

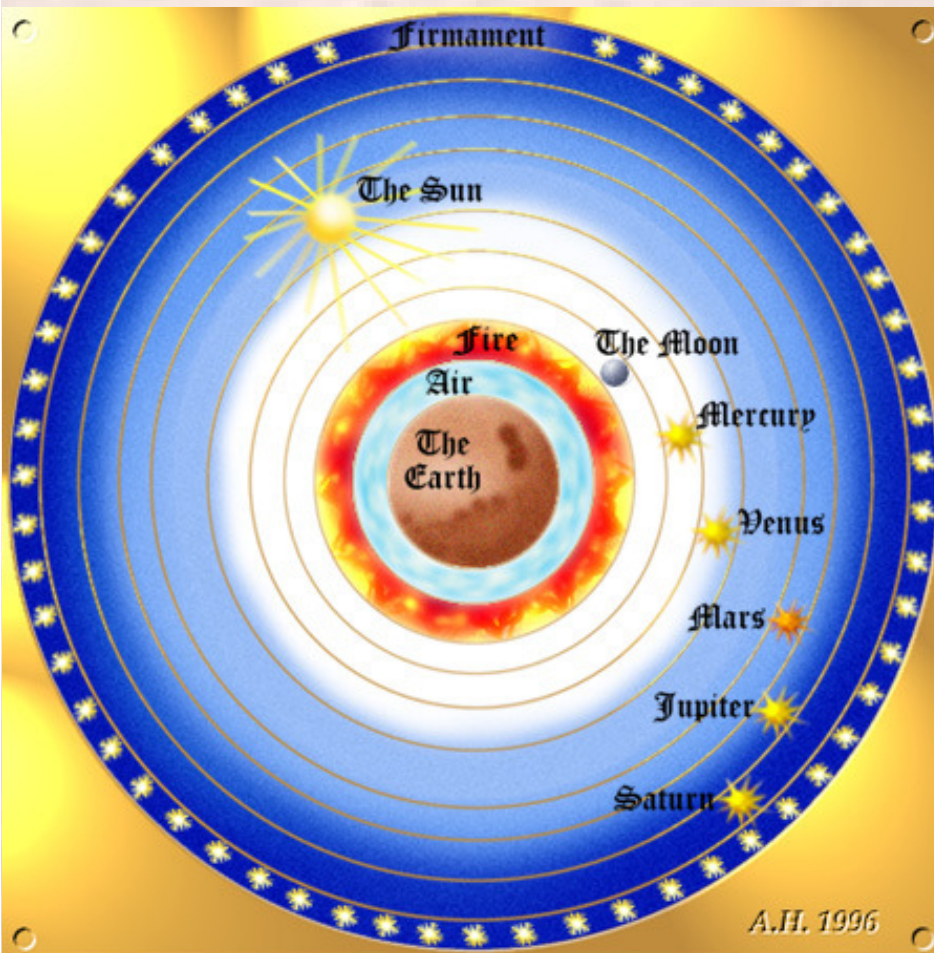
# **Lesson 40 Science and Reason Challenge God's Truth**

# The Scientific Revolution

- The period between 1300 and 1600 was a time of great change in Europe. The Renaissance, a rebirth of learning and the arts, inspired a spirit of curiosity in many fields. Scholars began to question ideas that had been accepted for hundreds of years. Meanwhile, the Reformation challenged thousands to question the accepted ways of thinking about God and salvation. While the Reformation was taking place, another revolution in European thought had begun, one that would permanently change how people viewed the physical world. (Beck, 623)
- Before 1500, scholars generally decided what was true or false by referring to an ancient Greek or Roman author or to the Bible. Few European scholars challenged the scientific ideas of the ancient thinkers or the church . . . During the Middle Ages, most scholars believed that the earth was an immovable object located at the center of the universe. According to this belief, the moon, the sun, and the planets all moved in perfectly circular paths around the earth. Common sense seemed to support this view. After all, the sun appeared to be moving around the earth as it rose in the morning and set in the evening. (Beck, 623)

# The Scientific Revolution

- This earth-centered view of the universe was called the geocentric theory. The idea came from Aristotle in the 4th century B.C. The Greek philosopher Ptolemy expanded the theory in the 2nd century A.D. Moreover, the Catholic Church taught that God had deliberately placed the earth at the center of the universe. (Beck, 623)



# The Scientific Revolution

- Beginning in the mid-1500s, a few scholars published works that challenged the ideas of the ancient thinkers and the church. As these scholars replaced old assumptions with new theories, they launched a change in European thought known as the Scientific Revolution. The Scientific Revolution was a new way of thinking about the natural world. (Beck, 623)
- A combination of discoveries and circumstances led to the Scientific Revolution and helped spread its impact:
  - Printing Press—spread ideas both old and new among European thinkers.
  - Age of Exploration—fueled a great deal of scientific research, especially in astronomy and mathematics. Navigators needed better instruments for making geographic measurements.
  - Contact with People Outside of Europe—during the Age of Exploration, Europeans encountered new ideas from people in Africa, Asia, and the Americas. (Beck, 623)

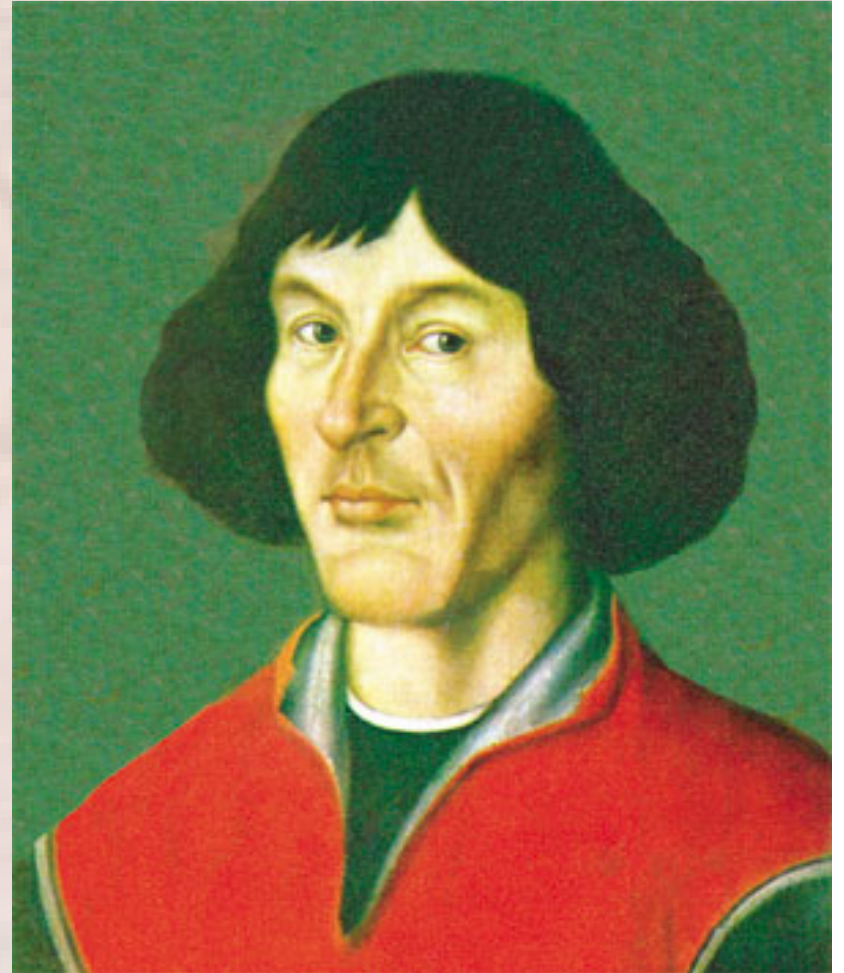
# The Scientific Revolution

- “As scientists began to look more closely at the world around them, they made observations that did not match the ancient beliefs. They found they had reached the limit of the classical world’s knowledge.” (Beck, 624)



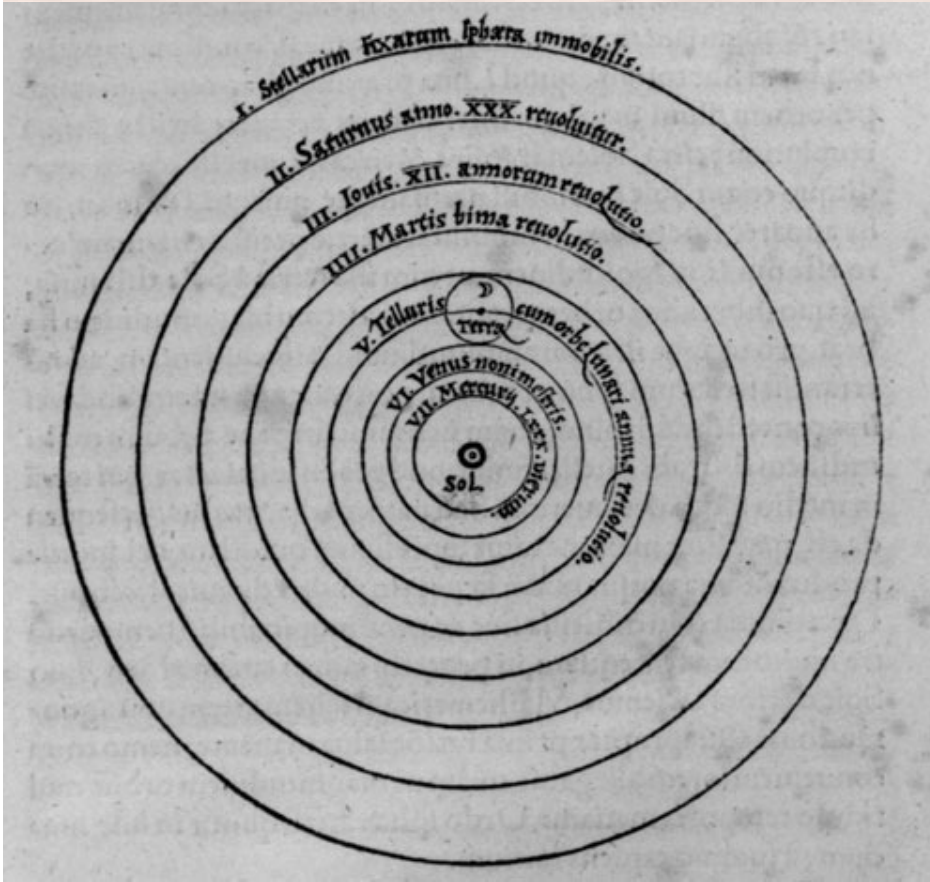
# Copernicus Upsets the Applecart

- “In the mid-1500s Nicolas Copernicus of Poland challenged the worldview (Geocentric Theory). It is important to note that his ideas were not new: several ancient Greeks had already suggested that the earth rotated around the sun. Copernicus realized that, mathematically, a sun-centered universe made more sense.” (Jones, 124)



# Copernicus Upsets the Applecart

- “Copernicus’s heliocentric, or sun-centered theory still did not completely explain why the planets orbited the way they did. He also knew that most scholars and clergy would reject his theory because it contradicted their religious views. Fearing ridicule or persecution, Copernicus did not publish his findings until 1543, the last year of his life. He received a copy of his book, *On the Revolutions of the Heavenly Bodies*, on his deathbed.” (Beck, 624)



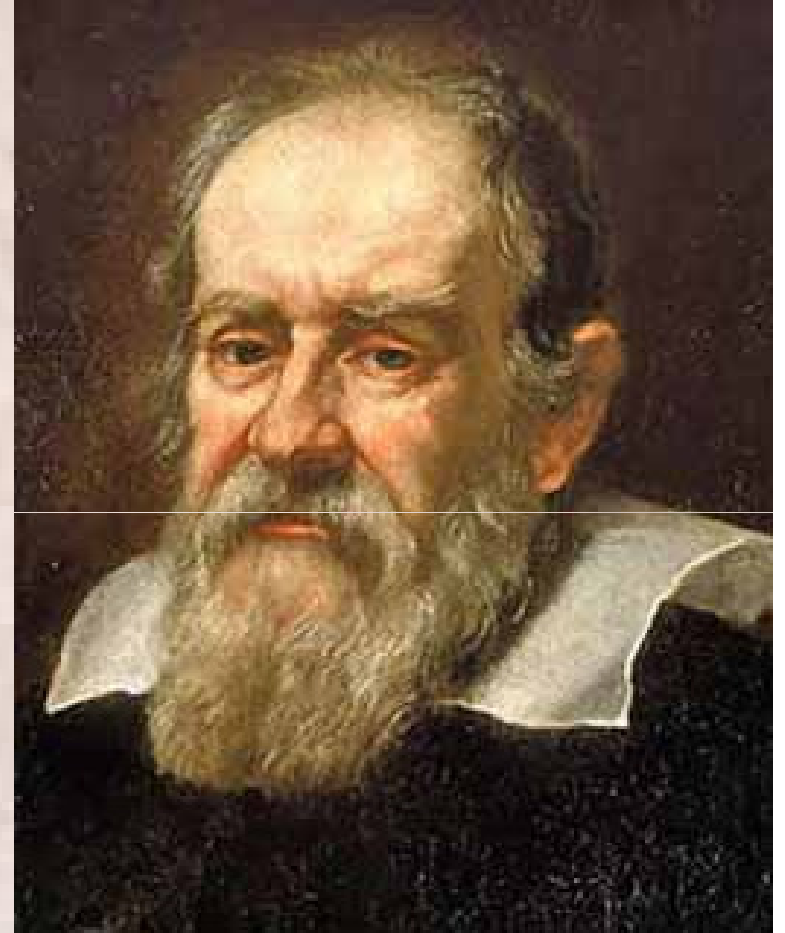
# Copernicus Upsets the Applecart

- After the death of Copernicus, Johannes Kepler concluded that certain mathematical laws govern planetary motion. One of these laws showed that the planets revolve around the sun in elliptical orbits instead of circles. Kepler's laws showed that Copernicus's basic ideas were true. They demonstrated mathematically that the planets revolve around the sun. (Beck, 624)
- Using a telescope, the Italian Galileo studied the heavenly bodies in 1609 and used his observations to publish *Starry Messenger* in 1610. Galileo destroyed Aristotle's theory that the moon and the stars were made of a pure perfect substance by asserting that the surface of the moon was rough and uneven and that the sun had dark spots. Galileo's observations, as well as his laws of motion, also clearly supported the theories of Copernicus. (Beck, 625)



# Copernicus Upsets the Applecart

- “In 1616, the Catholic Church warned Galileo not to defend the ideas of Copernicus. Although Galileo remained publically silent, he continued his studies. Then, in 1632, he published *Dialogue Concerning the Two Chief World Systems*. This book presented the ideas of both Copernicus and Ptolemy, but it clearly showed that Galileo supported the Copernican theory.” (Beck, 625)
- The pope angrily summoned Galileo to stand trial before the Inquisition. In 1633, under the threat of torture, he knelt before the cardinals and read aloud a signed confession in which he agreed that the ideas of Copernicus were false. (Beck, 625)



# Copernicus Upsets the Applecart

- Galileo spent the rest of this life under house arrest in a villa near Florence, Italy. Despite his incarceration, the publication of his ideas helped to touch off a revolution that no walls could confine. It was not until 1992 that the Catholic Church finally acknowledged that Galileo had been correct. (Jones, 125)



# Newton Explains Everything

- “All these discoveries, however, had to be united in one all-embracing principle that would explain the motion of bodies in the heavens and the present universe as one great machine operating according to unalterable laws. This was the feat of the most illustrious scientist of the Age of Reason, Isaac Newton (1642-1727).” (Shelley, 313)
- “In 1687 Newton published his momentous work, *Mathematical Principles of Natural Philosophy*, in which all the laws of motion, in the heaven and on the earth, were harmonized in a master principle for the universe, the law of gravitation.” (Shelley, 314)

# Newton Explains Everything

- “The reading public of Europe was captivated by the wonder of Newton’s world-machine. The medieval world of unseen spirits—angels and demons—could now be dismissed as superstition. In its place moved a universe subject to physical laws expressed in mathematical symbols.”
  - Alexander Pope wrote: “Nature and Nature’s laws lay hid in night; God said, “Let Newton be!” and all was light. (Shelley, 314)
- “This sudden access to the mysteries of the universe seemed to magnify the role of human reason. If the universe is a smooth-running machine with all its parts coordinated by one grand design, then man only has to think clearly to find life’s meaning and true happiness. This fundamental idea—that man has the ability to find the truth by the use of his senses and reason—gave rise to the label, Age of Reason.” (Shelley, 314)

# Newton Explains Everything

- “Christianity could scarcely escape the fallout from this intellectual revolution. For 1,200 years Augustine’s ideas had ruled Christendom. . . But now intellectuals were arguing something else: Man is no sinner. He is a reasonable creature. He needs the grace of God less than common sense.” (Shelley, 314)
- For many during the Age of Reason, traditional authorities such as the Bible or the Church gave way to the Scientific Method as a means of determining truth. The scientific method is a logical procedure for gathering and testing ideas.
  - Problem or question arising from an observation
  - Hypothesis
  - Experimentation to test hypothesis
  - Data is collected
  - Analyze and interpret the data
  - New conclusion is reached. (Beck, 625)



# Newton Explains Everything

- This new approach was used to make groundbreaking discoveries in anatomy, medicine, and chemistry.
- “Christians found themselves in two contrasting climates. At first, during the closing years of the seventeenth century, some believers, especially in England, tried to harmonize reason and faith. They argued that Christianity is totally reasonable but some truths come by reason and some by revelation. . . . In time, however, after the beginning of the eighteenth century, the climate changed. In France, confidence in reason soared and Christians found that many intellectually dismissed all appeals to revealed Scripture as superstitious nonsense.” (Shelley, 315)

# The Enlightenment

- “The English term “Enlightenment” passed into general circulation only in the closing decades of the nineteenth century. . . “Enlightenment is a loose term, defying precise definition, embracing a cluster of ideas and attitudes characteristic of the period 1720-80, such as the free and constructive use of reason in an attempt to demolish old myths which were seen to have bound individuals and societies to the oppression of the past.” (McGrath, 87)
- “The term “Age of Reason,” often used as a synonym for the Enlightenment, is misleading. It implies that reason had been hitherto ignored or marginalized.” (McGrath, 87)

# The Enlightenment

- “The Enlightenment ushered in a period of considerable uncertainty for Christianity in western Europe and North America. The trauma of the Reformation and the resulting Wars of Religion had barely subsided on the continent of Europe before a new and more radical challenge to Christianity arose. . . the Enlightenment saw the intellectual credentials of Christianity itself (rather than any one of its specific forms) facing a major threat on a number of fronts. The origins of this challenge may be traced back to the seventeenth century, with the rise of Cartesianism on the continent of Europe, and the increasing influence of Deism in England.” (McGrath, 88)
- “Many intellectuals claimed that the parts of the Bible that agree with reason are clearly unnecessary. The parts that contradict reason—the myths, miracles, and priestly mumbo jumbo—are simply untrue. The most militant attitude toward the faith was especially evident in France. In the eighteenth century Paris arose as the capital of a new cosmopolitan culture. Ideas circulated freely throughout Europe and the American colonies. . . In Paris a group of thinkers and writers known as the *philosophes* brought the Age of Reason to its climax. The *philosophes* were not philosophers devoted to an academic discipline. They were men of letters, students of society who analyzed its evils and advocated reforms. They aimed to spread knowledge and emancipate the human spirit.” (Shelley, 316)

# The Enlightenment

- “Unlike most previous critics of the church, the *philosophes* were not heretics or dissenters who attacked the church in the name of Christ. These men launched their attack from outside of the church. And they aimed their missiles not at a single point of dogma but at the foundation of all Christian truth. Their well published purpose was to demolish the citadel.” (Shelley, 317)
- “The *philosophes* believed that people could apply reason to all aspects of life, just as Isaac Newton had applied reason to science. Five concepts formed the core of their beliefs:
  - *Reason*—Enlightenment thinkers believed truth could be discovered through reason and logical thinking.
  - *Nature*—the *philosophes* believed that what was natural was also good and reasonable.
  - *Happiness*—the *philosophes* rejected the medieval notion that people should find joy in the hereafter and urged people to seek well-being on earth.
  - *Progress*—the *philosophes* stressed that society and humankind could improve.
  - *Liberty*—the *philosophes* called for the liberties that the English people had won in their Glorious Revolution and Bill of Rights.” (Beck, 630)

# The Enlightenment

- Using these main points, the *philosophes* depicted Christianity as a pernicious plot, designed to turn the earth over to the oppressive powers of a priestly caste. Revealed religion was nothing less than a scheme to exploit the ignorant. Voltaire liked to refer to Christianity as the “infamous thing.” His most ruthless charge against the faith pictured the thousands upon thousands of victims of Christianity’s intolerance. These intellectuals judged Christianity by the simple human standards of good and evil. If the church in the name of purity of doctrine sanctioned the bloody carnage of fellow Christians—as it had in the wars of religion—then Christianity, far from being sacred and holy, was a wicked institution. It had prevented peace, harmony, and progress among the peoples of the earth. The primary weapon aimed at the church was “truth.” “We think that the greatest service to be done to men,” said Diderot, “is to teach them to use their reason, only to hold for truth what they have verified and proved.” But the standards of truth ruled out Christian doctrine from the start. When the orthodox tried to reason from their basic premises, the *philosophes* only scoffed because they refused to allow arguments drawn from authority or tradition embodied in the Bible or the church. (Shelley, 317)



# The Enlightenment

- The rational religion of the Enlightenment found itself in conflict with six major areas of traditional Christian theology:
  - *The Possibility of Miracles*—much of traditional apologetics concerning the identity and significance of Jesus Christ was based upon the “miraculous evidence” of the New Testament, culminating in the resurrection. The new emphasis upon the mechanical regularity and orderliness of the universe, perhaps the most significant intellectual legacy of Newtonianism, raised doubts about the New Testament accounts of miraculous happenings. In his *Essay on Miracles*, David Hume argued that since there were no contemporary examples of New Testament miracles, Christians were forced to rely exclusively on human testimony to retain their belief in miracles.

# The Enlightenment

- *The Notion of Revelation*—the Enlightenment witnessed the development of an increasingly critical attitude to the very idea of supernatural revelation. In part, this new critical attitude was also due to the Enlightenment depreciation of history. . . Revelation took place in history – but of what value were the contingent truths of history in comparison with the necessary truths of reason? The *philosophes* in particular asserted that history could at best confirm the truths of reason, but was incapable of establishing those truths in the first place.

# The Enlightenment

- *The Doctrine of Original Sin*—Voltaire and Jean-Jacques Rousseau criticized the doctrine as encouraging pessimism with regard to human abilities, thus impeding human social and political development and encouraging *laissez-faire* attitudes. . . The rejection of original sin was of considerable importance, as the Christian doctrine of redemption rested upon the assumption that humanity required liberation from bondage to original sin. For the Enlightenment, it was the idea of original sin itself which was oppressive, and from which humanity required liberation. This intellectual liberation was provided by the Enlightenment critique of the doctrine.

# The Enlightenment

- *The Problem of Evil*—the Enlightenment witnessed a fundamental change in attitude toward the existence of evil in the world . . . The Enlightenment saw this situation change radically: The existence of evil metamorphosed into a challenge to the credibility and coherence of Christian faith itself.

# The Enlightenment

- *The Status and Interpretation of Scripture*—within orthodox Christianity, whether Protestant or Roman Catholic, the Bible was still widely regarded as a divinely inspired source of doctrine and morals, to be differentiated from other types of literature. The Enlightenment saw this assumption called into question, with the rise of the critical approach to Scripture. Developing ideas already within Deism, the theologians of the German Enlightenment developed the thesis that the Bible was the work of many hands, at times demonstrating internal contradiction, and that it was open to precisely the same method of textual analysis and interpretation as any other piece of literature. . . . The effect of these developments was to weaken still further the concept of “supernatural revelation,” and call into question the permanent significance of these foundational documents of the Christian faith.



# The Enlightenment

- *The Identity and Significance of Jesus Christ*—a final area in which the Enlightenment made a significant challenge to orthodox Christian beliefs concerns the person of Jesus Christ. Two particularly important developments may be noted: the origins of the historicity of Jesus, and the rise of the moral theory of the atonement. The first challenge called into question the real Jesus of history and the New Testament's supernatural depiction. While a supernatural redeemer was unacceptable to Enlightenment rationalism, the idea of an enlightened moral teacher was not. Moreover, Jesus' death on the cross was reinterpreted in terms of a supreme moral example of self-giving and dedication, intended to inspire similar dedication and self-giving on the part of his followers. Where orthodox Christianity tended to treat Jesus' death (and resurrection) as possessing greater inherent importance than his religious teaching, the Enlightenment marginalized his death and denied his resurrection, in order to emphasize the quality of his moral teaching. (McGrath, 91-95)

# Legacy of the Enlightenment

- “Over a span of a few decades, Enlightenment writers challenged long-held ideas about society. They examined such principles as the divine right of monarchs, the union of church and state, and the existence of unequal classes. They held these beliefs up to the light of reason and found them in need of reform. . . They formed and popularized new theories. Although they encouraged reform, they were not active revolutionaries. However, their theories eventually inspired the American and French revolutions. . . Enlightenment thinkers produced three other long-term effects that helped shape Western civilization:”

# Legacy of the Enlightenment

- *Belief in Progress*—the successes of the Scientific Revolution gave people the confidence that human reason could solve social problems. Philosophers and reformers urged an end to the practice of slavery and argued for greater social equality, as well as a more democratic style of government. There seemed to be no end to new discoveries being made in the fields of chemistry, physics, biology, and mechanics.

# Legacy of the Enlightenment

- *A More Secular Outlook*—during the Enlightenment people began to question openly their religious beliefs and the teachings of the church. Before the Scientific Revolution, people accepted the mysteries of the universe as the workings of God. . . . Newton himself was a deeply religious man, and he sought to reveal God's majesty through his work. However, his findings often caused people to change the way they thought about God. Meanwhile, Voltaire and other critics attacked some of the beliefs and practices of organized Christianity. They wanted to rid religious faith of superstition and fear and promote tolerance of all religions.

# Legacy of the Enlightenment

- *Importance of the Individual*—faith in science and in progress produced a third outcome, the rise of individualism. As people began to turn away from the church and royalty for guidance, they looked to themselves instead. The *philosophes* encouraged people to use their own ability to reason in order to judge what was right and wrong. They also emphasized the importance of the individual in society. Government, they argued, was formed by individuals to promote their welfare. . . . During the Enlightenment, reason took center stage. (Beck, 633-634)



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