Chapter 19

1. Scientific Revolution
	1. Dawn of Modern Science
		1. Geocentric theory
			1. Belief that the Earth was the center of the universe and planted revolved around the Earth.
			2. Originally proposed by Aristotle
			3. Upheld by the church based upon teachings that God put Earth in the center of the universe.
		2. Scientific Revolution
			1. Period in 1500s and 1600s when scholars began thinking about the world in new ways and developed new ways to test their theories.
			2. Willing to challenge traditional ways of thinking because exploration introduced new people and lands that were not studied. Exploration also created new challenges with the natural world that needed to be studied. These created the thought traditional ideas might not be absolute because there may be that other undiscovered things existed and traditional beliefs about nature did not always parallel new discoveries.
		3. Scientific Method
			1. Five step process created by scientists to investigate
				1. Hypothesis
				2. Experiment
				3. Record
				4. Analyze
				5. Conclusion
			2. Francis Bacon (England): believed only way to gain scientific knowledge was through experimentation (observe, measure, explain, verify).
			3. Rene Descartes (France): believed everything should be doubted until it could be proven by reason; relied on math and logic to prove basic truths.
			4. Deductive and inductive reasoning
				1. Deductive: moving from general to specific
				2. Inductive: moving from specific to general
		4. New Methods of Understanding
			1. Rationalism – theory of using reason as the source for understanding
				1. Descartes
			2. Humanism – theory that places emphasis the importance of humans and their reasoning abilities as opposed to strict adherence to accepted ideas.
			3. Empiricism – theory that knowledge can only come from primary or sensory experience.
			4. Part of the scientific methods; hypothesis and test do decide based upon evidence.
	2. Discoveries
		1. Heliocentric theory
			1. Theory that the Earth revolved around the sun
			2. Copernicus developed mathematical explanation for his theory; he did not publish his theories until the last year of his life due to fear of the church.
			3. Johannes Brahe proved the heliocentric theory was correct and that the earth orbited the sun in an oval pattern.
		2. Galileo
			1. Built the first telescope used for astronomy in 1609
			2. First scientist to observe Saturn, craters on the moon, sunspots, and moons of Jupiter. Also discovered that the Milky Way was made of stars.
		3. Newton
			1. Explained the law of gravitation – that gravity affects objects in the universe as well as on earth.
			2. Developed a new type of mathematics, calculus, to predict the effects of gravity; a german philosopher discovered calculus at the same leading the two men to feud over accusations of plagiarism.
		4. Biology
			1. In Middle Ages European doctors relied on words of ancient Greek physician Galen, who based his work on animals.
			2. Andreas Vesalius became known for work in anatomy; a judge learned of his work and made the bodies of executed criminal available for him to study.
		5. Chemistry
			1. Robert Boyle was the first chemist to define an element. Developed Boyle’s law which describes how temperature, volume, and pressure affect gases.
	3. Society
		1. Science and the church
			1. Church was the most powerful institution in Europe during the Middle Ages and the source for most learning.
			2. Most scientists were Christian and did not want to challenge the role of Christianity in the community.
			3. Thoughts conflicted because church explained world through inspiration and scientists explained it through logical reasoning.
			4. Galileo was pressured by church to not support Copernican theory. He did and was ordered to stand trial before the inquisition. He stated he would not use Copernican theory in his work and to receive a less harsh sentence. He was placed on house arrest for the remainder of his life.
			5. Inquisition – church institution designed dispose of heresy or dissenting views of the church.
		2. Science and art
			1. Science and art were linked during the Renaissance. Artists learned anatomy to paint accurate portraits; chemistry was used for paint and lighting; math was used to create balance.
			2. Science and religion combined to great artistic achievements of Renaissance because a lot of the art was religious in nature.
		3. Science and community
			1. Scientific Revolution spread to philosophers and scholars seeking new information about society. Began to reexamine old ideas on government, religion, education, economics, war, and poverty.
2. Enlightenment
	1. The Age of Reason
		1. The Scientific Revolution convinced many European thinkers about the power of reason. With the scientific method and reason, scientists had made countless discoveries about the physical world.
		2. In the 1600s a new generation of philosophers began to view reason as the best way to understand truth. They came to the conclusion that reason could be used to solve all human problems.
		3. This exciting time of optimism and possibility is now called the Enlightenment, or age of reason.
		4. Ideas of the Enlightenment inspired educated people throughout Europe and beyond. People gathered in coffeehouses and public spaces to debate the new ideas. Many writers published their ideas in books, magazines, and inexpensive pamphlets to help spread their ideas among educated readers.
		5. They were all inspired by the exciting notion that the problems of the world could be solved by educated people.
		6. By the time the Enlightenment reached its peak in the 1700s, Paris was a center of intellectual activity. Eager to promote the new ideas, many wealthy Parisian women began hosting social gathers called salons. These women brought together philosophers, artists, scientists and writers regularly to discuss their ideas.
	2. New Views on Government
		1. As the Enlightenment began, European thinkers began looking for ways to apply reason in order to improve the human condition.
		2. Some of those thinkers began to examine the organization of government.
		3. Thomas Hobbes
			1. English thinker wrote about his views on government in his 1651 book Leviathan. His experience of the violence and upheaval of the English Civil War persuaded him that people were selfish and greedy.
				1. In the natural state, he wrote, people would leave lives that were solitary, poor, nasty, brutish, and short.
			2. Hobbes believed that people needed governments to impose order. He argued that people in a society people should agree to give up some freedoms to a strong leader in exchange for safety, peace, and order that government could provide.
				1. Social contract – people gave up certain freedoms so that the government could provide safety and order.
			3. Believed that absolute monarchy was the best form of government because an absolute monarchy had the power of a leviathan, a massive sea monster. That strong, centralized power could be used to impose law and order.
		4. John Locke
			1. English philosopher that believed people were naturally happy, tolerant, and reasonable.
				1. He argued that all people were born equal, with the natural rights of life, liberty, and property.
			2. Believed the purpose of government was to protect people’s natural rights. He believed that God did not choose monarchs; instead, the people consented to the government, whose power was limited by laws.
			3. Locke believed that if a government failed to protect its citizens’ natural rights, they had the right to overthrow it. Locke’s belief in government by the consent became a foundation for democracy.
				1. Wrote Two Treatises on Government
				2. Consent of the governed – idea that government’s right to use state power can only be established when granted by the people that power is to be exercised over.
				3. Natural rights – idea that there are certain rights that are universal and cannot be infringed upon.

These rights came from the state of nature where there is equality.

* + 1. Jean-Jacques Rousseau
			1. French philosopher who believed that people were born good and that society corrupted people.
			2. In The Social Contract he wrote, “Man is born free but everywhere is in chains.”
			3. Believed government should work for the benefit of the common good, not the wealthy few. He argued that individuals should give up some of their freedom for the benefit of the community as a whole.
			4. Rousseau despised inequality in society. He believed that all people were equal and should be recognized as equal in society.
		2. Baron de Montesquieu
			1. Another French thinker who argued that the best form of government included a separation of powers. Dividing power among branches of government, he believed, would prevent any individual or group from abusing its power.
			2. Published *The Spirit of the Laws* in 1748. He wrote about his admiration of Great Britain’s government, because its powers were divided into branches.
				1. Parliament (the legislative branch) made the laws. The King and his advisers (the executive branch) carried out the laws. The court system (the judicial branch) interpreted the laws.
			3. Montesquieu misunderstood the structure of the British government, but his misunderstanding led him to a rational conclusion. The separation of powers allowed each branch of government to serve as a check against the power of the others – a concept known as the system of checks and balances. This concept would become an important part of the structure of later democratic governments, especially of the United States.
	1. New Views on Society
		1. Voltaire
			1. One of the most outspoken French philosophers was Francois Marie Aroute, who wrote under the name Voltaire. Voltaire attacked injustice wherever he saw it- among the nobility, in the government, and in the church.
			2. His sharp wit created enemies and Voltaire was imprisoned twice. He was later exiled to England for two years.
			3. Voltaire used his pen to defend every principle that he held dear and to fight superstition and ignorance. Despite making enemies, Voltaire continued the struggle for justice, religious toleration, and liberty during his entire life.
		2. Diderot and the Encyclopedia
			1. By the mid 1700s, the great expansion of human knowledge convinced French philosophe Denis Diderot to compile it all into a single work, the Encyclopedia.
				1. This extensive 28-volume work explained new ideas about art, science, government, and religion. Its purpose was the promotion of knowledge
			2. Diderot worked on the Encyclopedia for 27 years, publishing the last volume in 1772. French leaders attacked the Encyclopedia because it criticized the church, the government, and the legal system. The government tried to stop publication in 1759 and Diderot completed the remaining volumes in secret.
			3. The Encyclopedia was an immediate success and it helped spread Enlightenment ideas across Europe and to North America.
		3. Mary Wollstonecraft
			1. Although Enlightenment thinkers questioned many established beliefs, the usually held traditional views about women. Many believed that women’s proper roles were as wives and mothers, and that women should receive only enough education to prepare them for these roles.
			2. English writer Mary Wollstonecraft rejected this view. She demanded equal rights for women, especially in education.
			3. In her 1792 book, *A Vindication of the Rights of Woman*, she argued that if men and women had equal education they would have equal roles in society.
		4. Adam Smith
			1. Some thinkers used reason to analyze economic systems.
			2. In his 1776 book, The Wealth of Nations, Smith argued that business activities should take place in the free market.
			3. Smith was a strong believer in laissez-faire economics, an economic system that worked without government regulation. Smith believed that the economy would be stronger if the market forces of supply and demand were allowed to work freely.
	2. Enlightenment Ideas Spread
		1. The spirit of optimism and change was not confined to the salons and the coffeehouses of Europe. Enlightenment ideas quickly spread throughout Europe to Prussia, Russia, Austria, and beyond. Many philosophers appealed directly to European monarchs for change. As a result, a few monarchs developed a system of government in which they ruled according to Enlightenment ideas. These monarchs became known as enlightened despots.
		2. Prussia
			1. Frederick II, the King of Prussia from 1740-1786, believed that his duty was to rule with absolute power in order to build Prussia’s strength. But he was also strongly influenced by the ideas of Voltaire. While Frederick was building Prussia a military power in Europe, he also introduced a number of reforms.
			2. Frederick ambitiously tried to establish a system of elementary education for all Prussian children. HE abolished torture and supported most forms of religious tolerance. Frederick also reduced censorship.
			3. Frederick’s reforms were limited.
				1. He did not extend religious tolerance to Jews; he tried to limit the number of Jews that could live in Prussia.
				2. Frederick opposed serfdom but did not abolish it because he needed the support of the aristocracy.
			4. Frederick did not make reforms simply to achieve justice; he did so to build Prussia’s strength and make his own rule more powerful.
		3. Russia
			1. When Catherine II became the ruler of Russia in 1762, she dreamed of establishing order and justice in Russia while supporting education and culture. Catherine read the worlds of the philosophes and corresponded with Voltaire and Diderot.
			2. Inspired by the philosophes, Catherine set about reforming Russia. She drafted a Russian constitution and a code of laws, but they were considered too liberal and were never put into practice.
			3. Before Catherine came to power, she intended to free the serfs but quickly realized that she would lose the support of wealthy landowners if she did. Catherine had no intention of giving up power and she became a tyrant.
				1. During her reign she actually imposed serfdom on more Russians than ever before.
		4. Austria
			1. The most radical enlightened despot was Joseph II, the son of Maria Theresa of Austria. When he became emperor in 1780, Joseph embarked upon an ambitious reform program.
				1. He eliminated torture and the death penalty had provided free food and medicine for poor citizens.
				2. As a Catholic emperor, he granted religious tolerance to Protestants and Jews.
				3. His most significant reforms was abolishing serfdom and requiring that laborers be paid for their work.
			2. The nobility and the church resisted these dramatic changes. They forced Joseph to revoke some of his reforms shortly before his death in 1790.
		5. Later times and Places
			1. During the Enlightenment, writers and philosophers questioned ideas that had been long held as absolute truths.
				1. They challenged beliefs in absolute monarchy, questioned the relationship between the church and state, and debated the role and rights of people in society.
			2. Enlightenment philosophers promoted ideas that reformers and revolutionaries would later use to change society.
			3. The Enlightenment belief in progress would spur many generations to enact reforms. People began to believe that human reason could solve any problem. Instead of accepting poverty, ignorance, and inequality as part of the human condition, people debated ne ways of making society more just.
			4. Enlightenment ideas about power and authority would inspire not only reforms but also revolutions.
				1. Leaders in Great Britain’s American colonies would use those ideas as inspirations to break free from the British monarchy.
				2. Strongly influenced by Locke and Rousseau, the colonists began to experience a new sense of national identity.
1. The American Revolution
	1. Change and Crisis
		1. Forming a new identity
			1. Since the establishment of the first English settlement in North America in the early 1600s, the British colonies had expanded rapidly along the east coast.
			2. By 1770 the colonies had a population of more than 2.1 million people
			3. The colonies offered many opportunities that simply were not available in Great Britain. Land was plentiful and cheap. The English class system was largely absent, and individuals could more easily advance themselves through intelligence and hard work.
			4. By the mid 1770s the colonies had been established for nearly 150 years. Although the colonists were British subject, they were allowed a large measure of independence. Each colony had its own laws. Over time, the colonists began to identify more closely with the colonies and less with Britain itself.
		2. Opposing British Policies
			1. Trouble erupted when Britain began to assert its right to impose laws on the colonies. In the 1760s conflict between some colonists and Britain escalated rapidly.
			2. Britain defeated France in the French and Indian War in 1763 and France had to give up its North American colonies.
				1. The war had been very expensive for Britain.
				2. Britain decided to make the colonies pay part of the cost in the form of new taxes.
			3. In 1765 Parliament passed the Stamp Act, which required colonists to pay a tax for an official stamp on all newspapers, legal documents, and other public papers.
				1. Colonial leaders were outraged that Parliament taxed them without representatives there to plead their case.
				2. They called for a boycott of English goods, which caused Parliament to repeal the act in 1766.
			4. The British, in 1767, imposed a new series of taxes on glass, paper, paints, and tea. Furious merchants in Boston, Massachusetts, one of the largest colonial cities and a major port called for another boycott of English goods.
				1. The British sent in troops to keep order in the city. As a result, Bostonians harassed the troops constantly on the city’s streets.
			5. 1770 - Boston Massacre.
			6. Most of the Townshend Acts were partially repealed after another colonial boycott. However, the tax on tea remained.
			7. In 1773 a group of rebellious Bostonians called the Sons of Liberty boarded three ships in Boston Harbor.
				1. Led by Samuel Adams and Paul Revere, the Sons of Liberty dumped hundreds of crates of tea into the harbor to protest the tax, an act known as the Boston Tea Party.
				2. The British closed the port of Boston and passed the so-called Intolerable Acts, regulations that limited the freedom of the colonists.
			8. The colonists called the First Continental Congress in Philadelphia in 1774 to list their grievances against the British Government. A plan to reconcile their differences with the British was presented, but it was voted down.
		3. Revolution Begins
			1. The Sons of Liberty in Massachusetts expected a war. As a consequence, they hid weapons in the countryside and towns west of Boston. In April 1775 hundreds of British troops marched out of Boston toward the towns of Lexington and Concord intending to find these weapons.
			2. At dawn on April 19, British troops confronted about 75 colonial militiamen in Lexington. Shots rang out, and the American Revolution began.
			3. Not all colonists were Patriots. Many colonists remained loyal to the British. Others thought that the war was too risky.
			4. In his January 1776 Pamphlet, Common Sense, Thomas Paine argued that the colonies had matured to the point that they no longer needed British rule. Instead, he argued they deserved independence.
			5. Widely read, Thomas Paine’s Common Sense helped the Patriots gain popular support for the cause of independence.
	2. Struggle for Independence
		1. Declaring Independence
			1. During the meeting of the Second Continental Congress in 1776, a committee formed to write a document declaring the colonies’ independence from Britain.
			2. Members of the committee were well-educated leaders, such as John Adams, Thomas Jefferson, and Benjamin Franklin, who were familiar with Enlightenment Concepts.
				1. Jefferson wrote a draft of the Declaration of Independence, incorporating ideas from Locke and Rousseau.
				2. On July 4, 1776, the Continental Congress adopted the Declaration of Independence.
			3. The Declaration was an elegant expression of Enlightenment political philosophy. Many of these ideas were presented in the preamble.
			4. The Declaration drew ideas from the English Bill of Rights of 1689, which protected citizens’ right to a trial, the right to elect members of Parliament, and the right to an independent judicial system.
		2. The Revolutionary War
			1. Before independence had been declared, the Second Continental Congress assigned George Washington as the commanding General of the Army in June 1775.
			2. The American Revolution began poorly for the British, who evacuated Boston in June 1775 after the Americans positioned cannons overlooking the city.
			3. British troops later defeated Washington in the Battle of Long Island, and the Continental Army was driven into New Jersey.
				1. Beaten and bruised, Washington engineered a surprising and daring victory by crossing the icy Delaware River and defeating British forces at Trenton.
			4. In 1777 the British defeated Washington’s forces in New Jersey, and Washington moved into Pennsylvania. Philadelphia fell to the British, and Washington’s army spend a bitter and deadly winter at Valley Forge.
			5. In upstate New York, the British were also winning battles in the summer of 1777. In October, however, the Americans trapped British general Burgoyne’s army at the Battle of Saratoga. The British surrendered and the victory was a crucial win for the Americans. At the same time, Benjamin Franklin was in Paris seeking aid from the French. They victory at Saratoga was exactly the news he needed. Franklin was able to convince the French to contribute heavily to the American cause. This alliance became a turning point in the war.
			6. Over the next two years, the Americans strengthened their forces. The British adopted a strategy to divide the colonies in two. They captured Savannah, Georgia in 1778 and Charleston, South Carolina in 1780. In South Carolina, the Americans made numerous attacks on the British.
			7. In September 1781 the French and American armies surrounded the British army under Lord Cornwallis in Yorktown, Virginia. After a siege of several weeks, Cornwallis grew tired of waiting for the British reinforcements. Lord Cornwallis and his troops surrendered to General Washington on October 19, 1781. The American colonists had won their independence from Britain.
			8. In September 1783 the British government formally recognized the independence of he United States by signing the Treat of Paris.
				1. Benjamin Franklin and other American leaders signed the document in Paris.
				2. The treaty set the geographic boundaries for the new United States.
				3. The treaty gave the Americans not only independence but also much greater territory than the original 13 colonies. The Americans gained all land east of the Mississippi River and north of the 31st parallel.
			9. The end of the war was just the beginning. The Americans faced the task of building a new nation.
	3. Forming a New Government
		1. Articles of Confederation
			1. The Articles of Confederation, approved in 1781, established the first government of the new United States.
			2. The framers of the Articles deliberately made the national government weak to avoid abuses of power.
				1. The government had no power to tax
				2. It also could not negotiate with foreign nations
			3. The Articles of Confederation produced a government that proved too weak to govern effectively.
		2. The Constitution
			1. In 1787, delegates met at a Constitutional Convention in Philadelphia to revise the Articles. Instead, they wrote a new constitution.
			2. The U.S. constitution remains the oldest written constitution still in use today.
			3. Delegates met for nearly four months, and the Constitution that emerged was a product of skillful compromise. The delegates signed the Constitution in 1787, which then wen to the states to be ratified. The Constitution went into effect in 1789.
			4. The Constitution created a federal system of government.
				1. In a federal system, the federal government holds certain powers and other powers are reserved for the state governments.
			5. The Constitution divides the national government’s powers among three branches.
				1. The executive branch includes the president, who has the power to carry out laws.
				2. The judicial branch interprets the laws
				3. Congress, the legislative branch, makes the laws. Congress consists of a lower house, called the House of Representatives and an upper house called the Senate.
			6. A system of checks and balances ensures that no branch of government becomes too powerful. This principle reflects Locke’s and Rousseau’s idea of government by consent of the people. The division of government into three branches reflects Montesquieu’s idea of the separation of powers.
		3. The Bill of Rights
			1. A group of opponents to the Constitution argued that it failed to protect the rights of citizens. They wanted protection for individual’s rights to be added to the Constitution. Congress responded with the Bill of Rights, the first 10 amendments to the Constitution. The Bill of Rights protected the natural rights advocated by Voltaire, Locke, and Rousseau, such as the freedoms of speech and religion.
			2. The Bill of Rights protected a number of other rights, but most important, it guaranteed people equality, or due process of the law.
		4. Impact of American Government
			1. News of the American colonies’ successful revolution had a tremendous impact on other governments, especially in France.
			2. The French king Louis XVI had supported the American Revolution. However, his form of government could not have been further from the ideals of the colonists.
			3. France would experience the upheaval of revolution beginning in 1789.
			4. One of the many reasons for the revolution as the inspiration of the American example.
				1. A group of distant British colonies had adopted the ideals of the Enlightenment and shown that it was possible to oppose tyranny.
				2. This new government was created based on the principles of liberty and equality.