

Global Studies II

Scientific Revolution: Timeline Handout

1543: Nicolas Copernicus Publishes *De Revolutionibus Orbium Coelestium* (On the Revolutions of Celestial Bodies)

Copernicus' masterwork; he sets out the heliocentric theory.

1591: Galileo Galilei Demonstrates the Properties of Gravity Galileo demonstrates, from the top of the leaning tower of Pisa, that a one-pound weight and a one hundred-pound weight, dropped at the same moment, hit the ground at the same moment, refuting the contention of the Aristotelian system that the rate of fall of an object is dependent upon its weight. He expounds fully on this demonstration years later in his 1638 *Discourse on Two New Sciences*.

1610: Galileo Publishes *Messenger of the Heavens* Galileo's 24-page booklet describes his telescopic observations of the moon's surface, and of Jupiter's moons, making the Church uneasy. The Inquisition soon warns Galileo to desist from spreading his theories.

1618: Johannes Kepler Reveals His Third and Final Law of Planetary Motion Kepler's laws of planetary motion describe the form and operation of planetary orbits, and are the final step leading to the academic rejection of the Aristotelian system.

1620: Francis Bacon Publishes *Novum Organum* Bacon attempts to create organization and cooperation within the scientific community by demonstrating how the diverse fields of science relate to one another.

1630: Galileo Publishes *Dialogue on the Two Chief Systems of the World* Galileo's magnum opus uses the laws of physics to refute the Aristotelian contention that the Earth is the center of the solar system and supports the heliocentric Copernican view. Galileo presents the doctrine of uniformity, which claims that the laws of terrestrial physics are no different than the laws of celestial physics.

1633: Galileo is Forced to Recant his Theories The Inquisition forces Galileo to sign a recantation and condemns him to house arrest for the remaining nine years of his life. His *Dialogue* is ordered burned as heretical, and his sentence to be read at every university.

1637: Rene Descartes Publishes His *Discourse on Method* Descartes' work sets forth the principles of deductive reasoning as used in the modern scientific method.

1637: Rene Descartes Publishes *Geometry* In this landmark work, Descartes discusses how motion may be r

1662: The Royal Society of London is Officially Organized by King Charles II The Royal Society brings together the greatest minds of the region in efforts to advance science through cooperation. Similar societies subsequently spring up throughout Europe, creating an intellectual network, which produces many of the scientific advances of the later seventeenth century

1687: Isaac Newton Publishes *Philosophia Naturalis Principia Mathematica* Perhaps the most important event in the history of science, the *Principia* lays out Newton's comprehensive model of the universe as organized according to the law of universal gravitation. The *Principia* represents the integration of the works of all of the great astronomers who preceded Newton, and remains the basis of modern physics and astronomy.

KEY PEOPLE:

Copernicus 1473-1543

Francis Bacon 1561-1626

Galileo 1564-1642

Johannes Kepler 1571-1630

Rene Descartes 1596-1650

Sir Isaac Newton 1643-1727

IMPACTS:

Leads to the Enlightenment because it broke down the concept of "God told me to rule". People wanted more explanation and had also developed the 'ability' to think for themselves and asked questions for the 'first time'.

Men are free to think as reason overtakes the Catholic Church

Leads to the Industrial Revolution as people's minds are free and stimulated