

Warm Up

List as many inventions as you can think of that were developed in your lifetime. Pick the most important and the least important. **EXPLAIN WHY**

How did scientific discoveries change people's attitudes towards natural events and religious faiths?

Reasons for Scientific Revolution

- The Scientific Revolution began in 1550s because of the recent discoveries in other areas of European life:
 - During the Renaissance, people began to question old beliefs & thought that humans could accomplish anything



Reasons for Scientific Revolution

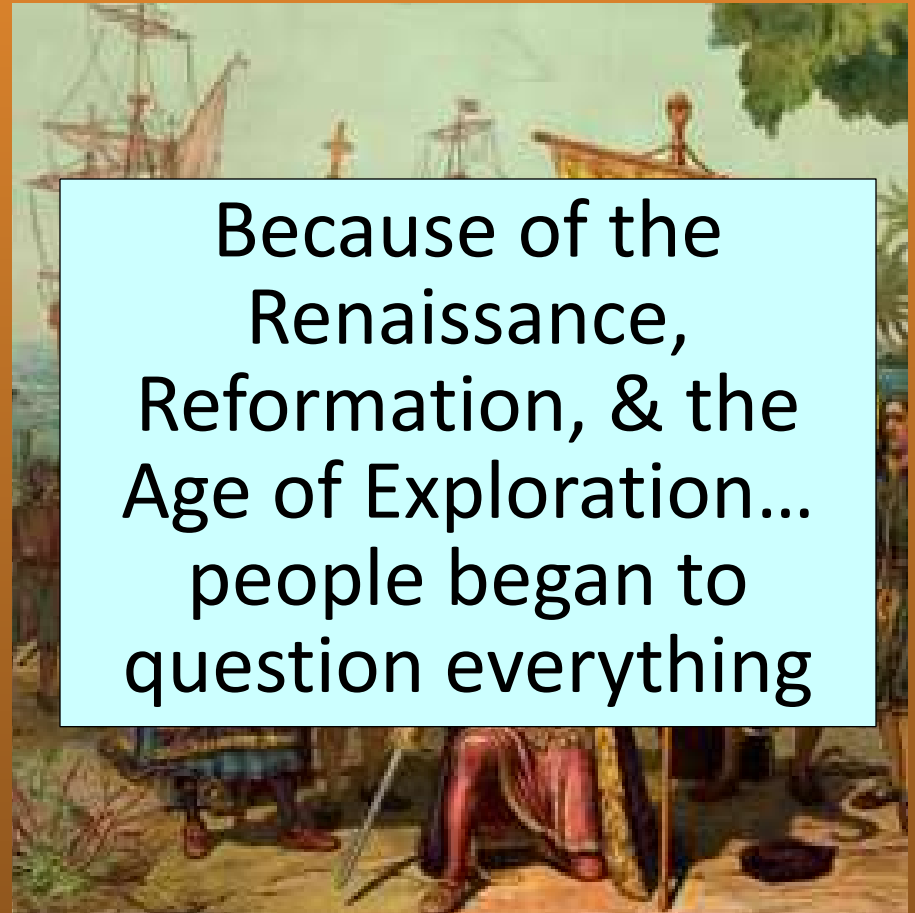
- The Scientific Revolution began in 1550s because of the recent discoveries in other areas of European life:

–During the Reformation, people began to question the ideas of the Roman Catholic Church



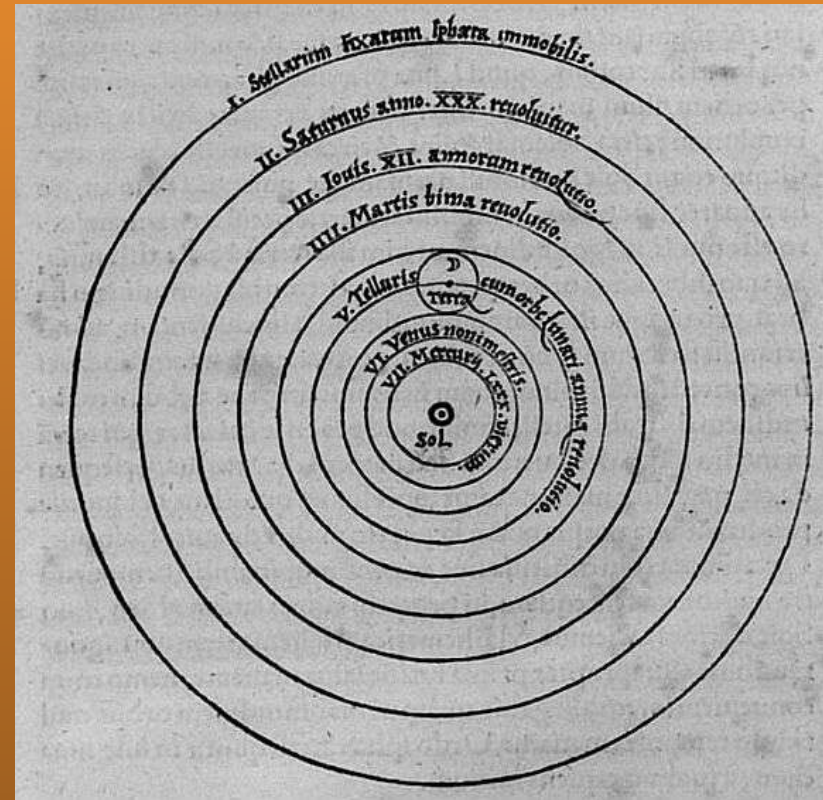
Reasons for Scientific Revolution

- The Scientific Revolution began in 1550s because of the recent discoveries in other areas of European life:
 - In the Age of Exploration, the discovery of new lands led people to search for other “new” things

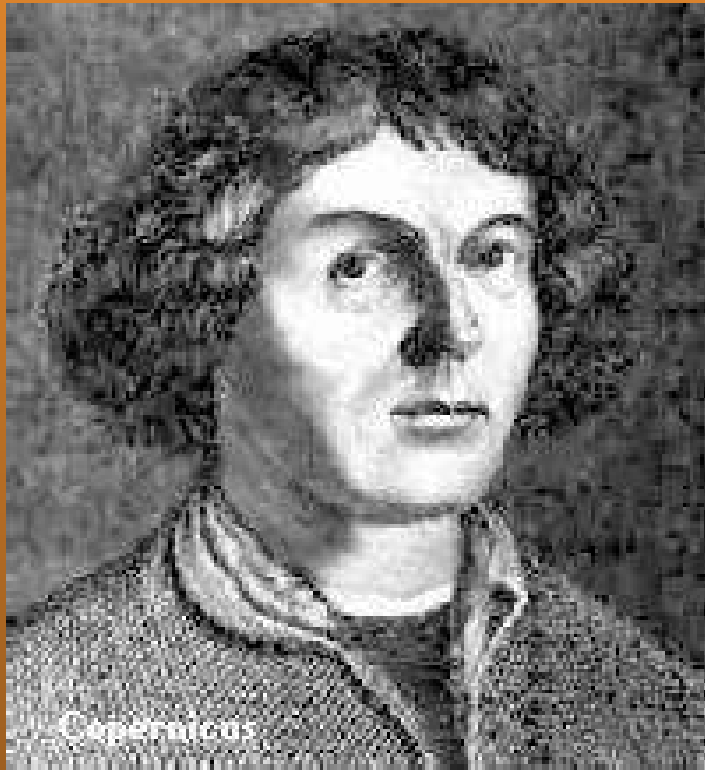


The Scientific Revolution

- New technology combined with innovative approaches to seeking knowledge led to new wave of thought
- A general weakening in full reliance on the works of the ancients (e.g. Plato & Aristotle)
- Theology's claim to be the summit of intellectual activity challenged
- Bacon: Scientific Method
- Descartes: any truth can be reached through reason



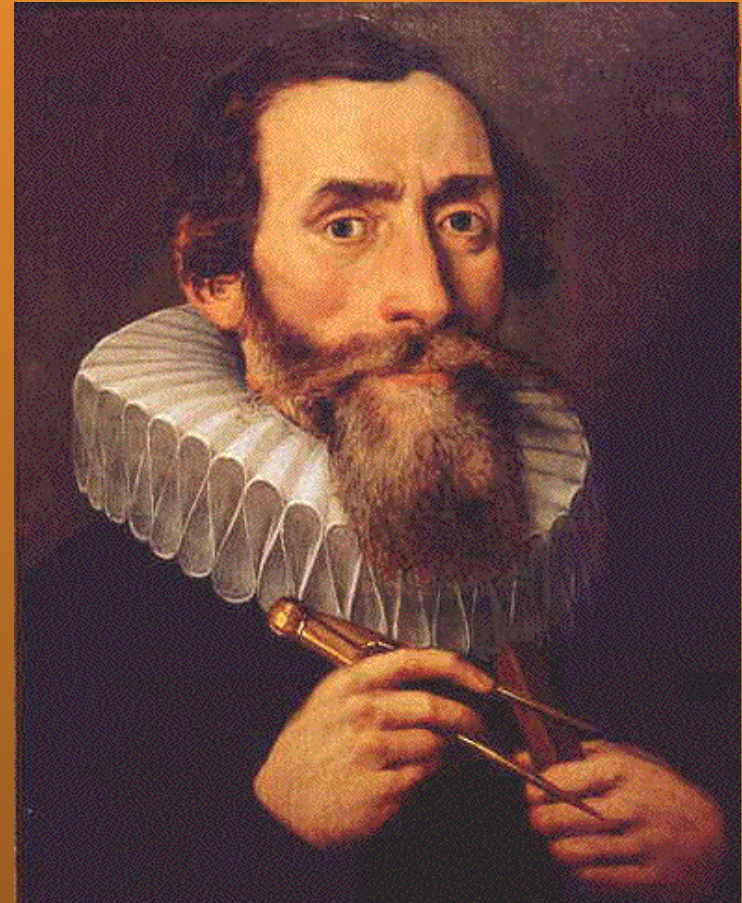
Nicholas Copernicus (1473-1543)



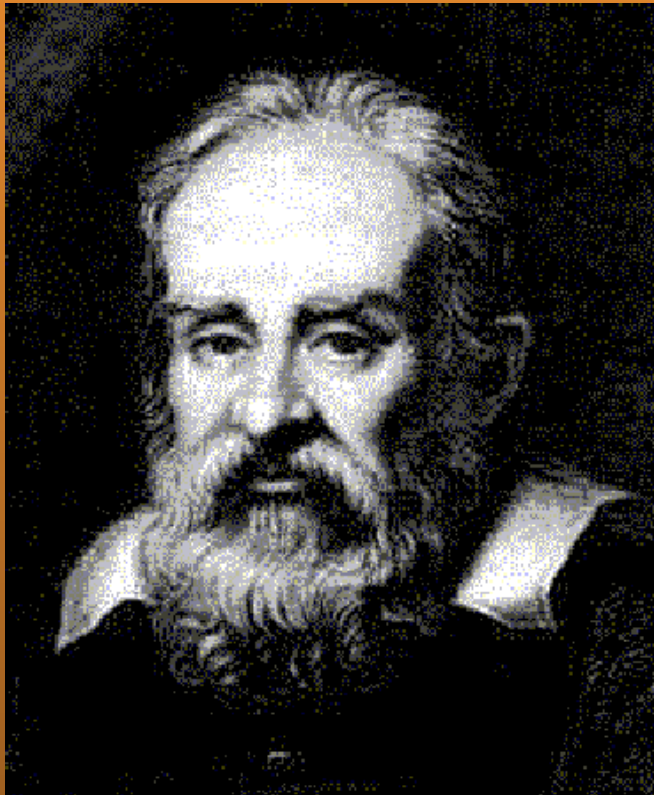
- Polish scholar
- Traditional belief: earth is the center of the universe (geocentric)
- Daring idea: the earth was round and rotated on its axis as it revolved around the sun
 - Heliocentric
 - A dangerous and revolutionary idea, not published to the year of his death
- Lasting impact: Science of Astronomy

Johannes Kepler (1571-1630)

- Provided mathematical proof for Copernicus' hypotheses
- Refuted some of Copernicus' view by proving the planets moved in ellipses around the sun, not perfect circles
- Found that planets travel at different speeds



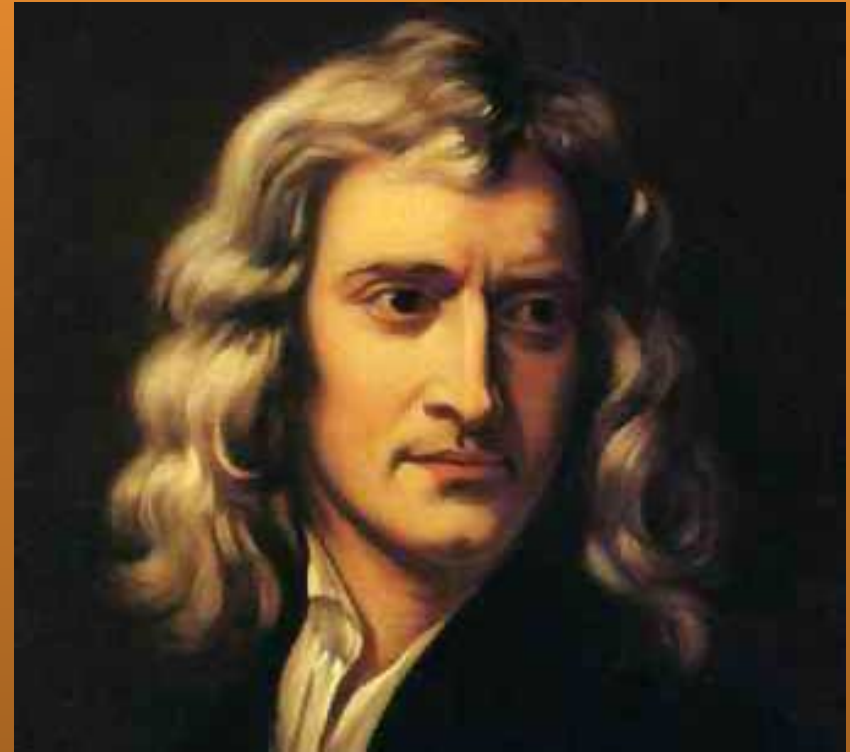
Galileo Galilei (1564-1652)



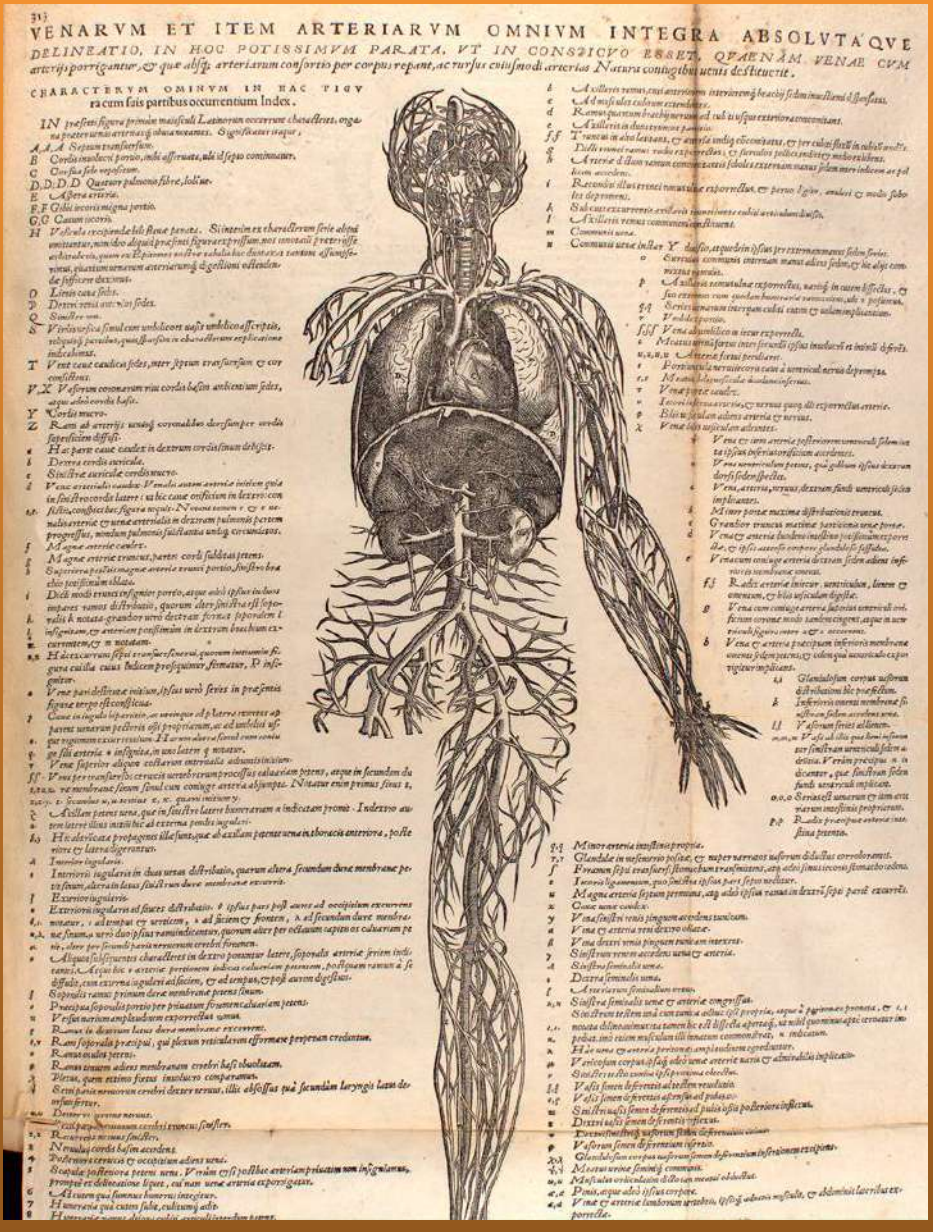
- Faced serious church opposition for his ideas; seen as a rejection of the Scripture
- *Traditional Belief:* celestial bodies are made of gas and perfectly round
- *Daring Idea:*
 - Not all heavenly bodies revolve around the earth or are smooth
 - Used telescope to observe the heavens
 - Excommunicated and forced to recant many statements
- *Lasting Impact:*
 - Helped to establish the universal laws of physics
 - Perfected the telescope
 - Proved Copernicus' heliocentric theory

Isaac Newton (1642-1727)

- Traditional Belief: Divine powers controlled the movement of planets
- Daring Idea: a force pulls objects to Earth and keeps the planets in orbit
 - Gravity!!
 - Used math to explained nature
 - Explained and expanded on the work of Copernicus, Kepler, and Galileo
- Lasting Impact: theories created the foundation for astronomy, engineering, and physics



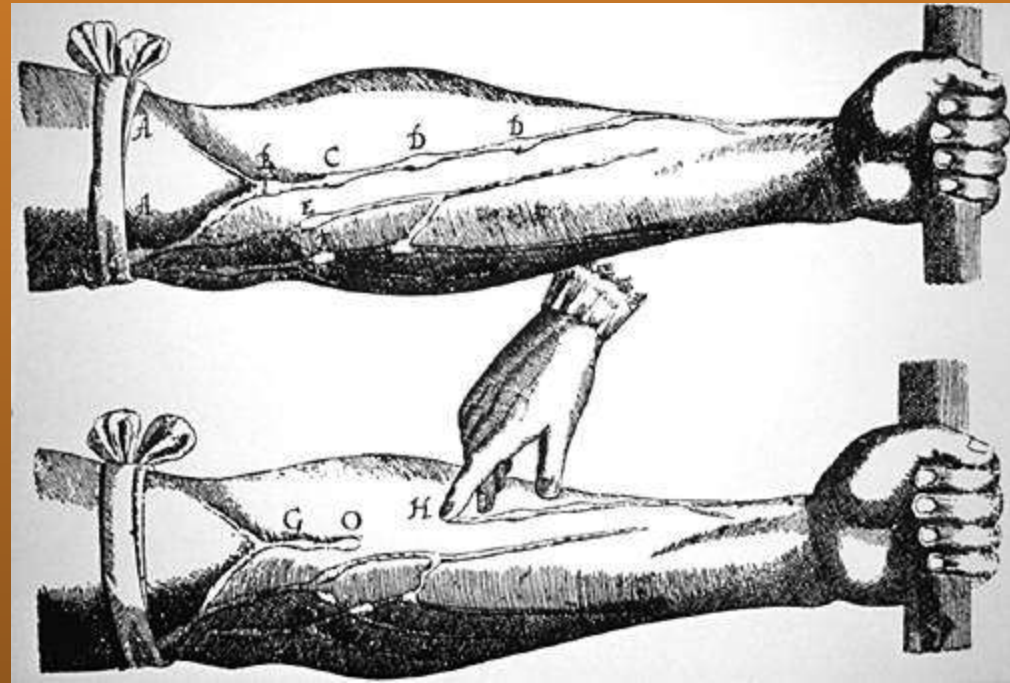
Andreas Vesalius (1514-1564)



- *Traditional Belief*: it was considered a sin to dissect animals to study; dissected humans instead
- *Daring Idea*: in order to understand the human anatomy, you must observe humans
 - Drew precise sketches of the hundreds of corpses he dissected
- *Lasting Impact*: Science of Anatomy and the full understanding of the human body

William Harvey (1578-1657)

- *Traditional Belief:* food is turned into blood in the heart and arteries and veins serve as air tubes
- *Daring Idea:* blood is recycled through the heart and arteries and veins carry blood to and from the heart
- *Lasting Impact:* Science of Physiology



Are people overall good or bad?

If left unsupervised, will people make good choices or bad choices?

What if you came to school and there was no administration or teachers? Or just instructions to sit down and do some work.

What does the phrase, “All men are created equal” mean to you?

The Age of Enlightenment

- 17th and 18th century intellectuals wanted to transform the social sciences
- Spurred on the Scientists changing the natural sciences, the *Enlightenment* was born
- The thinkers of the period came to be called *philosophes* (*Parisian salons*)
- Marked by two characteristics- optimism and rationality (Reason)
 - Limited mostly to an urban and educated group
- Began to ask: *Why?* and *How?*
- Saw universe as a machine and God as the mechanic
- Believed reason could answer any questions



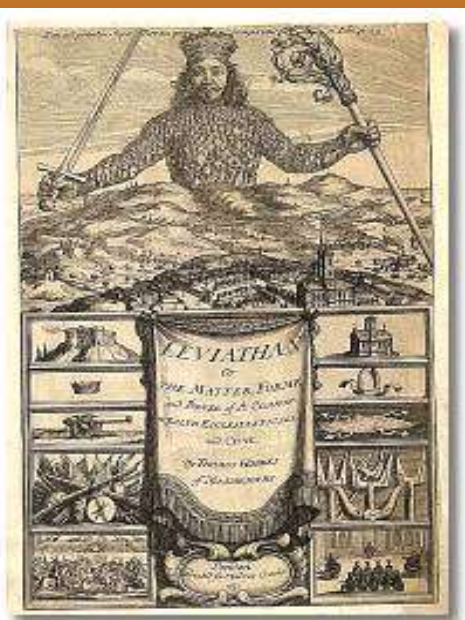
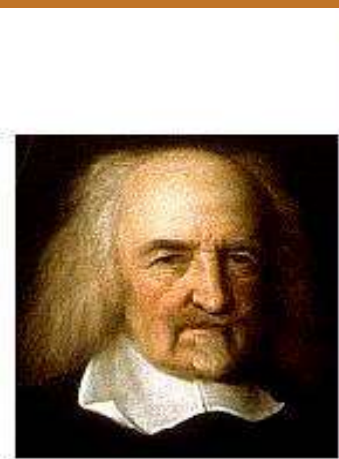
Science and the Enlightenment
© 2000 by Addison-Wesley Educational Publishers Inc.

T-92

The English Thinkers

- Thomas Hobbes (1588-1679)
 - Argued that monarchy was the best form of govt.
 - He saw no successful precedent for self-rule
 - People should obey their govt. regardless of the way they are treated
 - Social Contract theory-gov'ts power comes from the consent of the governed.

- John Locke (1632-1704)
 - Believed that humans are born with natural rights (inalienable)
 - The job of the government is to protect those rights
 - Life, liberty, property
 - If govt. failed to protect natural rights, the people had the right to overthrow
 - A government must have the consent of the governed
 - Served as inspiration for the American Revolution



The French Thinkers

- Baron de Montesquieu

- Believed a govt. with a separation of powers was best
- 3 branches each checked by the others

- Mary Wollstonecraft

- Wrote of equal educational opportunities for women

- Voltaire

- wrote plays, essays, and books in an entertaining and satirical style
- Mocked the church and royal court of France - exiled
- Supported freedom of speech and press
 - “I disapprove of what you say, but I will defend to the death your right to say it.”
- Believed in the constitutional limitation of the monarchy



Enlightenment Opposition

• Jean-Jacques Rousseau

- Enlightenment thinker, but criticized the movement as a whole
- Claimed that people should rely more on instinct and emotion instead of only reason
- Emphasized the importance of education & the need to reform it
- he stated that the basis of govt. is a social contract in which people give up their rights for the “general will” a direct democracy
- Wrote *The Social Contract*

• Immanuel Kant

- Reason could not solve metaphysical problems
- Only faith can answer metaphysical/spiritual questions, e.g. the nature or existence of God
- Reason can answer physical world questions
- These two worlds can't be used to explain each other



Enlightened Despots

- Absolute Monarchs attempted make some reforms of the Enlightenment; maintained power
- Joseph II of Austria (1780-1790)
 - Religious toleration and freedom of press; equality of civil rights
 - Made Austrian school system the best in Europe
 - Reformed too quickly and most reforms died with him
- Frederick the Great of Prussia (1740-1786)
 - Viewed himself as the first servant of the state
 - Practice religious toleration
 - Retained serfdom, only reformed when it didn't conflict w/ the needs of the state
- Catherine the Great of Russia
 - Contributed financially to Voltaire
 - Attempted to compile the laws in Russia
 - Reorganized local government
 - Became intolerant of the thinkers & favored burning their books

