Voltaire, believed that the best form of government was a monarchy in which the ruler respected the people's rights. The philosophes tried to convince monarchs to rule justly. Some monarchs embraced the new ideas and made reforms that reflected the Enlightenment spirit. They became known as **enlightened despots**. *Despot* means "absolute ruler."

Reading Check

Draw Conclusions

Why do you think the issue of education was important to both Astell and Wollstonecraft?

Mary Wollstonecraft

(1759–1797)

A strong advocate of education for women, Wollstonecraft herself received little formal schooling. She and her two sisters taught themselves by studying books at home. With her sisters, she briefly ran a school. These experiences shaped much of her thoughts about education.

Wollstonecraft eventually took a job with a London publisher. There, she met many leading radicals of the day. One of them was her future husband, the writer William Godwin. Wollstonecraft died at age 38, after giving birth to their daughter, Mary. This child, whose married name was Mary Wollstonecraft Shelley, went on to write the classic novel *Frankenstein*.



The enlightened despots supported the philosophes' ideas. But they also had no intention of giving up any power. The changes they made were motivated by two desires: they wanted to make their countries stronger and their own rule more effective. The foremost of Europe's enlightened despots were Frederick II of Prussia, Holy Roman Emperor Joseph II of Austria, and Catherine the Great of Russia.

Frederick the Great Frederick II, the king of Prussia from 1740 to 1786, committed himself to reforming Prussia. He granted many religious freedoms, reduced censorship, and improved education. For example, he issued an edict requiring children in Prussia to attend primary schools. He also reformed the justice system and abolished the use of torture. In addition, he improved his army by giving promotions based on merit and hard work rather than on the basis of class. However, Frederick's changes only went so far. For example, he believed that serfdom was wrong, but he did nothing to end it since he needed the support of wealthy landowners. As a result, he never tried to change the existing social order.

Perhaps Frederick's most important contribution was his attitude toward being king. He called himself "the first servant of the state." From the beginning of his reign, he made it clear that his goal was to serve and strengthen his country. This attitude was clearly one that appealed to the philosophes.

Vocabulary

serfdom a system in which peasants were forced to live and work on a landowner's estate



Joseph II

Joseph II The most radical royal reformer was Joseph II of Austria. The son and successor of Maria Theresa, Joseph II ruled the Holy Roman Empire with his mother starting in 1765 and ruled Austria alone from 1780 to 1790. He introduced legal reforms and freedom of the press and expanded education opportunities within Austria. He also supported freedom of worship, even for Protestants, Orthodox Christians, and Jews. In his most radical reform, Joseph abolished serfdom and ordered that peasants be paid for their labor with cash. Not surprisingly, the nobles resisted this change. Like many of Joseph's reforms, it was undone after he died.

Catherine the Great The ruler most admired by the philosophes was Catherine II of Russia, known as **Catherine the Great**. She ruled from 1762 to 1796. The well-educated empress read the works of philosophes, and she exchanged many letters with Voltaire. She ruled with absolute authority but also sought to reform Russia.

In 1767, Catherine formed a commission to review Russia's laws. She presented it with a brilliant proposal for reforms based on the ideas of Montesquieu and Beccaria. Among other changes, she recommended allowing religious toleration and abolishing torture and capital punishment. Her commission, however, accomplished none of these lofty goals.

Catherine eventually put in place limited reforms, but she did little to improve the life of the Russian peasants. Her views about enlightened ideas changed after a massive uprising of serfs in 1773. With great brutality, Catherine's army crushed the rebellion. Catherine had previously favored an end to serfdom. However, the revolt convinced her that she needed the nobles' support to keep her throne. Therefore, she gave the nobles absolute power over the serfs. As a result, Russian serfs lost their last traces of freedom.

Catherine Expands Russia Peter the Great, who ruled Russia in the early 1700s, had fought for years to win a port on the Baltic Sea. Likewise, Catherine sought access to the Black Sea. In two wars with the Ottoman Turks, her armies finally won control of the northern shore of the Black Sea. Russia also gained the right to send ships through Ottoman-controlled straits leading from the Black Sea to the Mediterranean Sea.

Catherine also expanded her empire westward into Poland. In Poland, the king was relatively weak, and independent nobles held the most power.

Reading Check
Synthesize How accurately does the term “enlightened despot” describe Catherine the Great? Explain.

The three neighboring kingdoms—Russia, Prussia, and Austria—each tried to assert their influence over the country. In 1772, these land-hungry neighbors each took a piece in what is called the First Partition of Poland. In further partitions in 1793 and 1795, they grabbed up the rest of Poland’s territory. With these partitions, Poland disappeared as an independent country for more than a century.

By the end of her remarkable reign, Catherine had vastly enlarged the Russian empire. She also made significant improvements to Russia’s government administration and economy. But as she developed Russia into an international power, she lost sight of the ideals she held at the beginning of her reign. Instead of promoting justice in Russian society, she became known as a tyrant.

Changing Idea: Relationship Between Ruler and State

Old Idea	New Idea
The state and its citizens exist to serve the monarch. As Louis XIV reportedly said, “I am the state.”	The monarch exists to serve the state and support citizens’ welfare. As Frederick the Great said, a ruler is only “the first servant of the state.”

BIOGRAPHY

Catherine the Great (1729–1796)

The daughter of a minor German prince, Catherine was 15 when she was handed over to marry the Grand Duke Peter, heir to the Russian throne.

Peter was mentally unstable. Catherine viewed her husband’s weakness as her chance for power. She made important friends among Russia’s army officers and became known as the most intelligent and best-informed person at court. In 1762, only months after her husband became czar, Catherine had him arrested and confined. Soon afterward, Peter conveniently died, probably by murder.





This painting shows people examining a miniature planetarium, which presented new ideas about the structure of the solar system.

Legacy of the Enlightenment

Over a span of a few decades, Enlightenment writers challenged long-held ideas about society. They examined such principles as the divine right of monarchs, the union of church and state, and the existence of unequal social classes. They held these beliefs up to the light of reason and found them in need of reform.

The philosophes mainly lived in the world of ideas. They formed and popularized new theories. Although they encouraged reform, they were not active revolutionaries. However, their theories eventually inspired the American and French revolutions and other revolutionary movements in the 1800s. Enlightenment thinking produced three other long-term effects that helped shape Western civilization.

It is difficult to tell how deeply these ideas spread into European societies. Educational reforms expanded the reading public during this period, and books and periodicals became more easily available. Ideas also spread informally through salons and literary clubs. Yet many working-class people, especially in rural areas, still could not read. Although we don't know what information spread by word of mouth, it is likely that most poorer Europeans had little exposure to the Enlightenment.

Belief in Progress The first effect was a belief in progress. Pioneers such as Copernicus, Galileo, and Newton had discovered the key for unlocking the mysteries of nature in the 1500s and 1600s. With the door thus opened, the growth of scientific knowledge seemed to quicken in the 1700s. Scientists made key new discoveries in chemistry, physics, biology, and mechanics. The successes of the Scientific Revolution gave rise to a belief in social progress. Leading thinkers of the age were confident that humans, using reason, could find ways to solve society's problems.

Many philosophes and reformers urged an end to the practice of slavery and argued for greater social equality, as well as a more democratic style of government. The idea of universal human rights was central to these social reform movements. However, some Enlightenment thinkers, including Voltaire, viewed Africans and other nonwhite peoples as inferior. Eighteenth-century ideas about racial differences helped support the expansion of colonialism and the global slave trade.

A More Secular Outlook A second outcome was the rise of a more secular, or nonreligious, outlook. During the Enlightenment, people began to question openly their religious beliefs and the teachings of the church. One by one, scientists discovered that the mysteries of the universe could be explained mathematically or through scientific processes. A new type of human-centered philosophy emerged, teaching that individuals could control their own lives through reason and self-determination rather than relying on an all-knowing deity. Although the church often considered this secular philosophy a threat, there were religious thinkers who embraced reason and scientific inquiry. Newton himself was a deeply religious man, and he sought to reveal God's majesty through his work. However, his findings often caused people to change the way they thought about God.

Newton, Locke, and other major thinkers of the time were called deists. They believed that people should determine their religious beliefs mainly through reason instead of scripture. Some deists, such as Voltaire, harshly criticized the beliefs and practices of organized Christianity. They wanted to rid religious faith of superstition and fear and to promote tolerance of all religions.

Importance of the Individual Faith in science and in progress produced a third outcome, the rise of individualism. As people began to turn away from the church and royalty for guidance, they looked to themselves instead.

The philosophes encouraged people to use their own ability to reason in order to judge what was right or wrong. They also emphasized the importance of the individual in society. Government, they argued, was formed by individuals to promote their welfare. The British thinker Adam Smith extended the emphasis on the individual to economic thinking. He believed that individuals acting in their own self-interest created economic progress. Smith advocated the end of a system popular in Europe in the 1600s and 1700s known as mercantilism. In this system, countries believed they could increase their wealth by encouraging exports and discouraging imports. Smith called for freer trade practices and argued that countries could get wealthy and could keep more people employed by being both exporters and importers within a free market system.

During the Enlightenment, the greatest minds of Europe developed new ideas about reforming society. Some European kings and queens tried to apply these ideas to create progress in their countries. This influence also spread across the Atlantic. Inspired by Enlightenment ideas, colonial leaders in America decided to do the unthinkable: break away from their ruling country and found an independent republic.

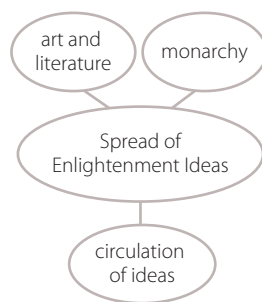
Reading Check

Draw Conclusions

Why did the ideas of the Enlightenment not have much impact on the lives of poorer Europeans?

Lesson 3 Assessment

1. **Organize Information** What are two generalizations you could make about the spread of Enlightenment ideas?



2. **Key Terms and People** For each key term or person in the lesson, write a sentence explaining its significance.

3. **Compare** What characteristics did classical music and neoclassical architecture have in common?

4. **Make Inferences** Why was the term “enlightened despot” appropriate to describe rulers such as Joseph II and Catherine the Great?

5. **Draw Conclusions** What advantages did salons have over earlier forms of communication in spreading ideas?

6. **Analyze Issues** Why might some women have been critical of the Enlightenment?

7. **Make Inferences** How did the *Encyclopedia* project reflect the age of Enlightenment?



The American Revolution

The Big Idea

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

Why It Matters Now

The revolution created a republic, the United States of America, that became a model for many nations of the world.

Key Terms and People

Declaration of Independence
Thomas Jefferson
checks and balances
federal system
Bill of Rights

Setting the Stage

Philosophes such as Voltaire considered England's government the most progressive in Europe. The Glorious Revolution of 1688 had given England a constitutional monarchy. In essence, this meant that various laws limited the power of the English king. Despite the view of the philosophes, however, a growing number of England's colonists in North America accused England of tyrannical rule. Emboldened by Enlightenment ideas, they would attempt to overthrow what was then the mightiest power on earth and create their own nation.

Britain and Its American Colonies

Throughout the 1600s and 1700s, British colonists had formed a large and thriving settlement along the eastern shore of North America. When George III became king of Great Britain in 1760, his North American colonies were growing by leaps and bounds. Their combined population soared from about 250,000 in 1700 to 2,150,000 in 1770, a nearly ninefold increase. Economically, the colonies thrived on trade with the nations of Europe.

Along with increasing population and prosperity, a new sense of identity was growing in the colonists' minds. By the mid-1700s, colonists had been living in America for nearly 150 years. Each of the 13 colonies had its own government, and people were used to a great degree of independence. Colonists saw themselves less as British and more as Virginians or Pennsylvanians. However, they were still British subjects and were expected to obey British law.

In 1651, the British Parliament passed a trade law called the Navigation Act. This and subsequent trade laws prevented colonists from selling their most valuable products to any country except Britain. In addition, colonists had to pay high taxes on imported French and Dutch goods. Despite the various trade restrictions, Britain's policies benefited both the colonies and the motherland. Britain bought American

Reading Check
Analyze Effects
In what ways did
the American
colonies help Britain's
economy?

raw materials for low prices and sold manufactured goods to the colonists for a profit. Meanwhile, colonial merchants also made money when they sold British-made goods to the colonists.

The connection between American raw materials and British manufactured goods became even more important with the rise of industrialization in Britain in the 1700s. New inventions, such as spinning and weaving machines, made it possible for British textile manufacturers to greatly increase production of cloth. The availability of large supplies of American cotton, which the colonists were required to sell to Britain, helped to make Britain a worldwide leader in cotton textiles. In addition, the American colonies were a major market for British cloth.



The Cloth Hall in Leeds, England, was a busy marketplace for British-made textiles.

Americans Win Independence

In 1754, war erupted on the North American continent between the English and the French. As you recall, the French had also colonized parts of North America throughout the 1600s and 1700s. The conflict was known as the French and Indian War. (The name stems from the fact that the French enlisted numerous Native American tribes to fight on their side.) The fighting lasted until 1763, when Britain and its colonists emerged victorious—and seized nearly all French land in North America.

The victory, however, only led to growing tensions between Britain and its colonists. In order to fight the war, Great Britain had run up a huge debt. Because American colonists benefited from Britain's victory, Britain expected the colonists to help pay the costs of the war. In 1765, Parliament passed the Stamp Act. According to this law, colonists had to pay a tax to have an official stamp put on wills, deeds, newspapers, and other printed material.

American colonists were outraged. They had never paid taxes directly to the British government before. Colonial lawyers argued that the stamp tax violated colonists' natural rights, and they accused the government of "taxation without representation." In Britain, citizens accepted taxes that their representatives in Parliament had passed. The colonists, however, had no representation in Parliament. Thus, they argued, they could not be taxed.

Growing Hostility Leads to War Over the next decade, hostilities between the two sides increased. Some colonial leaders favored independence from Britain. In 1773, to protest an import tax on tea, a group of colonists dumped a large load of British tea into Boston Harbor. George III, infuriated by the Boston Tea Party, as it was called, ordered the British navy to close the port of Boston.

Such harsh tactics by the British infuriated even moderate colonists. In September 1774, representatives from every colony except Georgia gathered in Philadelphia to form the First Continental Congress. This group protested the treatment of Boston. When the king paid little attention to their complaints, the colonies decided to form the Second Continental Congress to debate their next move.

On April 19, 1775, British soldiers and colonial militiamen exchanged gunfire on the village green in Lexington, Massachusetts. The fighting spread to nearby Concord. The Second Continental Congress voted to raise an army and organize for battle under the command of a Virginian named George Washington. The American Revolution had begun.

The Influence of the Enlightenment Colonial leaders used Enlightenment ideas to justify independence. The colonists had asked for the same political rights as people in Britain, they said, but the king had stubbornly refused. Therefore, the colonists were justified in rebelling against a tyrant who had wrongly restricted the liberty of those who are governed, as discussed by Locke and Rousseau. In July 1776, the Second Continental Congress issued the **Declaration of Independence**. This document, written by political leader **Thomas Jefferson**, was firmly based on Locke's ideas. The Declaration reflected these ideas in its eloquent argument for natural rights. "We hold these truths to be self-evident," states the beginning of the Declaration, "that all men are created equal, that they are endowed by their Creator with certain unalienable rights, that among these are life, liberty, and the pursuit of happiness."

Since Locke had asserted that people had the right to rebel against an unjust ruler, the Declaration of Independence included a long list of George III's abuses. The document ended by declaring the colonies' separation from Britain. The colonies, the Declaration said, "are absolved from all allegiance to the British crown."

BIOGRAPHY

Thomas Jefferson

(1743–1826)

The author of the Declaration of Independence, Thomas Jefferson of Virginia, was a true figure of the Enlightenment. As a writer and statesman, he supported free speech, religious freedom, and other civil liberties. At the same time, he was also a slave owner.

Jefferson was a man of many talents. He was an inventor as well as one of the great architects of early America. He designed the Virginia capitol building in Richmond and many buildings for the University of Virginia. Of all his achievements, Jefferson wanted to be most remembered for three: author of the Declaration of Independence, author of the Statute of Virginia for Religious Freedom, and founder of the University of Virginia.

Changing Idea: Colonial Attachment to Britain

Old Idea	New Idea
American colonists considered themselves to be subjects of the British king.	After a long train of perceived abuses by the king, the colonists asserted their right to declare independence.

Reading Check
Analyze Causes
 Why did the American colonists feel they were justified in rebelling against England?

Success for the Colonists Britain was not about to let its colonies leave without a fight. Shortly after the publication of the Declaration of Independence, the two sides went to war. At first glance, the American colonists seemed destined to go down to quick defeat. Washington's ragtag, poorly trained army faced the well-trained forces of the most powerful country in the world. In the end, however, the colonists won their war for independence.

Several reasons explain the colonists' success. First, the Americans' motivation for fighting was much stronger than that of the British, as their army was defending their homeland. Second, the overconfident

British generals made several mistakes. Third, time itself was on the side of the colonists. The British could win battle after battle, as they did, and still lose the war. Fighting an overseas war, 3,000 miles from London, was terribly expensive. After a few years, tax-weary British citizens called for peace.

Finally, the Americans did not fight alone. Louis XVI of France had little sympathy for the ideals of the American Revolution. However, he was eager to weaken Britain, France's rival. French entry into the war in 1778 was decisive.

In 1781, combined forces of about 9,500 Americans and 7,800 French trapped a British army commanded by Lord Cornwallis near Yorktown, Virginia. Unable to escape, Cornwallis eventually surrendered. The Americans had shocked the world and won their independence.

▶ Explore ONLINE!

North America, 1783



Interpret Maps

- 1. Region** What feature formed the western border of the United States?
- 2. Human-Environment Interaction** Which European countries had claims on the North American continent in 1783?

Democracy

Ancient Greece and Rome were strong influences on the framers of the U.S. system of government. Democracy as it is practiced today, however, is different from the Greek and Roman models.

The most famous democracy today is the United States. The type of government the United States uses is called a federal republic. Federal means power is divided between the national and state governments. In a republic, the people vote for their representatives. Two key components of democracy in the United States are the Constitution and the ability to vote.

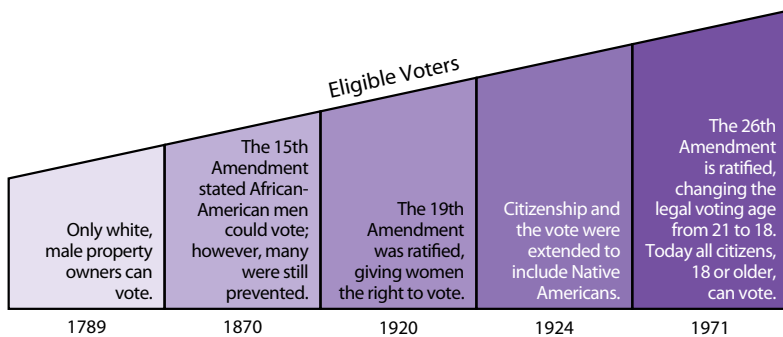
ENLIGHTENMENT IDEAS AND THE U.S. CONSTITUTION

Many of the ideas contained in the Constitution are built on the ideas of Enlightenment thinkers.

Enlightenment Idea	U.S. Constitution
Locke A government's power comes from the consent of the people	Preamble begins "We the people of the United States" to establish legitimacy. Creates representative government Limits government powers
Montesquieu Separation of powers	Federal system of government Powers divided among three branches System of checks and balances
Rousseau Direct democracy	Public election of president and Congress
Voltaire Free speech, religious tolerance	Bill of Rights provides for freedom of speech and religion.
Beccaria Accused have rights, no torture	Bill of Rights protects rights of accused and prohibits cruel and unusual punishment.

WHO VOTES?

Voting is an essential part of democracy. Universal suffrage means that all adult citizens can vote. Universal suffrage is part of democracy in the United States today, but that was not always the case. This chart shows how the United States gradually moved toward giving all citizens the right to vote.



Critical Thinking

- Synthesize** If many of the concepts included in the U.S. Constitution are based upon European ideas, what key role did the framers of the U.S. Constitution play?
- Predict** Why is it important that every citizen has, and exercises, his or her right to vote?

Americans Create a Republic

Shortly after declaring their independence, the 13 individual states recognized the need for a national government. In establishing their government, they planned to build upon two ancient Greek ideas: constitutionalism (developing a written plan for running a state or country) and republicanism (establishing a system in which government is based on the consent of the people). In their new republic, the Americans wanted to make sure that the states retained many powers and the national government did not become too strong. They also feared establishing a democracy in which power was put directly in the hands of the people, many of whom were uneducated.

As victory became certain, all 13 states ratified a constitution in 1781. This plan of government was known as the Articles of Confederation. The Articles established the United States as a republic, a government in which citizens rule through elected representatives.

A Weak National Government To protect their authority, the 13 states created a loose confederation in which they held most of the power. Thus, the Articles of Confederation deliberately created a weak national government. There were no executive or judicial branches. Instead, the Articles established only one body of government, the Congress. Each state, regardless of size, had one vote in Congress. Congress could declare war, enter into treaties, and coin money. It had no power, however, to collect taxes or regulate trade. Passing new laws was difficult because laws needed the approval of 9 of the 13 states.

These limits on the national government soon produced many problems. Although the new national government needed money to operate, it could only request contributions from the states. Angry Revolutionary War veterans bitterly complained that Congress still owed them back pay for their services. Meanwhile, several states issued their own money. Some states even put tariffs on goods from neighboring states.

Global Patterns

Revolutionary Spirit

The American Revolution inspired a spirit of revolution in other countries. Across the Atlantic, a growing number of people in France began demanding reform in their own country. They saw the new government of the United States as the fulfillment of Enlightenment ideals and longed for such a government in France. The Declaration of Independence was widely circulated and admired in France, and the triumph of the colonies over Britain was cheered. In 1789, less than a decade after the American Revolution ended, an armed struggle to topple the government began in France.

The events of the French Revolution then inspired enslaved people in the French colony of Saint-Domingue in the Caribbean to begin a violent revolution of their own in 1791 led by Toussaint L'Ouverture. This revolution ended with the establishment of the Republic of Haiti in 1804.



A New Constitution Colonial leaders eventually recognized the need for a strong national government. In February 1787, Congress approved a Constitutional Convention to revise the Articles of Confederation. The Constitutional Convention held its first session on May 25, 1787. The 55 delegates were experienced statesmen who were familiar with the political theories of Locke, Montesquieu, and Rousseau.

Although the delegates shared basic ideas on government, they sometimes disagreed on how to put them into practice. For almost four months the delegates argued over important questions. Who should be represented in Congress? How many representatives should each state have? The delegates' deliberations produced not only compromises but also new approaches to governing. Using the political ideas of the Enlightenment, the delegates created a new system of government.

The Federal System Like Montesquieu, the delegates distrusted a powerful central government controlled by one person or group. They therefore established three separate branches—legislative, executive, and judicial. This setup provided a built-in system of **checks and balances**, with each branch checking the actions of the other two. For example, the president received the power to veto legislation passed by Congress. However, the Congress could override a presidential veto with the approval of two-thirds of its members. The Supreme Court could check that laws passed by Congress or actions taken by the president were constitutional.

Although the Constitution created a strong central government, it did not eliminate local governments. Instead, the Constitution set up a **federal system** in which power was divided between national and state governments.



Early copy of the U.S. Constitution

The Bill of Rights The convention delegates signed the new Constitution on September 17, 1787. In order to become law, however, the Constitution required approval by conventions in at least 9 of the 13 states. These conventions were marked by sharp debate. Supporters of the Constitution were called Federalists. They argued in their famous work, the **Federalist Papers**, that the new government would provide a better balance between national and state powers. Their opponents, the Antifederalists, feared that the Constitution gave the central government too much power. They also stressed the need for a bill of rights to protect the rights of individual citizens.

Finally, a compromise was reached. In order to gain support, the Federalists promised to add a bill of rights to the Constitution. This promise cleared the way for approval. Congress formally added to the Constitution the ten amendments known as the **Bill of Rights**. These amendments protected such basic rights as freedom of speech, press, assembly, and religion. Many of these rights had been advocated by Voltaire, Rousseau, and Locke.

The Constitution and Bill of Rights marked a turning point in people's ideas about government. Both documents put Enlightenment ideas into practice. They expressed an optimistic view that reason and reform could prevail and that progress was inevitable. Such optimism swept across the Atlantic. However, the monarchies and the privileged classes didn't give up power and position easily. Within a few years, the struggle to attain the principles of the Enlightenment would lead to violent revolution in France.

Reading Check

Analyze Issues

What were the opposing views regarding ratification of the Constitution?

Lesson 4 Assessment

- Organize Information** Use the organizer to record problems and solutions found in the lesson. Which of the solutions that you recorded represented a compromise?

Problem	Solution
1.	1.
2.	2.
3.	3.

- Key Terms and People** For each key term or person in the lesson, write a sentence explaining its significance.

- Analyze Causes** Why were the colonists so upset about passage of the Stamp Act?
- Analyze Effects** How did John Locke's notion of the social contract influence the American colonists?
- Make Inferences** Why might it be important to have a Bill of Rights that guarantees basic rights of citizens?
- Form and Support Opinions** Do you think the American Revolution would have happened if there had not been an Age of Enlightenment? Explain.
- Analyze Motives** Why do you think the colonists at first created such a weak central government?

Module 18 Assessment

Key Terms and People

For each term or name below, briefly explain its connection to European and American history between 1500 and 1800.

1. heliocentric theory
 2. Isaac Newton
 3. social contract
 4. philosophe
 5. salon
 6. enlightened despot
 7. Declaration of Independence
 8. federal system
-

Main Ideas

Use your notes and the information in the module to answer the following questions.

The Scientific Revolution

1. According to Ptolemy, what was the earth's position in the universe? How did Copernicus's view differ?
2. What are the four steps in the scientific method?
3. What four new instruments came into use during the Scientific Revolution? What was the purpose of each one?

Enlightenment Thinkers

4. How did the ideas of Hobbes and Locke differ?
5. What did Montesquieu admire about the government of Britain?
6. What changes did Beccaria propose to correct abuses in the justice system?

The Enlightenment Spreads

7. What were three developments in the arts during the Enlightenment?
8. What were two changes for women that Mary Wollstonecraft advocated?
9. What types of reforms did the enlightened despots make?
10. How did the Enlightenment lead to a more secular outlook?

The American Revolution

11. Why did the Articles of Confederation result in a weak national government?
12. How did the writers of the U.S. Constitution put into practice the idea of separation of powers and a system of checks and balances?

Module 18 Assessment, continued

Critical Thinking

1. **Evaluate** Make a two-column chart. In the left column, list important new ideas that arose during the Scientific Revolution and the Enlightenment. In the right column, briefly explain why each idea was revolutionary.

New Idea	Why Revolutionary?

2. **Analyze Effects** What role did technology play in the Scientific Revolution?
3. **Analyze Issues** How did the U.S. Constitution reflect the ideas of the Enlightenment? Refer to specific Enlightenment thinkers to support your answer.
4. **Clarify** How did the statement by Prussian ruler Frederick the Great that a ruler is only “the first servant of the state” highlight Enlightenment ideas about government?
5. **Predict** Explain how the day-to-day activities of scientists in Europe probably changed following the Scientific Revolution.
6. **Recognize Effects** What impact did the Scientific Revolution have on the church in European countries in the 1600s and 1700s?
7. **Evaluate Courses of Action** How did the decision by American leaders to replace the Articles of Confederation with the Constitution make the United States a stronger country?
8. **Evaluate** Did Catherine II of Russia deserve to be known as “Catherine the Great”?
9. **Analyze Motives** Why did European leaders imprison or exile satirists such as Voltaire?
10. **Make Inferences** While many European rulers sought to improve educational opportunities for their subjects, they offered little change for women and girls. Why?

Engage with History

Think about the many different or revolutionary ideas or ways of doing things you encountered in this module. Consider how such breakthroughs impacted society then and now. Discuss in a small group what you feel were the most significant new ideas or scientific developments and explain how they still impact our lives today.

Focus on Writing

Reexamine the material on the Scientific Revolution. Then write a three-paragraph **essay** summarizing the difference in scientific understanding before and after the various scientific breakthroughs. Focus on

- the ultimate authorities on many matters before the Scientific Revolution
- how and why that changed after the Scientific Revolution

Multimedia Activity

Use the Internet to explore a recent breakthrough in science or medicine. Look for information that will help you explain why the discovery is significant and how the new knowledge changes what scientists had thought about the topic.

In a well-organized paper, compare the significance of the discovery you are writing about with major scientific or medical discoveries of the Scientific Revolution. Be sure to

- apply a search strategy when using directories and search engines to locate web resources
- judge the usefulness of each website
- correctly cite your web resources
- revise and edit for correct use of language

THE

American REVOLUTION

The American Revolution led to the formation of the United States of America in 1776. Beginning in the 1760s, tensions grew between American colonists and their British rulers when Britain started passing a series of new laws and taxes for the colonies. With no representation in the British government, however, colonists had no say in these laws, which led to growing discontent. After fighting broke out in 1775, colonial leaders met to decide what to do. They approved the

Declaration of Independence, announcing that the American colonies were free from British rule. In reality, however, freedom would not come until after years of fighting.

Explore some of the people and events of the American Revolution online. You can find a wealth of information, video clips, primary sources, activities, and more through your online textbook.

“I know not what course others may take; but as for me, give me liberty or give me death!”

—Patrick Henry



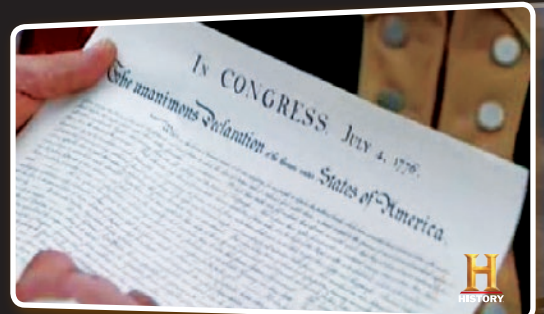
“Give Me Liberty or Give Me Death!”

Read an excerpt from Patrick Henry’s famous speech, which urged the colonists to fight against the British.



Seeds of Revolution

Watch the video to learn about colonial discontent in the years before the Revolutionary War.



Independence!

Watch the video to learn about the origins of the Declaration of Independence.



Victory!

Watch the video to learn how the American colonists won the Revolutionary War.

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