

Chapter 6: Enlightenment and Revolution

1550-1789



Previewing the Chapter

- In Europe, scientists question old ideas and use reason to make discoveries about the natural world.
- Philosophers support the use of reason to reform government, religion and society.
- Enlightenment ideas are used to create a federal government in the newly created United States.

Section 1: The Scientific Revolution

- The Scientific Revolution begins as scientists replace old ideas with new theories.
- New approaches to science include using observation and experiments to develop theories.
- In astronomy, scientists challenge the earth-centered model of the universe.



Section 2: The Enlightenment in Europe

- Enlightenment philosophers admire scientists' use of reason to understand the natural world.
- These philosophers promote the use of reason to understand government, religion, education, and economics.
- They advocate government reform and social improvement.



Section 3: The Spread of Enlightenment Ideas

- Enlightenment ideas circulate in pamphlets and formal discussions.
- The new ideals of order and reason are reflected in the arts and music.
- European monarchs make limited reforms based on Enlightenment ideas.



Section 4: American Revolution—The Birth of a Republic

- Colonists resist the laws and taxes imposed by the British.
- Colonial leaders use Enlightenment ideas to justify independence from Britain, and, after winning the Revolution, create a federal government.



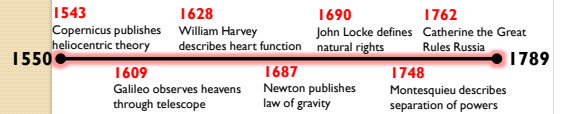
What Do You Know About...??

- The events that lead up to the American Revolution?



Understanding Time Lines

- Major achievements in science and political thought during the Enlightenment
 - Name three milestones in math and astronomy
 - Identify the writers of two major political works



Connect History and Geography

- Look at the map on page 187 of your textbook
 - What city in Brandenburg-Prussia was an Enlightenment center?
 - Where had Enlightenment ideas spread outside of Europe?
 - What effect do think those ideas had on the place you identified in question 2?

Connect History and Geography



Previewing Themes

- Revolution:
 - Between the 16th and 18th centuries, a series of revolutions helped usher in the modern era of Western history
 - First was a revolution in understanding, called the Scientific Revolution
 - Second was a revolution of ideas, called the Enlightenment
 - Third was a revolution in action—the American Revolution

Previewing Themes

- Science and Technology
 - The Scientific Revolution began when some astronomers questioned the old understanding of how the universe operates—one that was deeply tied to people's religious beliefs.
 - By shattering this view, the astronomers opened a new universe of scientific discovery.

Previewing Themes

- **Power and Authority:**
 - Like their counterparts in science, political thinkers of the Enlightenment challenged established ideas about power and authority.
 - A ruler does not own authority by divine right, the thinkers said.
 - Rather, a ruler receives authority by the consent of the people.
 - Such ideas led to the political upheaval of the American Revolution.

Chapter 6: Enlightenment and Revolution

Section 1: The Scientific Revolution



The Scientific Revolution

- The Renaissance inspired a spirit of curiosity in many fields.
- Scholars began to question ideas that had been accepted for hundreds of years.
- During the Reformation, religious leaders challenged accepted ways of thinking about God and salvation.
- While the Reformation was taking place, another revolution in European thought was also occurring. It challenged how people viewed their place in the universe.

The Scientific Revolution

- **Main Idea:**
 - In the mid-1500s, scientists began to question accepted beliefs and make new theories based on experimentation
- **Why It Matters Now:**
 - Scientists' questioning led to the development of the scientific method still in use today

The Scientific Revolution

- Study the "Changing Idea" chart on page 192.
 - What were the old methods used to understand the physical world?
 - What new methods replaced the old methods?

The Scientific Revolution

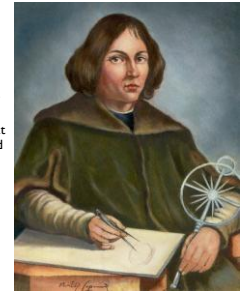
- **Terms and Names:**
 - Scientific Revolution
 - Nicolaus Copernicus
 - Heliocentric theory
 - Johannes Kepler
 - Galileo Galilei
 - Scientific method
 - Francis Bacon
 - René Descartes
 - Isaac Newton

The Roots of Modern Science

- The Medieval View:
 - Most knowledge in the Middle Ages comes from the Bible, Greek and Roman sources
 - Supports the *geocentric theory*
 - The moon, sun and the planets revolve around the earth
- A New Way of Thinking:
 - The Renaissance (1300-1600) prompts new ways of thinking
 - The *Scientific Revolution* is a new way of viewing the natural world
 - It is based on observation and inquiry
 - New discoveries and overseas exploration open up thinking
 - Scholars make new developments in astronomy and mathematics

A Revolutionary Model of the Universe

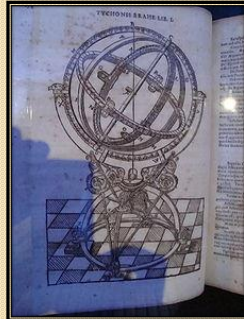
- The Heliocentric Theory:
 - The widely accepted geocentric theory is challenged as inaccurate
 - *Nicolaus Copernicus* develops the *heliocentric theory*
 - He concludes that the sun is at the center of the universe, and that the earth and planets revolve around the sun in circles
 - Later, scientists *Tycho Brahe* and *Johannes Kepler* mathematically prove Copernicus to be correct



Tycho Brahe



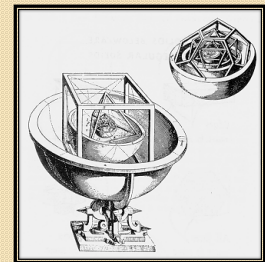
Mathematical Model



Johannes Kepler



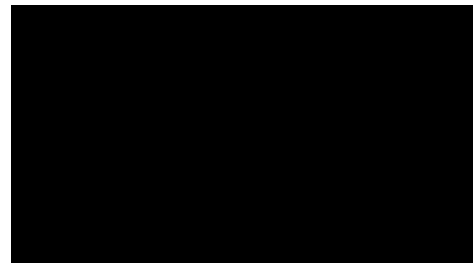
Mathematical Model



A Revolutionary Model of the Universe

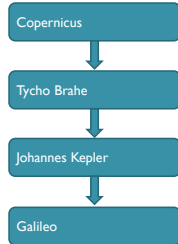
- Galileo's Discoveries:
 - Italian scientist *Galileo Galilei* makes key advances in astronomy
 - By inventing the telescope, he makes discoveries about planet surfaces
 - He supports the heliocentric theory
- Conflict with the Church:
 - The Catholic and Protestant churches attack Galileo's work
 - They feel it will weaken people's faith

A Revolutionary Model of the Universe



Create a Flow Chart

- Write the contribution of each scientist to the heliocentric theory (include dates)



The Scientific Method

- A Logical Approach:
 - A revolution in thinking leads to the development of the *scientific method*
 - This is a series of steps for forming and testing scientific theories

The Scientific Method

- Thinkers *Francis Bacon* and *René Descartes* help to create the scientific method

The Scientific Method

- Bacon urges scientists to experiment before drawing conclusions



The Scientific Method



- Descartes advocates the use of logic and mathematics to reason out basic truths

Isaac Newton Explains the Law of Gravity

- English scientist *Isaac Newton* develops the theory of motion
 - This theory states that the same forces rule the motion of planets, matter in space and even objects on earth
- Motion in space and earth are linked by the universal law of gravitation
 - The law holds that every object in the universe attracts every other object
- Newton views the universe as a vast, perfect mechanical clock
 - He also believes that God built the clock and set it into motion



The Scientific Revolution Spreads

- Scientific Instruments:
 - To satisfy growing curiosity about the universe, scientists develop the microscope, barometer and thermometer
 - These new instruments lead to better observations

The Scientific Revolution Spreads

- Medicine and the Human Body
 - Andreas Vesalius improves knowledge of anatomy
 - Edward Jenner produces the world's first vaccination for smallpox
 - Uses cow virus to develop the vaccine

The Scientific Revolution Spreads

- Discoveries in Chemistry
 - Robert Boyle argues that matter is made up of many different particles
 - 'Boyle's Law' reveals the interaction of volume, temperature and gas pressure

Review

- Terms and Names:
 - Scientific Revolution
 - Nicolaus Copernicus
 - Heliocentric theory
 - Johannes Kepler
 - Galileo Galilei
 - Scientific method
 - Francis Bacon
 - René Descartes
 - Isaac Newton

Review

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

Chapter 6: Enlightenment and Revolution

Section 2: The Enlightenment in Europe



The Enlightenment in Europe

- The influence of the Scientific Revolution soon spread beyond the world of science.
- Philosophers admired Newton because he had used reason to explain the laws governing nature.
- People began to look for laws governing human behavior as well.
- They hoped to apply reason and the scientific method to all aspects of society:
 - Government, religion, economics and education.
- In this way, the ideas of the Scientific Revolution paved the way for a new movement called the **Enlightenment**, or the Age of Reason.
- This movement reached its height in the mid-1700s.

The Enlightenment in Europe

- Study the “Changing Idea” chart on page 195.
 - According to the Old Idea—where does a monarch’s power come from?
 - According to the New Idea—where should a government’s power come from?

The Enlightenment in Europe

- Main Idea:
 - A revolution in intellectual activity changed Europeans’ view of government and society.
- Why It Matters Now:
 - Freedoms and some forms of government in many countries today are a result of Enlightenment thinking.

The Enlightenment in Europe

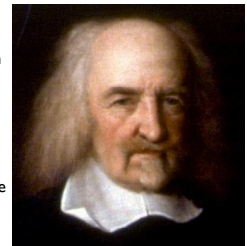
- Terms and Names:
 - Enlightenment
 - Social contract
 - John Locke
 - Natural rights
 - Philosophe
 - Voltaire
 - Montesquieu
 - Separation of Powers
 - Jean Jacques Rousseau
 - Mary Wollstonecraft

Two Views on Government

- New Ways of Thinking
 - The Scientific Revolution spurs a reassessment of many of the prevailing ideas
 - Europeans begin to seek insights into society during the 1600s and 1700s
 - This search leads to the **Enlightenment**
 - A movement stressing reason and thought

Two Views on Government

- Thomas Hobbes’ Social Contract:
 - Hobbes distrusts human nature, and feels that strong government is needed to keep order
 - In his book, *Leviathan* (1651), Hobbes promotes the idea of the **social contract**
 - He advocates giving over power to the ruling monarch



Two Views on Government



- John Locke's Natural Rights:
 - Philosopher *John Locke* had a more positive outlook
 - He says government should get its power from the people
 - Locke promotes the idea of three *natural rights*
 - Life, liberty and property
 - Stresses that people have the right to overthrow an unjust government

The Philosophes Advocate Reason

- Beliefs of the Philosophes:
 - The philosophes are French social critics from the mid-1700s
 - They valued five important philosophical concepts:
 - Reason
 - Nature
 - Happiness
 - Progress
 - Liberty

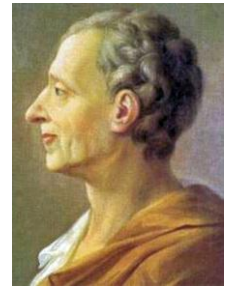
The Philosophes Advocate Reason

- Voltaire Combats Intolerance:
 - *Voltaire* was an influential philosophe.
 - His real name was François Marie Arouet.
 - He publishes many works in which he advocates for tolerance and reason.
 - Makes powerful enemies and is imprisoned twice for his views.

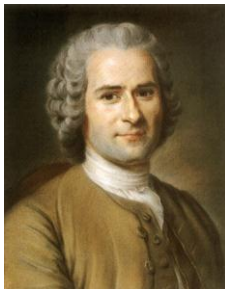


The Philosophes Advocate Reason

- Montesquieu and the Separation of Powers:
 - *Montesquieu* was a French writer who admired Britain's system of government.
 - Favors the idea of the *separation of powers* to keep one body from running the government.
 - He writes: "Power should be a check to power"
 - These ideas became the basis for the U.S. Constitution



The Philosophes Advocate Reason



- Jean-Jacques Rousseau: Champion of Freedom:
 - Rousseau is a philosophe who favors the idea of individual freedom.
 - This is the basis of a direct democracy
 - He views the social contract as an agreement by free people to form a government.
 - He believes that people become corrupted by society and only an individual is truly free

The Philosophes Advocate Reason



- Cesare Beccaria Promotes Criminal Justice:
 - An Italian philosopher who worked to reform the justice system.
 - In his book, *On Crimes and Punishments* (1764), he called for greater rights for criminal defendants.
 - This included the right to a speedy trial.

Women and the Enlightenment

- Views on Educating Women Change
 - Many Enlightenment thinkers still view women in traditional roles
 - Prominent writer **Mary Wollstonecraft** urges greater rights for women
 - She argues that women need a quality education to be virtuous and useful
 - Urges women to go into traditionally male professions like politics
 - Other wealthy women use their status to spread Enlightenment ideas



Major Ideas of the Enlightenment

Idea	Thinker	Impact
Natural rights—life, liberty, property	Locke	Fundamental to U.S. Declaration of Independence
Separation of powers	Montesquieu	France, United States, Latin American nations use the separation of powers in their constitutions
Freedom of thought and expression	Voltaire	Guaranteed in the U.S. Bill of Rights and French Declaration of the Rights of Man and Citizen; European monarchs reduce or eliminate censorship
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 the U.S. Bill of Rights and French Declaration of the Rights of Man and Citizen; European monarchs reduce persecution
Women's equality	Wollstonecraft	Women's rights groups form in Europe and the Americas

1. What important documents reflect the influence of Enlightenment ideas?
2. In your opinion, which are the two most important Enlightenment ideas? Support your answer with reasons

Legacy of the Enlightenment

- Role of the Philosophes
 - The philosophes are not activists, but inspire major revolutions
- Belief in Progress
 - Scientific breakthroughs show human capacity to improve society
- A More Secular Outlook
 - New knowledge of the world leads people to question religious ideas
 - Voltaire and others criticize beliefs and practices of Christianity
 - This leads to more Church reforms
- Importance of the Individual
 - People place more emphasis on individual rights and abilities
 - Reason becomes a central concept for philosophers and even Enlightenment rulers

Review

- Terms and Names:
 - Enlightenment
 - Social contract
 - John Locke
 - Natural rights
 - Philosophe
 - Voltaire
 - Montesquieu
 - Separation of Powers
 - Jean Jacques Rousseau
 - Mary Wollstonecraft

Review

- Choose one Enlightenment thinker and write a paragraph on how his or her ideas are influential today

Synthesizing

- Who wrote the following, what does it mean?
 - “Power should be a check to power”
 - Montesquieu
 - “Man is born free, and everywhere he is in chains”
 - Rousseau
 - “Let women share the rights and she will emulate the virtues of men”
 - Wollstonecraft

Chapter 6: Enlightenment and Revolution

Section 3: The Spread of Enlightenment Ideas



The Spread of Enlightenment Ideas

- The philosophes' views often got them in trouble
- In France, it was illegal to criticize either the Catholic Church or the government.
- Many philosophes either landed in jail or were exiled.
 - Voltaire experienced both punishments.
- Nevertheless, Enlightenment ideas spread throughout Europe.

The Spread of Enlightenment Ideas

- Look at the “Changing Idea” chart in page 204 of your textbook:
 - Which ruler expected citizens to serve the monarch?
 - What were the new ideas about monarchs?

The Spread of Enlightenment Ideas

- Main 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.

The Spread of Enlightenment Ideas

- Terms and Names:
 - Salon
 - Baroque
 - Neoclassical
 - Enlightened despot
 - Catherine the Great

A World of Ideas

- Intellectual life in Paris
 - Paris becomes the center of the Enlightenment during the 1700s
 - The city is the home of *salons*—gatherings where thinkers discuss ideas

A World of Ideas

- Diderot's *Encyclopedia*:
 - Philosophe Denis Diderot begins publishing the *Encyclopedia* in 1751
 - It starts off as a set of books to which Enlightenment thinkers contribute essays
 - *Encyclopedia* articles anger the French government and the Catholic Church
 - But the *Encyclopedia* helps spread Enlightenment ideas across Europe



The pre-Enlightenment art style was **baroque**

- Grand, heavy, ornate design

New Artistic Styles Emerge



Enlightenment style is **neoclassical**

- Based on Greek and Roman themes

New Artistic Styles Emerge

NEW ARTISTIC STYLES EMERGE

William Hogarth—*Canvassing For Votes*
Uses art as political commentary with satire

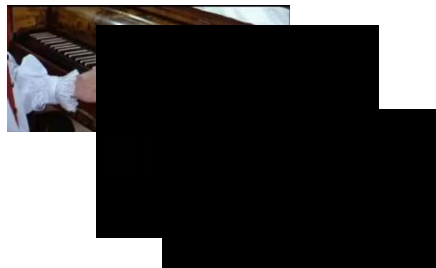


New Artistic Styles Emerge

- Changes in Music and Literature
 - Classical music emerges with a lighter, more elegant style
 - Led by composers such as Haydn, Beethoven and Mozart
 - Like many of the philosophes, these composers, especially Mozart, were thought of as troublemakers

New Artistic Styles Emerge

- Mozart and Beethoven!



New Artistic Styles Emerge

- Changes in Music and Literature
 - Samuel Richardson's *Pamela* considered the first true English novel



Enlightenment and Monarchy

- The spirit of the Enlightenment prompts the rise of enlightened despots
 - These are monarchs who embrace Enlightenment values to strengthen their rule

Enlightenment and Monarchy



- Frederick II
 - King of Prussia
 - He reforms education and the justice system

Enlightenment and Monarchy



- Joseph II
 - Ruler of Austria
 - Allows freedoms of worship and the press
 - Abolishes serfdom, but the practice is reinstated after his death

Enlightenment and Monarchy

- Catherine the Great
 - Catherine the Great—enlightened ruler of Russia, 1762-1796
 - Seeks to abolish torture and capital punishment
 - Effort fails
 - Responds to peasant revolt by giving nobles more power over serfs



Enlightenment and Monarchy

- Catherine Expands Russia
 - Because of her skill in foreign affairs, Catherine greatly expands the Russian empire
 - She gains port access for Russia by seizing the northern coast of the Black Sea
 - Seizes large parts of Poland, increasing the empire's size

Enlightenment and Monarchy



Review

- Terms and Names:
 - Salon
 - Baroque
 - Neoclassical
 - Enlightened despot
 - Catherine the Great

Review

- What advantages do you think Salons had over earlier forms of communication in spreading new ideas? Make sure you use references from the textbook
 - Think about:
 - Who hosted the salons and where they were held
 - Who was invited to the salons
 - Church and state influence on publishing and education

HW Activity

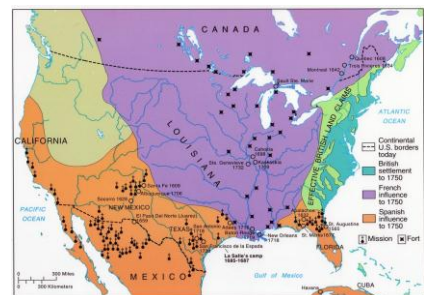
- Power and Authority:
 - Imagine you are a public relations consultant for Frederick the Great, Joseph II or Catherine the Great. The despot you represent wants to be known as “Most Enlightened Despot of the 1700s!” Create a poster that represents reasons why your client should be given this honor
 - An effective poster should...
 - Show an understanding of the monarch’s reform and their effects
 - Include details and specific information
 - Use persuasive language

Chapter 6: Enlightenment and Revolution

Section 4: American Revolution—The Birth of a Republic



North America in the 1700s



The American Revolution

- Philosophes like Voltaire considered England's government the most progressive in Europe.
- England's ruler was not a despot—not even an enlightened one.
- The Glorious Revolution of 1688 gave England a constitutional monarchy, limiting the powers of the king.
- However, while the monarch's powers were limited at home, the power of the English nation was spreading overseas

The American Revolution

- Look at the “History Makers” feature on page 207 of your textbook.
 - What is one way Thomas Jefferson contributed to American independence?
 - Name two Enlightenment ideas that Jefferson supported.

The American Revolution

- Main Idea:
 - Enlightenment ideas helped spur the American colonies to create a new nation.
- Why It Matters Now:
 - The revolution created a new republic, the United States of America, that became a model for many nations of the world.

The American Revolution

- Terms and Names:
 - Declaration of Independence
 - Thomas Jefferson
 - Checks and balances
 - Federal system
 - Bill of Rights

Britain and its American Colonies

- The American Colonies Grow
 - American colonies were growing large and populous during the 1600s and 1700s
 - The colonies were thriving economically through trade with Europe
 - In 1651, Britain restricts trade by creating the Navigation Acts
 - Other trade laws add more restrictions and impose taxes on the colonists
 - The colonists begin to identify less and less as British subjects

Americans Win Independence

- British-Colonial Tensions Arise
 - Britain and the American colonies win the French and Indian Wars in 1763
 - Britain taxes the colonists to help pay off war debts
 - One tax that infuriated the colonists was the Stamp Act
 - Colonists argue that the British cannot tax them without their consent

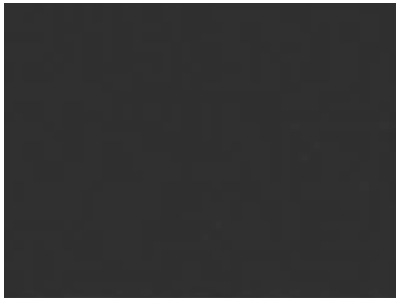
Britain and its American Colonies



Americans Win Independence

- Growing Hostility Leads to War
 - Colonists protest the tea tax with the “Boston Tea Party” in 1773
 - Colonists meet in Philadelphia to address British policies (1774)
 - British and Americans exchange fire at Lexington and Concord in 1775

Americans Win Independence



Americans Win Independence

- The Influence of the Enlightenment
 - Colonial leaders push for independence
 - Rely on Enlightenment ideas
 - **Declaration of Independence** is signed on July 4, 1776
 - It's purpose is to justify colonial rebellion
 - Colonial leader **Thomas Jefferson** writes the Declaration of Independence
 - He uses Enlightenment ideas

Americans Win Independence

- Success for the Colonists
 - Despite great British military might, the colonists have several advantages
 - Motivated by the cause for freedom
 - British soldiers were burned out from all other wars
 - French assistance
 - Mounting war debts for England
 - The British surrender at Yorktown in 1781—the colonists win the war!

Americans Win Independence





Interpret the Map:

- Which European country claimed the largest area of land on the map?
- Which claimed the smallest?
- Which feature formed the western border of the US?
- What European countries had claims on the North American continent in 1783?

Americans Create A Republic

- A Weak National Government
 - The Articles of Confederation set the government plan for a new republic
 - Articles create a legislature only, and no executive and judicial branches
 - The result is a weak national government that fails to provide unity and order

Americans Create A Republic

- Shays' Rebellion



Americans Create A Republic

- A New Constitution
 - In 1787, a Constitutional Convention convenes in Philadelphia to revise the Articles
 - Instead, this convention creates a new government under the U.S. Constitution
 - This document contains many important political ideas from the Enlightenment

Americans Create A Republic

- The Federal System
 - The U.S. Constitution creates three branches of government
 - This provides **checks and balances**
 - Ensures branches share power equally
 - With the **federal system**—power is divided between the federal government and the states

Americans Create A Republic

- The Bill of Rights
 - Some people still were afraid that the federal government had too much power, and that there were few protections of individual rights
 - Founding fathers win support for the Constitution by adding a Bill of Rights
 - Ten amendments to the Constitution that protects individual liberties

Americans Create A Republic



Review

- Terms and Names:
 - Declaration of Independence
 - Thomas Jefferson
 - Checks and balances
 - Federal system
 - Bill of Rights

Review

- Analyzing Issues
 - How does the following statement from the Declaration of Independence reflect Enlightenment thinking?

"We hold these truths to be self-evident, 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.—That to secure these rights, Governments are instituted among Men, deriving their just powers from the consent of the governed"

Review

- Analyzing Themes
 - Revolution:
 - HW Assignment: Create a chart to summarize the ideas from the American Revolution concerning separation of powers, liberty, equality, democracy, popular sovereignty, human rights, constitutionalism, and nationalism.
 - Refer to the section for information on the topics listed

