**Science and Enlightenment**

**Before the Revolution**

* All ideas of science came from the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* With new inventions came new ideas.
* The Scientific Revolution= people discovering new theories about science

**The Scientific Revolution**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_discovered heliocentric theory is correct (Sun-centered); Geocentric theory is incorrect (Earth-centered)
* Galileo furthered Copernicus’ ideas & was punished by the church (put on trial)

**More Scientists**

* Sir Isaac Newton proved his Law of Gravity and 3 Laws of Motion:
	+ Law of Inertia
	+ Force= mass x acceleration
	+ Every action has an equal and opposite reaction
* Johannes Kepler:
	+ developed Laws of Planetary Motion which provided the basis for Newton’s theory of universal gravitation

**Medicine:**

* In Medicine people began to dissect animals to understand the body
	+ Andreas Vesalius- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	+ Herman Boerhaave- “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”

**The Scientific Revolution:**

* Eventually the Church allowed scientist to dissect the human body to understand it.
* The Enlightenment grew largely out of the new methods and discoveries achieved in the Scientific Revolution

**The Enlightenment Mid 1700’s:**

* The era known historically as the Enlightenment marks the intellectual beginning of the modern world. Ideas originating in this era would gradually spread around the world creating challenges to existing traditions and ways of governing. Many governments today have Enlightenment principles as the basis of their constitutions and forms of government. In addition, the expansion of suffrage to women, blacks, and people of all classes is a legacy of the Enlightenment. Enlightenment ideas on equality also helped end the dominance of social elites such as the aristocracy and the church. Enlightenment thought also led many countries to establish systems of public schools and put an end to the idea that education was only a privilege for the upper classes.

**What Was the Enlightenment?**

* When historians discuss the “Enlightenment,” they are usually referring to 18th-century Europe (France and England in particular), although other parts of the world (including the U.S.) are often included as well. The Enlightenment was a period of intellectual ferment that gave rise to a range of new theories about society, government, philosophy, economics, and religion. The period produced more than just abstract theorizing, however: it offered a whole new way of conceptualizing the world and one’s place in it. In many ways, this change in perception marked the beginning of the modern era, as institutions and traditions of the past began to shift—and even crumble—in the face of new ideas and approaches.

**Immanuel Kant:**

* According to the 18th- century philosopher Immanuel Kant, the “motto” of the Enlightenment was “Sapere aude (dare to know)! Have courage to use your own intelligence!” (Kant, “What Is Enlightenment?” 1784)

**The Scientific Revolution:**

* The Enlightenment grew largely out of the new methods and discoveries achieved in the Scientific \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Francis Bacon and the Scientific Method:**

* The scientific method
* Observation and experimentation
* Testable \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Isaac Newton and the Scientific Method:**

* Used the scientific method to make a range of discoveries
* Newton’s achievements using the scientific method helped inspire Enlightenment thinkers

**Enlightenment Principles:**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_,\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ limited independent thought
* Accept knowledge based on observation, logic, and reason, not on faith
* Scientific and academic thought should be secular

**The Marquis de Condorcet:**

* French mathematician
* Sketch for a Historical Picture of the Progress of the Human Spirit (book)
* Played active role in the French Revolution
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ education (education for all)
* Progress and “perfectibility,” the idea that people realistically strive for perfection in all areas of life.

**The French *Salon* and the *Philosophes:***

* Madame de Pompadour
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: gatherings for aristocrats to discuss new theories and ideas
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: French Enlightenment thinkers who attended the salons

**The *Encyclopédie:***

* Major achievement of the philosophes
* Begun in 1745; completed in 1765
* Included the most up-to-date knowledge on the sciences, arts, and crafts

**Deism:**

* Deists believed in God but rejected organized \_\_\_\_\_\_\_\_\_\_\_\_\_.
* Morality could be achieved by following reason rather than the teachings of the church
* God/the creator is the “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”
* The idea that the universe operates like a watch.
* Thomas Paine is a famous American Deist.

**How Rulers Ruled Before the Enlightenment:**

* Divine Rights of Kings
* The idea that rulers receive their authority from God and are answerable only to God.