

# AP EUROPEAN HISTORY - UNIT 4

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## Scientific, Philosophical, and Political Development (1648-1815)

Scientific Revolution	<p>Bacon (1561-1626)</p> <ul style="list-style-type: none"><li>● Contributed to scientific developments, including the development of the scientific method (inductive method)</li><li>● Advocated for the methodical use of:<ul style="list-style-type: none"><li>○ Hypothesis</li><li>○ Controlled experimentation</li></ul></li></ul>
	<p>Copernicus (1473-1543)</p> <ul style="list-style-type: none"><li>● Clergyman and astronomer</li><li>● Published <i>On the Revolutions of the Heavenly Bodies</i><ul style="list-style-type: none"><li>○ Challenged old assumptions about the <u>geocentric view</u> of the universe (earth is center with planets, moon, sun surrounding it)</li><li>○ Introduced a new <u>heliocentric view</u> that the sun is the center and earth revolves around it<ul style="list-style-type: none"><li>■ Based on logic not direct observations</li></ul></li></ul></li></ul>
	<p>Kepler (1571-1630)</p> <ul style="list-style-type: none"><li>● Assistant of Danish astronomer, Tycho Brahe</li><li>● He continued Brahe's work, but modified his views</li><li>● Created the 3 laws of planetary motion<ol style="list-style-type: none"><li>1. Sun is in the center with planets revolving around it in elliptical orbits (heliocentric view)</li><li>2. When planets approach closer to the sun the movement gradually gets quicker</li></ol></li></ul>

	<p>3. The time each planet takes to orbit the sun depends on the distance it is in proportion to the sun</p>
	<p>Galileo (1564-1642)</p> <ul style="list-style-type: none"> <li>● Italian scientist</li> <li>● Used controlled experiments and mathematical formulas to create the laws of motion and inertia</li> <li>● One of the first people to utilize a telescope to observe space and planets directly</li> <li>● Had strong beliefs and support for the heliocentric view</li> <li>● His ideas threatened the church and Pope Urban VII <ul style="list-style-type: none"> <li>○ Stood under trial when summoned in 1633 by the pope for torture</li> <li>○ Admitted to support the Copernican theory thereafter</li> </ul> </li> </ul>
	<p>Descartes (1596-1650)</p> <ul style="list-style-type: none"> <li>● French philosopher, scientist, mathematician</li> <li>● Advocated for the deductive method</li> <li>● Included logical reasoning</li> <li>● <u>Scientia</u>: what is proven to be knowledge with absolute certainty</li> <li>● Bacon's inductive method and Descartes deductive method contributes to the <b>Scientific method</b> – observations, controlled experiments with use of factual and hypothetical reasoning, and mathematical formulas</li> </ul>
	<p>Sir Isaac Newton (1642-1727)</p> <ul style="list-style-type: none"> <li>● Published <i>Principia</i> consisting of:</li> </ul>

	<ul style="list-style-type: none"> <li>○ Kepler’s laws of planetary motion</li> <li>○ Galileo’s law of inertia and bodies falling downwards</li> <li>○ His own view on gravity in one mathematical law of universal gravitation</li> <li>● Saw universe as a machine created by God functioned under universal laws that can be explored to improve life</li> <li>● Findings and concepts dominated Western thought until the discoveries of Albert Einstein</li> </ul>
<p>Philosophes of The Enlightenment (reason&gt;religion)</p>	<p>Voltaire (1694-1778)</p> <ul style="list-style-type: none"> <li>● Prince of the Philosophes</li> <li>● Denounced religious bigotry → advocated for religious tolerance.</li> </ul>
<p><u>Important ideas of the Philosophes and the Enlightenment:</u></p>	<p><b>Reasoning:</b> absence of bigotry and superstition; leaned more towards informed thinking</p> <p><b>Nature and natural laws:</b> universal laws discovered by human concept</p> <p><b>Happiness:</b> rejected medieval belief that humans should cope with misery and await for salvation</p> <ul style="list-style-type: none"> <li>● Happiness is gained through inalienable rights</li> </ul> <p><b>Progress:</b> social progress → economic and governmental laws</p> <p><b>Liberty:</b> freedom of speech, religion, trade, liberty, expression, thoughts, etc.</p> <p><b>Toleration:</b> Philosophes advocated for religious toleration</p>
	<p>Rousseau (1712-1778)</p>

	<ul style="list-style-type: none"> <li>● Precursor of romanticism</li> <li>● Natural education in which children are exposed to happiness and freedom in schooling</li> <li>● Be able to draw personal conclusions</li> <li>● The General Will <ul style="list-style-type: none"> <li>○ <i>The Social Contract</i> treatise on politics and govt theories</li> <li>○ Argued that individuals entered social contract with one another and not with rulers</li> <li>○ Community over sovereign power</li> <li>○ Removal of rulers that abuse powers or fail to carry people’s will</li> </ul> </li> <li>● Important note: dictators justified rule with general will</li> <li>● Contrasted from other philosophes about emotions and spontaneous feelings rather than sharp logic (romantic)</li> </ul>
	<p>Diderot (1713-1784)</p> <ul style="list-style-type: none"> <li>● <i>Encyclopedia</i></li> <li>● Supported enlightened thinking about science, technology, mathematics, art, government</li> <li>● “All things must be examined, debated, investigated without exception and without regard for anyone’s feelings.”</li> </ul>
	<p>Montesquieu (1689-1755)</p> <ul style="list-style-type: none"> <li>● <i>The Spirit of the Laws</i></li> <li>● French nobleman and attorney – limited abuse of royal authority/absolutism</li> <li>● Social sciences with natural sciences</li> <li>● Advocated for separation of powers of legislative, executive, and judicial branches to restrain unlimited power</li> </ul>

	<p>over society</p> <ul style="list-style-type: none"><li>○ This idea of separation of powers influenced Constitution</li></ul>
<p><u>Deism</u></p>	<ul style="list-style-type: none"><li>● <b>Deism</b>: belief that God was a cosmic watchmaker and controlled and created the universe<ul style="list-style-type: none"><li>○ Intellectuals/elites believed in deism</li></ul></li><li>● Reliance on reason over emotion and did not appeal to the general public</li><li>● <b>“Pietism”</b>: faith and emotion</li></ul>

