Scientific Revolution

-Medieval View of World
- theological view somewhat
- superstition still around
- witchcraft ideas in the 16th and 17th centuries for example
- Aristotelian view dominated
  - idea that rest was the natural state of things
  - concept that Earth was the center of the universe
  - 8 spheres surrounded Earth that revolved around it
- matter was based on four main elements (earth, air, water, and fire)
- ideas reinforced by Claudius Ptolemy (90-168)
  - view fit in with the Church for the time period (place for man was Earth, airy light area was heaven)
- also had relatively magical type thought
  - ideas like alchemy were heavily present

-causes
- 1. Medieval universities provided a framework
- 2. Renaissance
  - stimulated science and rediscovered knowledge
  - new ways of thinking also emerged
- 3. Age of Exploration
  - navigational problems emerged that needed a fix
- 4. Scientific Methodology developed

-major ideas and figures (Cops Bring Kids Great Big Donuts Now)
- Nicolaus Copernicus (1473-1543)
  - On the Revolution of Heavenly Spheres (1543)
  - developed Heliocentric View
    - sun, not the earth, lies at the center of the universe
    - earth revolves around the sun
    - challenged by Protestants and Catholics

- Tycho Brahe (1546-1601)
  - Danish royal astrologer
  - built the best observatory and began to collect data of his observations of the universe
    - would eventually be used by Kepler to prove Copernicus’ theory to be correct

- Johannes Kepler (1571-1630)
  - first to mathematically prove Copernican theory
  - developed early ideas of gravity
  - developed the three laws of planetary motion
    - orbits of planets are elliptical
-planets do not move at uniform speed with in orbit
-time it takes for a planet to orbit the sun is directly based on its distance from the sun

-Galileo Galilei (1564-1642)
- used telescope to prove Copernicus’ theories
- developed new concepts of motion
- objects fall with equal velocity
- movement is the natural state
- outside force needed to stop it
- law of inertia
- demonstrated moon and planets not perfectly round
- discovered the four moons of Jupiter
- Church responded and forced him to recant

-Francis Bacon (1561-1626)
- developed the inductive method
- empiricism
- we know something to be true based on our experiences and evidence
- observe, measure, experiment, create a hypothesis, and then verify it
- go from observation to conclusions
- practical method

-Renee Descartes (1596-1650)
- deductive method
- Discourse on Method (1637)
- “I think, therefore I am”
- deduce a conclusion from a set of premises
- use logic to figure something out
- all humans are mortal, AP Euro students are humans, therefore they are mortals

-Sir Isaac Newton (1642-1727)
- developed Mathematica Principia (1687)
- developed principle of universal gravitation
- calculus
- Deism
- three laws of motion
- body in motion stays in motion unless an external force is applied to it
- every action has an equal and opposite reaction
- every body attracts every other body with a force proportional to the distance between

-Scientific societies formed to bounce all of these ideas off each other
- big one was the Royal Society in England
Enlightenment (1700s)

-what was it?
  -period of time in the 1700s in which people began to apply a secular reasoning to life
  -centered around the area of France
    -France was the international language and the culture of the time
  -period also known as the Age of Reason
  -emergence of a secular world view for the first time
  -scientific method can be used to understand the world

-causes
  -Scientific Revolution
  -Printing press
    -developed a print culture in Europe
    -printed works began to increase due to an increase in the market
  -abuses of leadership by kings
  -abuses of Church

-major figures and ideas
  -had philosophes
    -these were philosophers
      -met in coffeehouses, drinking spots, or salons
      -a salon was simply a gathering of people under the roof of a host
      -held for entertainment and to increase knowledge
    -went into views on all areas
    -modern political beliefs emerged with these figures
    -committed to fundamental reform in society

-John Locke (1632-1704)
  -human nature: basically good but lacked protection
  -government’s role was to help protect the people and preserve natural rights (life, liberty, and property)
  -social contract idea
  -right of rebellion: if the government does not protect natural rights, people have a right to overthrow it and replace it with a new one
  -idea of tabula rasa
    -the mind is a blank slate

-Voltaire (1694-1778)
  -attacked government
    -advocated for enlightened despotism
  -heavily attacked institutionalized religion as corrupt
    -believed human reason was the key to progress in society
    -criticized all organized religion
      -believed in love your neighbor as yourself
    -wanted toleration
  -attacked unfair system in society, calling for change
    -wanted equality before the law, but not equality of classes (masses were dumb)
Baron de Montesquieu (1689-1755)
- *Spirit of Laws*
  - separation of powers into three branches
  - wanted to promote liberty
  - idea of checks and balances

Jean-Jacques Rousseau (1712-1778)
- *Social Contract* (1762)
  - too much emphasis on property in the world
    - cause of social injustice
  - social contract was entered into by the people
    - surrendered their rights to the general will
    - consensus of the majority of citizens in an equal political society that would control a nation
  - men born free, but in chains
  - very different from others since he was heavily into emotions
  - believed that in a state of nature, man was essentially good, a noble savage
    - corrupted by materialism of society
  - wanted self-expression in education and a natural education

Denis Diderot (1713-1784)
- wrote *The Encyclopedia* (1772)
  - collection of political and social critiques
  - wanted to teach people to think critically and objectively

Marquis di Beccaria
- *On Crimes and Punishment*
  - punishment for crime should be based rationally on damage done to society
  - opposed death penalty
  - opposed torture

Adam Smith (1727-1790)
- developed ideas of laissez faire economics and capitalism
- *Wealth of Nations* (1776)
  - invisible hand of the market
  - natural laws of supply and demand
- Impact of Market Economy Development
  - development of an Atlantic Economy and market economy led to many changes in daily life for Europeans
    - first big change was the development of a consumer culture
      - products from overseas became in very high demand in Europe
        - a good example of this was sugar and coffee in Europe
          - the massive increase in demand for coffee led to coffeehouses
            - began to appear in the mid-17th century in various areas
              - this became a major new leisure venue for many people
                - ideas and concepts would be discussed in these coffeehouses, and they became very influential overall
                  - actually had political importance as a place of debate
                    - will became very important during the Enlightenment
                      - 551 coffeehouses in London alone by 1739
                        - political clubs began to meet in these areas over time
      - Europeans could not get enough of new products and continued to buy and purchase them
        - merchants began to pick up on this and try to incite new demand of goods
          - began to shape fashion and ideas
            - many households began to demand fashionable clothing and linens
              - all of these items were supplied by European colonies overseas
                - also had an increase in books purchased for homes
                  - porcelain became popular too in homes for dinner and meals
        - as Europeans began to consumer more and more, many became increasingly concerned with privacy
          - homes were now built to include private retreats
            - biggest example of this was the boudoir
              - a private room for females
                - usually well-furnished in nature
      - was a down side with this as increased cities often dealt with severe poverty issues
        - for example, Venice dealt with having around 20 percent of their population being beggars in the streets
          - prostitution was also a big issue
            - people began to marginalize the poor as a result of this
              - began to see charity toward the poor as encouragement
                - begging became seen as a crime by many
                  - many charity organizations became overwhelmed with trying to help the poor
                    - some enlightened figures argued the state should become involved to fix it, but not much was done at this point