

The Renaissance, Reformation, and Scientific Revolution

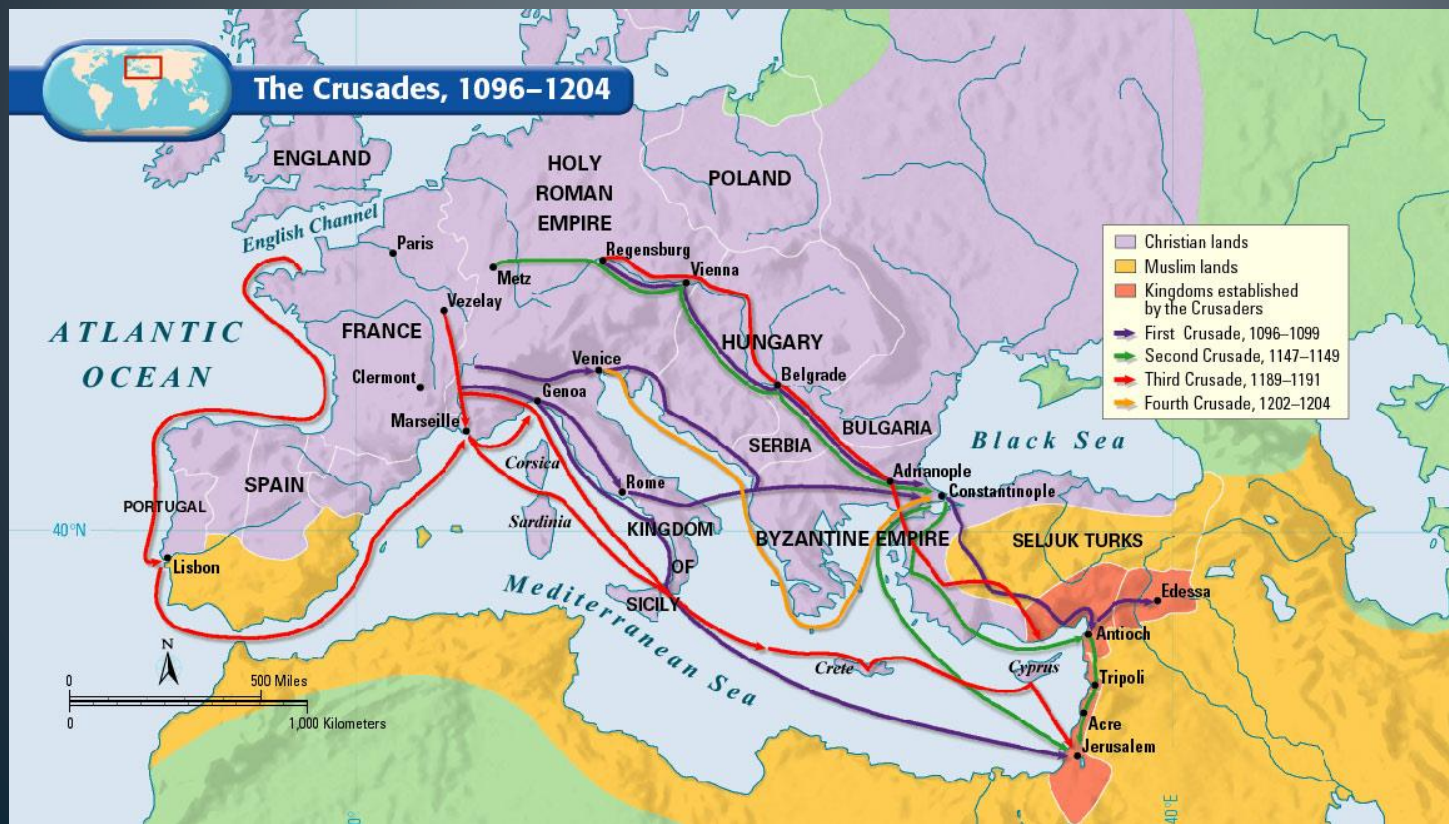
What is the Renaissance?

- A revival of Greek and Roman knowledge and culture after the Middle Ages in Europe – began in Italy
 - Ancient Greece/Rome – very advanced and emphasized education, philosophy, art, trade
 - Middle Ages – very little education, art, trade
- Renaissance is French for “rebirth”
- Beginning of “modern” civilization



Cause of the Renaissance

- End of Middle Ages = revival of education
 - Crusades brought back Greek/Roman learning
 - Turks/Arabs in Middle East had preserved much ancient learning



Why Italy?

- History – had been the center of Roman Empire
- Geography – peninsular country, perfect for trade
- Cities – had many cities with wealthy people who patronized art and education



Renaissance Ideology

- Middle Ages had grown very distant from ideas of Greece and Rome
 - R/G were polytheistic, MA was Roman Catholic
 - R/G both empires, MA was small city-states led by Kings
 - R/G very advanced, MA had declined in learning
- Catholic Church of the Middle Ages denounced all non-Christians
 - Fought Muslims in Crusades, blamed Jews for plague
- Problem – how could Greek and Roman knowledge be accepted if they were not Christians?

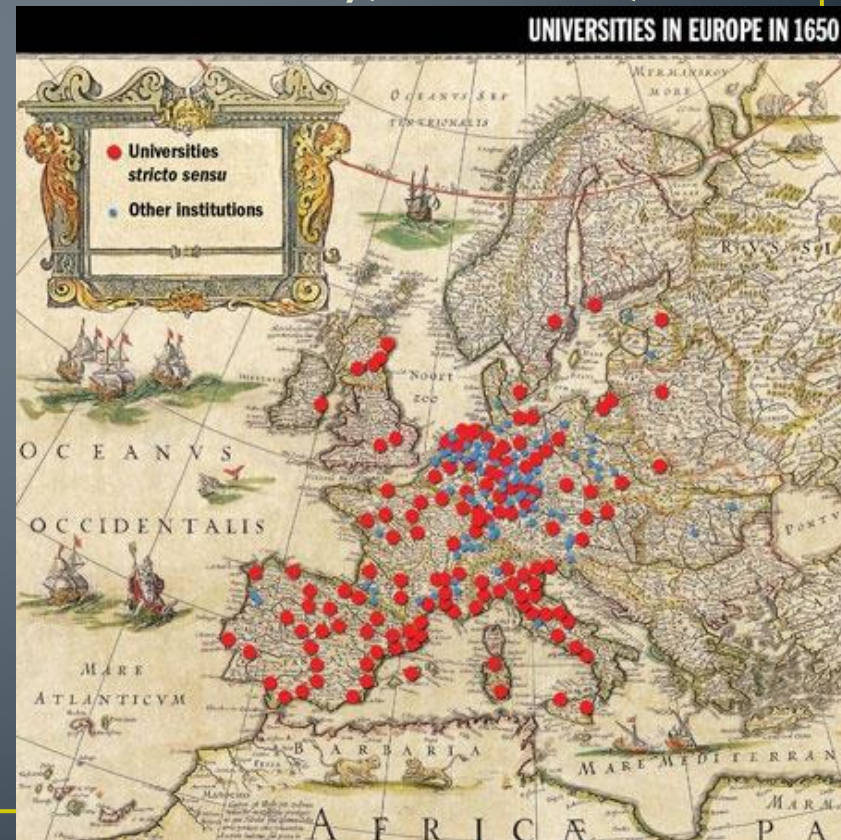
Humanism

- Philosophy that originated at beginning of Renaissance
 - Early origins with Francesco Petrarch
- Break in traditional Medieval thinking that the Church, God, and salvation were the only worthwhile endeavors
- Instead, focused on life ON Earth rather than life AFTER Earth
- It was ok to be a Christian AND pursue things for purposes other than salvation



Education of the Renaissance

- More universities built
- Attendance expanded to females
- Subjects emphasized were the *humanities* – history, literature, poetry, rhetoric, grammar
- Increased literacy



Renaissance's Influence on Art

- Art of Middle Ages had been solely for the sake of Christianity and salvation
 - Murals, statues, tapestries only hung in churches
- In the Renaissance, quality and purpose of art changed
 - Purpose – not just about religion, but also about humanity
 - Quality – improved greatly
- Wealthy families in Italy began artistic revival
 - Educated enough to appreciate art
 - Wealthy enough to pay for art
 - Most famous family – the Medici



Medieval Art

- Only religious subjects
- Commissioned by church
- Anatomically inaccurate
- Techniques less advanced

Renaissance Art

- Religious, natural, and worldly subjects
- Commissioned by church and private citizens
- Very anatomically accurate
- Advanced techniques like perspective, shading

The Renaissance Spreads

- Revival began in Italy, spread to southern France and Spain all in 1300's
- By 1400-1500 – Renaissance ideas began to spread north
- As Renaissance progressed, trade and wealth increased in all of Europe



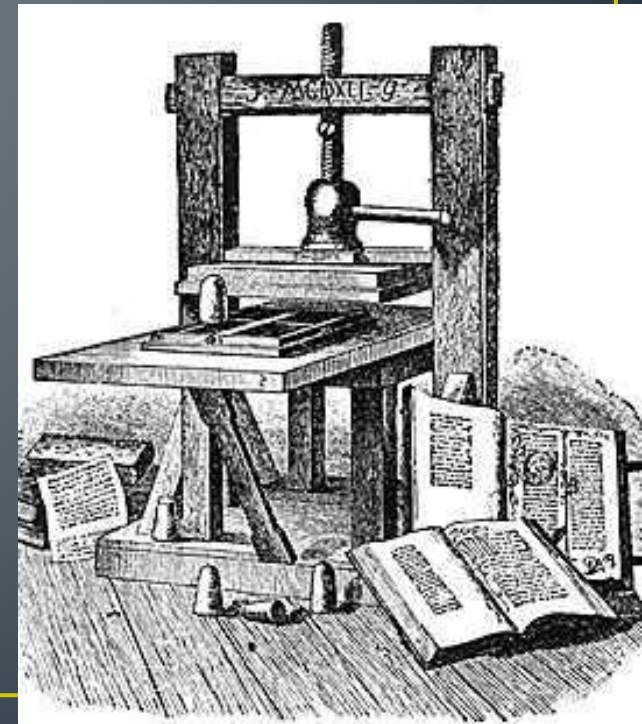
Northern Renaissance

- Knowledge spread slowly at first due to lack of translated texts
 - Only available in Greek and Latin
 - Most spoke in common vernacular (local language)
 - Printing technologies were outdated
 - Printed with blocks/stamps or written by hand which led books to be expensive



The Printing Press

- New printing press “invented” in 1456 by Johan Gutenberg – Germany – moveable type printing press
 - Used technology from China
 - Letters/symbols could be rearranged and reused for more efficient printing
 - Books more easily made, printing in many languages, cheaper to produce and buy



Results of the Printing Press

- Knowledge spread as books were published
- More people became literate
- More authors
- Books were cheaper
- Renaissance spread even further

Notable Works of Renaissance Literature

- *The Prince* – written by Niccolo Machiavelli
 - *Describes qualities of a successful ruler*
 - *A ruler should be strict, feared, and shrewd, not liked*
 - *Results are better than keeping promises*
- *Don Quixote* – by Miguel de Cervantes
 - *Satire of medieval society*
 - *First true European novel*
- *Canterbury Tales* – by Geoffrey Chaucer
 - *Satire of medieval religion*
- *Plays of William Shakespeare*
 - *Famous for tragedies and comedies (Romeo & Juliet, Macbeth, Taming of the Shrew)*
 - *Also known for writing sonnets*

The Printing Press and the Church

- Bible quickly became most printed and translated book
- As literacy increased, more people were able to read the Bible for themselves
 - Only the clergy had been able to (Bibles were printed in Latin)
- As more people read and interpreted the Bible, many realized how corrupt the Church had become
 - Clergy lived in wealth (supposed to be charitable)
 - Popes competed with Kings for power (excommunication)
 - Churches were massive and ornate (Gothic)
 - Persecuted non-Christians (Crusades)
 - Sold indulgences – pardons for sins



Martin Luther

- German monk and professor
- Struggled to live a perfect life according to Catholic Church
- Believed Catholic Church had grown too far from words of the Bible and Christ's teachings



The 95 Theses

- A list of 95 arguments against the Church, especially sale of indulgences
- Written by Luther
- Posted on church doors in Wittenberg, Germany, on Oct. 31 1517
- Copies were distributed across Europe in many languages – soon all of Europe had read Luther's attack on the Catholic Church



Catholic Practices

- Masses held in Latin
- Pope is ultimate source of religious information
- Specific deeds required for salvation (Sacraments)
- Follow 7 Sacraments
- Rituals and rites must be observed for salvation (Communion)
- Clergy cannot marry
- Pope, priests can grant salvation
- Church can make \$\$\$ off marriages, baptisms etc.
- Believed in sale and power of relics

Luther's Ideas

- Services held in vernacular
- Bible is ultimate source of religious information
- Faith alone required for salvation
- Only follow 2 Sacraments
- Rituals and rites are useless for salvation, which is reached through faith alone
- Clergy can and should marry
- Only God can grant salvation
- The Church should not work for profit
- Relics are not religious in nature

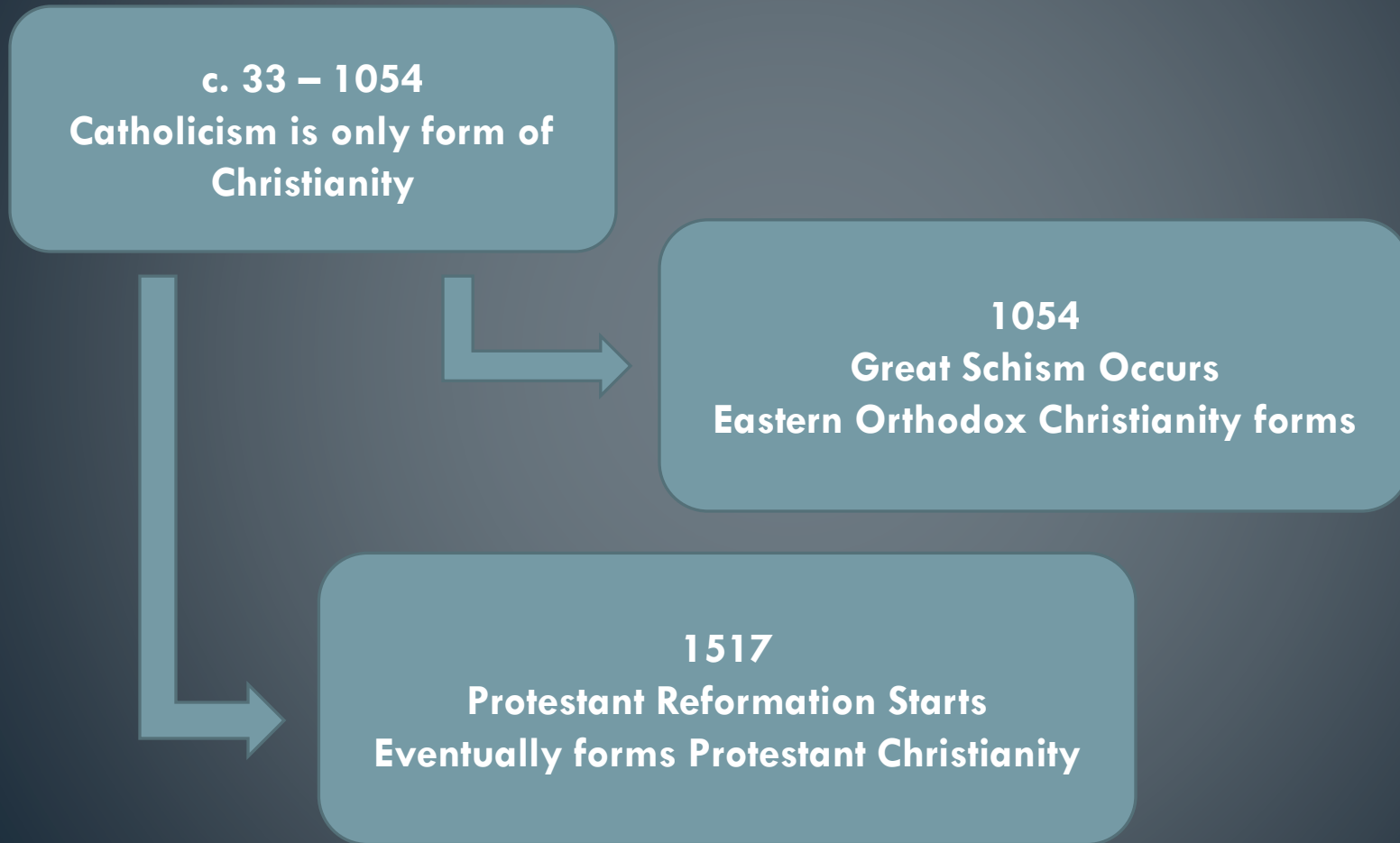
Churches Reaction

- Pope demanded that Luther recant the 95 Theses, refused
- Luther excommunicated in 1521 by Pope
- Diet of Worms - 1521
 - Holy Roman Emperor demanded Luther recant
 - Luther refused, made an outlaw
- German princes provided protection for Luther, began to hold “Lutheran” services in church rather than Catholic masses
- Followers of Luther spread “Lutheran” beliefs, became known as “Protestants” due to their protest of Catholic corruption

Luther's Ideas Spread – Protestant Reformation

- Many, especially Northern Europe, liked Luther's ideas
 - Challenged Pope's power
 - Helped reduce Church's corruption
- "Protestantism" became an actual religion and opponent to Catholicism
 - Not Luther's original goal – only wanted to reform Catholic faith
 - Had no choice but to accept his new religion
- Peace of Augsburg – 1555
 - Each king could decide the faith of his own kingdom
 - Northern Europe tended to be Protestant, Southern Europe remained Catholic

Timeline of Christianity's Branches



New Protestant Denominations

- Today there are thousands of forms of Christianity
- Any non-Catholic or non-Orthodox form is a type of Protestantism
 - Lutheranism – followed Luther's ideals
 - Calvinism – John Calvin's teachings
 - Mainly Luther's ideas
 - Believed in predestination – God decides at birth if salvation is granted
 - Baptism
 - Only adults can truly understand God's teachings and be baptized
 - Anglicanism
 - Formed by King Henry VIII of England – wanted to divorce wife
 - AKA Church of England
 - Same basic principles of Catholicism

Religious Divisions of Europe

- Catholic
- Lutheran
- Calvinist
- Anglican
- Bohemian and Moravian Brethren (Hussite)
- Anabaptist
- Eastern Orthodox
- Islamic



0 500 Miles
0 500 Kilometers

Influences of the Renaissance and Reformation

- Scientific Revolution – age of new scientific advancements and discoveries
 - Rebirth of ancient knowledge → interest in scientific world instead of a religious one
- Age of Exploration – age of increased travel and search for new lands and trade routes
 - New technology and need for new trade routes → age of travel and discovery
- Enlightenment – age of increased social freedom and demand for equality and fair government
 - Protestant Reformation → protesting spirit
 - Renewed interest in Greek and Roman history → democracy and republic



Scientific Revolution

1450's – 1700's

Scientific Revolution



- Time of increased interest in the physical sciences
 - Astronomy, biology, chemistry, physics, medicine, mathematics
- Inspired by Roman/Greek scientists reborn with Renaissance
- Emphasis placed on physical world and natural causes rather than spiritual world and religious causes



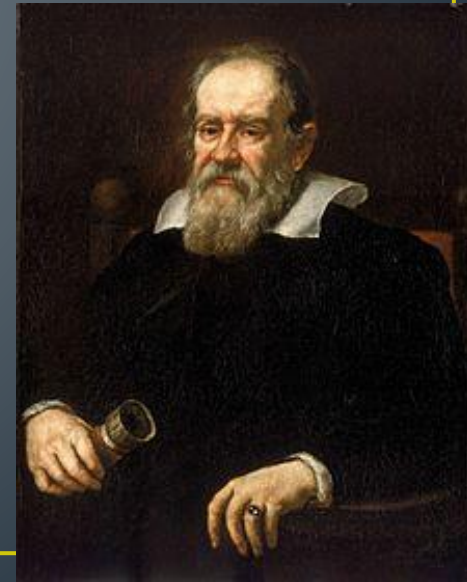
Nicolaus Copernicus

- 1543 – Published *On the Revolutions of the Celestial Spheres*
 - Suggested the Sun (heliocentrism) was at the center of the solar system, not the Earth (geocentrism)
 - Geocentrism was the belief of the Church and ancient Greeks (Ptolemy), so many refused to believe his theory
 - Mathematic calculations also supported elliptical, not circular, orbit (Johannes Kepler)



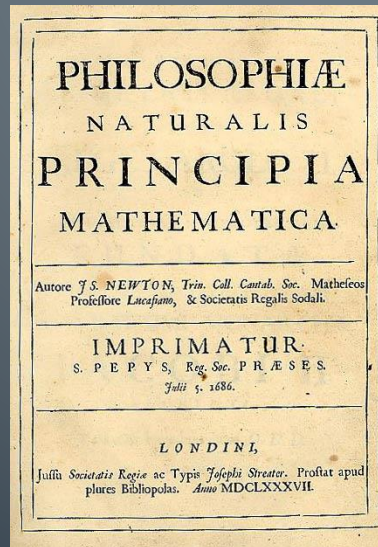
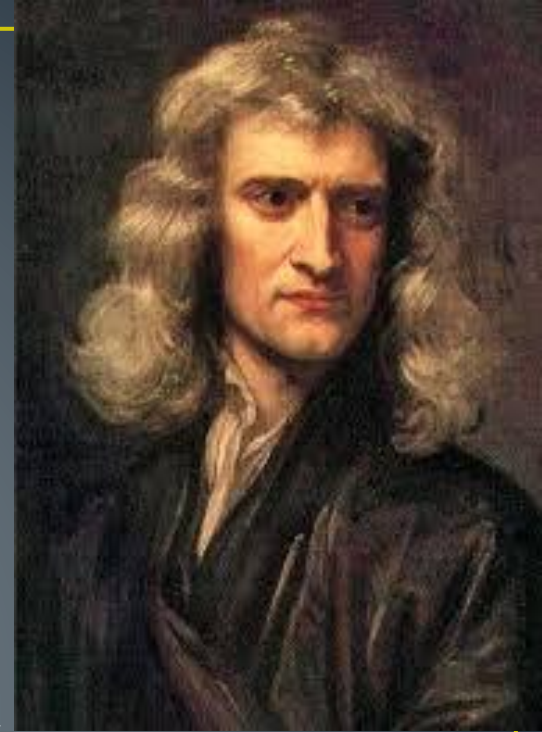
Galileo Galilei

- First to use a telescope to observe the night sky
 - Observed moons orbiting Jupiter, confirmed not all objects orbit Earth
- Confirmed Copernicus/Kepler theory of heliocentrism and published findings in 1610
 - Met with opposition from Catholic Church
 - Catholic Inquisition put Galileo on trial, found guilty
 - Forced to recant, publish works supporting geocentrism, and put on house arrest until his death



Isaac Newton

- Published *Principia* in 1687
 - Stated the 3 laws of motion
 - Every object at rest stays at rest
 - Force = ma
 - Every action has an opposite and equal reaction
 - Provided explanation to gravity, planetary orbits, tides
- Believed all natural phenomenon could be explained mathematically
- Helped define laws of calculus



Biological Discoveries

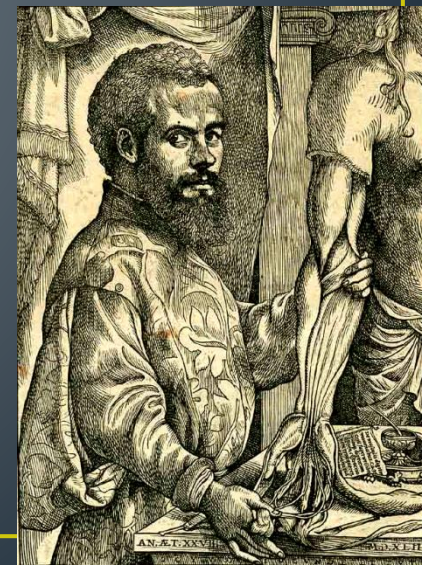
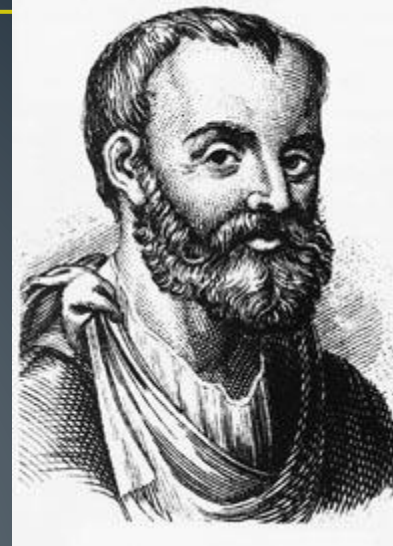
- Galen – Roman philosopher who believed in humorism – body is composed of 4 humors through dissection of monkeys

- Yellow bile, Black bile, Blood, Phlegm
- Believed the liver pumped blood

- Vesalius – dissected human corpses and disproved Galen in 1453

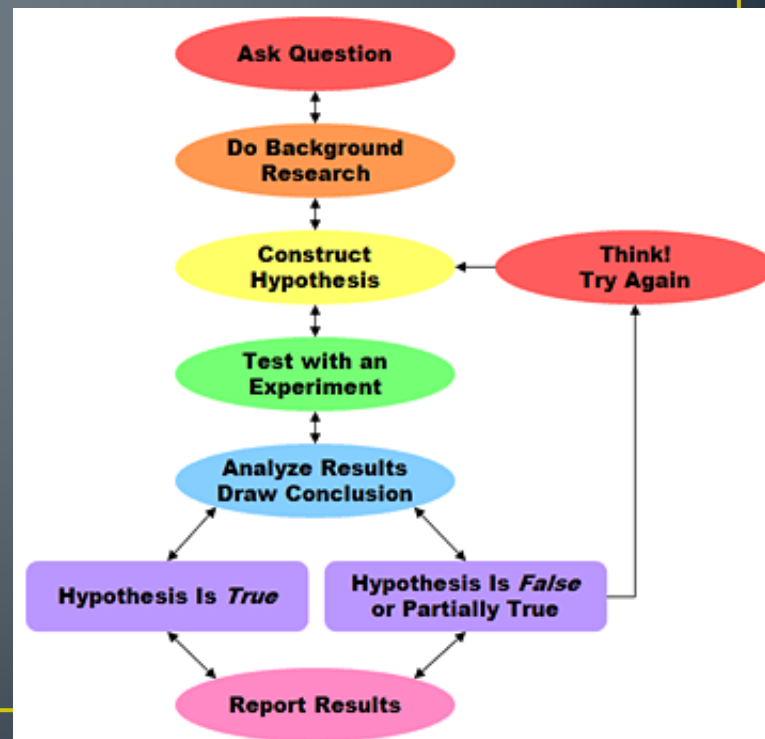
- William Harvey – published works in 1628

- Proved that blood circulated body by means of the heart
- Differentiated veins (carry blood to heart) and arteries (out of heart)



Scientific Method

- Used and advocated for first time during Scientific Revolution
 - Develop hypothesis → experiment to prove or disprove → collect data → revise hypothesis → repeat
- Helped contribute to a rational and logical explanation of the world and its events
- Use physical evidence, not religious faith to explain nature





Age of Exploration

1450's – 1700's

Age of Exploration

- Era of European exploration of the world

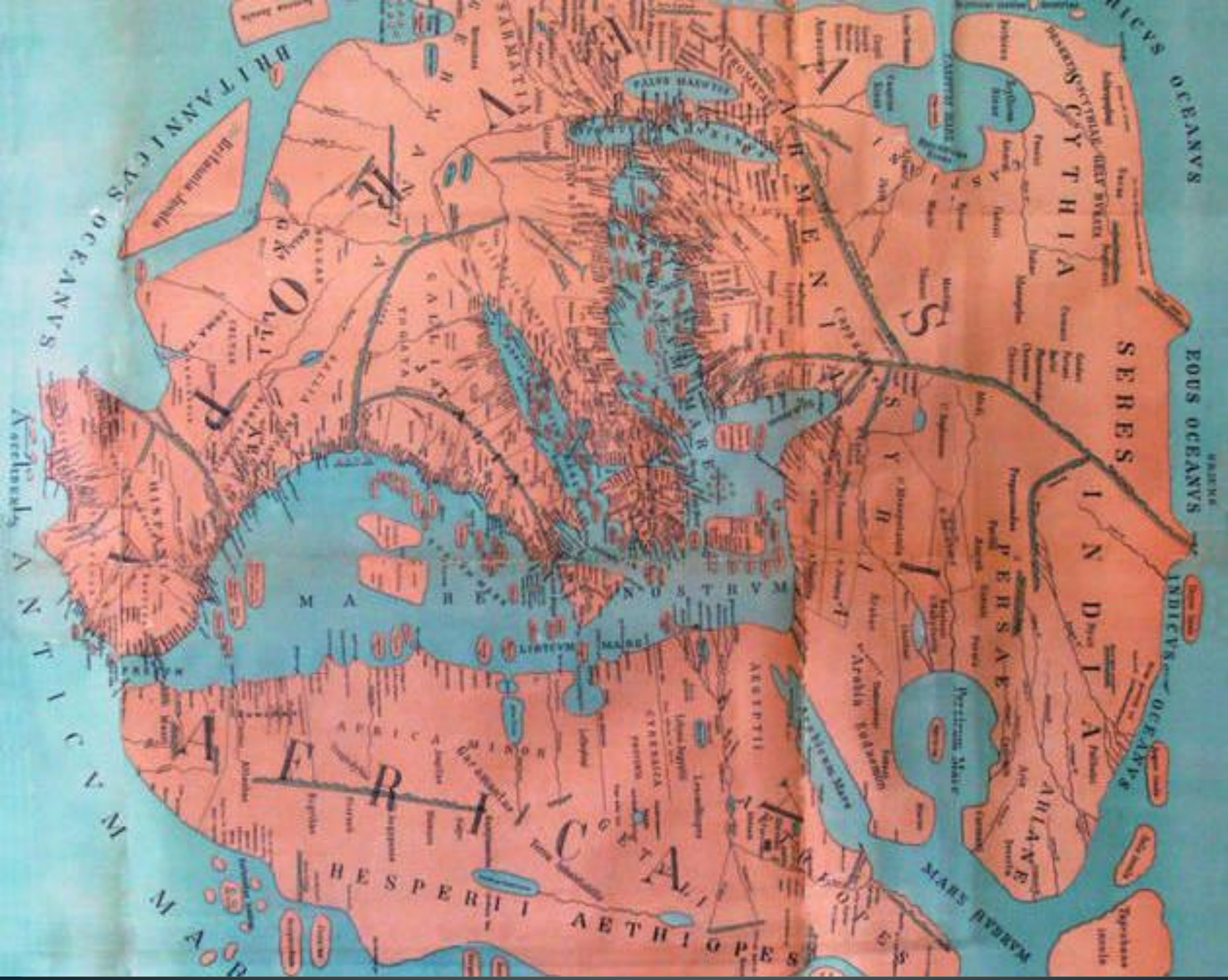
- Looking for new water trade routes to Asia – Ottoman Empire controlled Silk Road land routes
- Land routes were also dangerous
- Looking for new resources and colonies, spreading religion

- Advancements in astronomy and reason helped Europe realize the world was round that the oceans were a connected system



- Asia (India and China) had spices, silk, luxury goods desired by Renaissance Europe
- Ottoman Empire blocked trade
- Only known continents at the time were Europe, Asia, Africa





THE WORLD
according to
HECATÆUS
B.C. 500










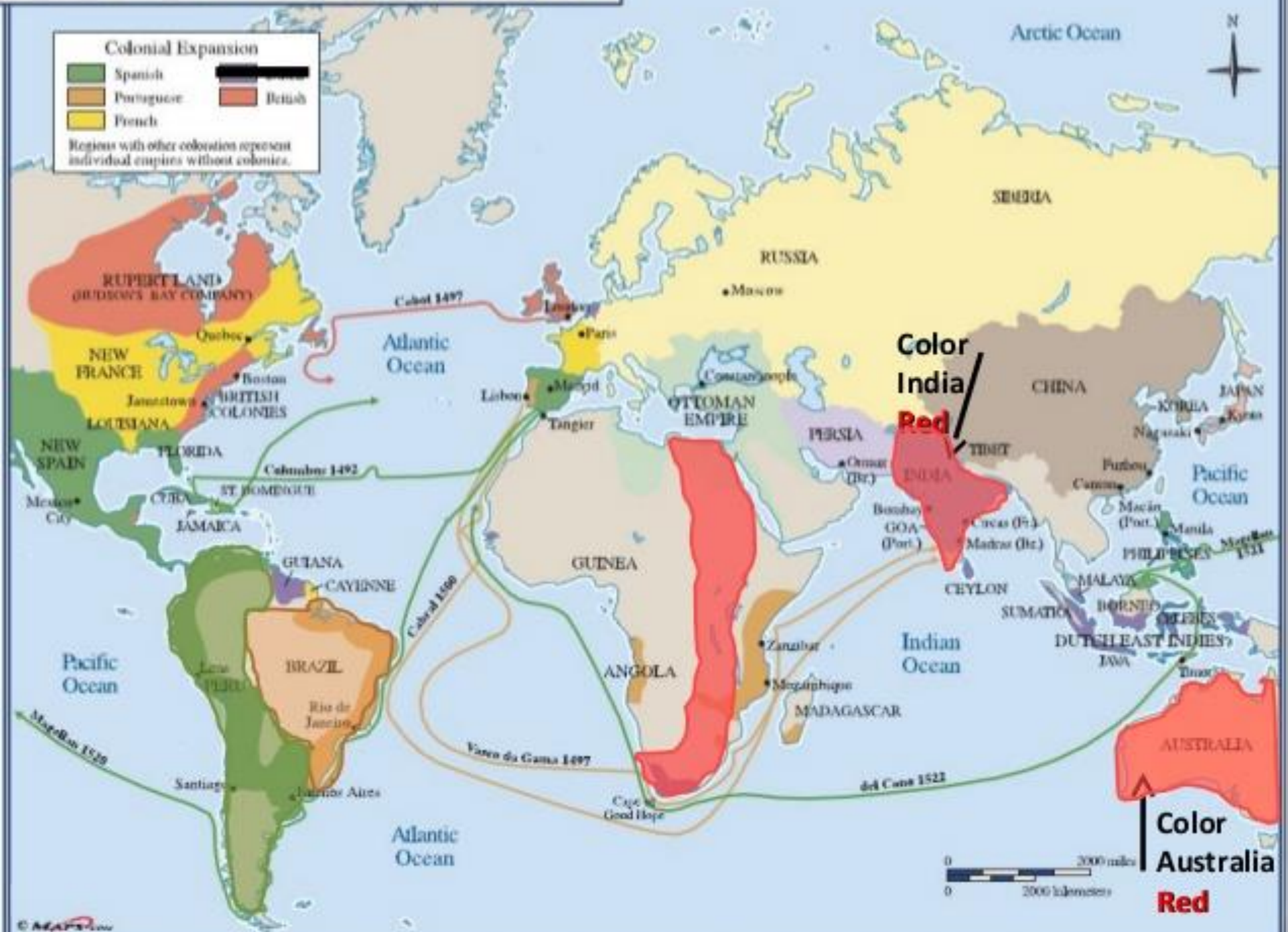


EXPLORATION AND EMPIRES, 1400-1700

Colonial Expansion

	Spanish	
	Portuguese	
	French	

Regions with other coloration represent individual empires without colonies.



Color India
Red

Color Australia
Red

<p>Bartolomeu Dias – Portugal</p>	<p>Looking to spread Christianity and find new route to Asia First to sail to southern tip of Africa</p>
<p>Vasco de Gama – Portugal</p>	<p>Looking to spread Christianity and find new route to Asia First to sail around Africa to reach Asia Claimed land in South America for Portugal</p>
<p>Christopher Columbus – Spain (from Italy)</p>	<p>Looking for new route to Asia by sailing across Atlantic Ocean First European to set foot in Americas (did not know at time)</p>
<p>Ferdinand Magellan – Portugal</p>	<p>Looking for route to Asia by sailing across Atlantic Ocean Rounded tip of South America, crew first to circumnavigate the globe</p>
<p>John Cabot – England</p>	<p>Looking for northern route to Asia (Northwest Passage) – did not find Explored Canada, claimed for England</p>

Henry Hudson – Netherlands	Looking for northern route to Asia (Northwest Passage) – did not find Explored Hudson River, Hudson Bay, Hudson Strait, claimed for Netherlands
Francisco Pizarro – Spain	Looking to claim land, sailed to South America and conquered the Incan Empire in Peru, colonized much of South America for Spain
Amerigo Vespucci – Spain	First explorer to realize the Americas were a new continent and not Asia Namesake for the American continents
Walter Raleigh - England	Explored parts of North America, making the colonization of Virginia possible for England
Hernando Cortes - Spain	Explored present day Mexico and led to the downfall of the Aztec Empire Conquered Mexico as a colony

New World Powers Emerge

- England becomes most powerful country and colonizes all over the world (North America, India, Africa)
- Portugal, Spain, France, and the Netherlands compete with one another for secondary dominance
 - North America – France, Spain, Netherlands
 - South America – Spain and Portugal
 - Africa – Portugal, France, Netherlands
- Colonization allows Europe to become most powerful at expense of American and African exploitation
 - Slave trade
 - Millions of natives killed, pushed off land

Columbian Exchange

- Products between old world (Europe/Africa/Asia) and new world (Americas) exchanged for the first time
 - Animals
 - Plants
 - Diseases



Colonialism

- Europe set up colonies for resources all around world
- Native populations forced off land or killed
 - Aztecs/Incas – killed by Spanish
- Europeans would travel to new world for religious freedom
- Colonies often controlled through fear and oppression which will lead to revolutions
 - England's 13 colonies rebel and become USA

Loss of Faith

- Catholic Church had denied:
 - Heliocentric universe
 - Round Earth
- New continents discovered
 - Not mentioned in the Bible
 - Natives had advanced civilizations and were not Christians
- Adds fuel to the Protestant Reformation
- Leads to questioning of religion all together



The Enlightenment

1650's – 1750's

Background

- AKA the Age of Reason
- Time of philosophy, logic, and reason as applied to human life
 - Scientific Revolution used logic and reason to explain physical world
 - Enlightenment uses logic and reason to explain human nature
- Why did it occur?
 - More people in Europe were highly educated than ever before
 - Kings were absolute rulers, yet not effective
 - Catholic Church was extremely powerful, yet proven wrong many times

The Philosophers

- English and French philosophers developed theories on how best to govern people and the nature of humanity
- Many believe in the good nature of people and that the government should protect rights of people

Thomas Hobbes – England	Believed people were a wild beast that needed strict governments to keep them in place; People make a “Social Contract” with society to exchange animalistic ways for an ordered and safe life, but their true nature will be revealed if there is no order
John Locke - England	Believed people were naturally moral, and that they all had natural rights (life, liberty, property, pursuit of happiness); believed the government should protect these rights and that the people should overthrow a government if it takes away these rights
Baron de Montesquieu – France	Believed government should be divided into three parts: Executive (leader), Legislative (law-makers), and Judicial (courts) so one part doesn't become too powerful
Voltaire - France	Believed in freedom of speech and religion, protested slavery; believed in God but also that God did not interfere with humans after he created Earth
Jean Jacques Rousseau - France	Believed that humans were bad due to unequal wealth distribution and corruption; believed humans should be equal and that government officials should be chosen by all men

Effects of the Enlightenment

- Continued skepticism of the Church and its power
 - Increased religious toleration
- Protests against absolute rulers
 - Increased desire for freedom of speech
 - Increased desire for basic human rights
- Eventually, revolutions that overthrow absolute kings
 - American colonies rebelling against King of England
 - French citizens rebelling against King of France
 - By 1900 – most kings and queens in Europe would become mainly figureheads with little ruling power