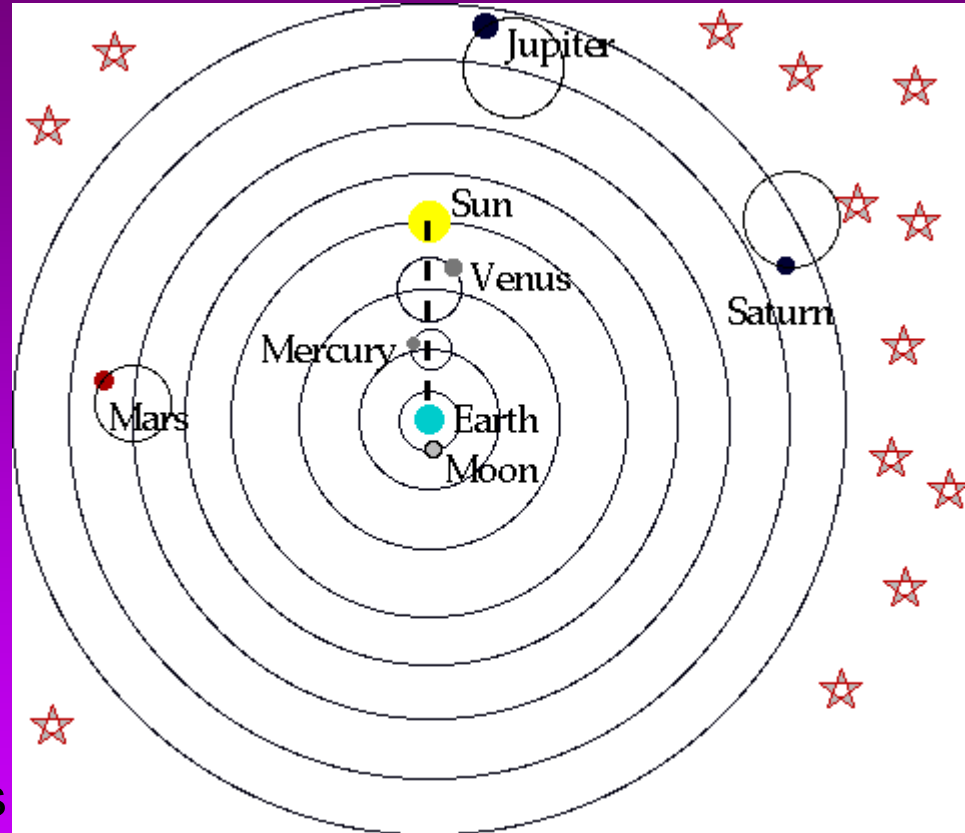


Scientific Revolution 1400 – 1700



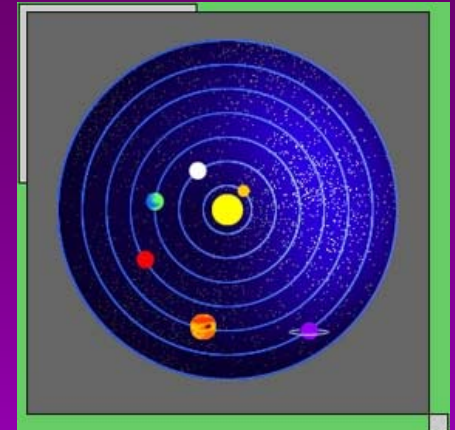
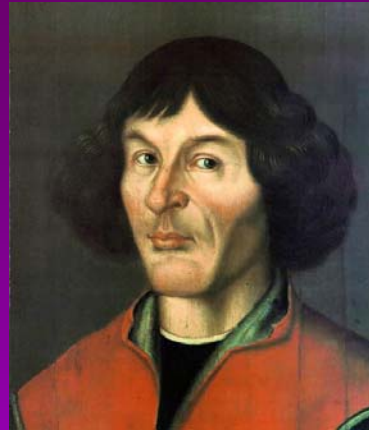
Scientific Revolution 1400 – 1700

- Before 1500 scholars and scientists generally followed the teaching of ancient Rome, Greeks or the Bible
- Little challenge to these ideas or the church
- During the Middle Ages an earth-centered view of the universe was accepted and called geocentric theory
- By the middle of the 1500s a few scientists and scholars challenged the old way of thinking based on observations
- The Age of Exploration increased interest in scientific research in astronomy, mathematics, and natural history



New Model of the Universe

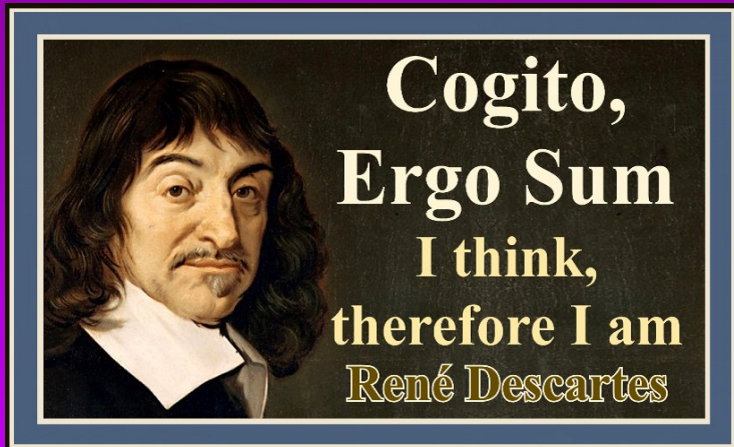
- A Polish cleric and astronomer, Copernicus, developed the heliocentric theory of the universe, sun centered, in 1543
- Johannes Kepler mathematically demonstrated how the planets revolve around the sun in 1601
- Italian scientists, Galileo built a telescope and through his observations supported the findings of the earlier astronomers
- Galileo was forced to condemn his findings and those of the other astronomers before a church court





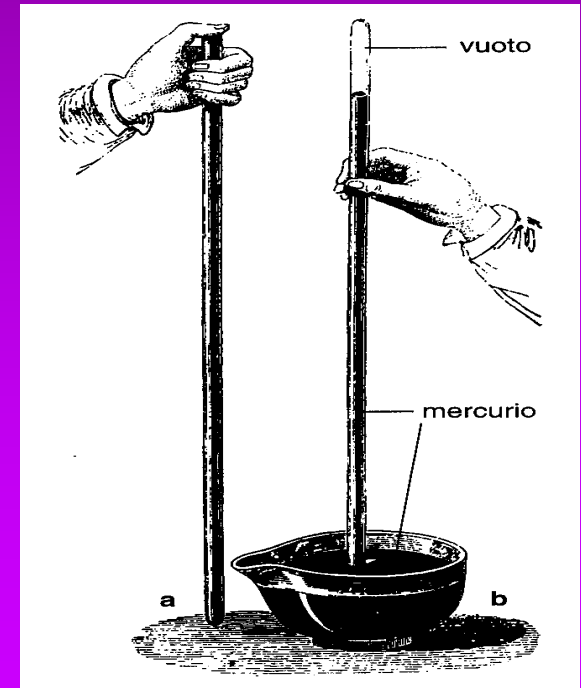
Scientific Method

- Developed over time by many scientists
- Based on the gathering of evidence and testing ideas
- Hypothesis or unproved assumption is tested by data collection and a conclusion either accepts or rejects the hypothesis
- Francis Bacon advanced use of scientific method
- René Descartes developed analytical geometry, a tool of the scientific method
- Isaac Newton developed laws of motion and gravity using the scientific method and mathematical formulas to explain planetary motion and gravity on earth



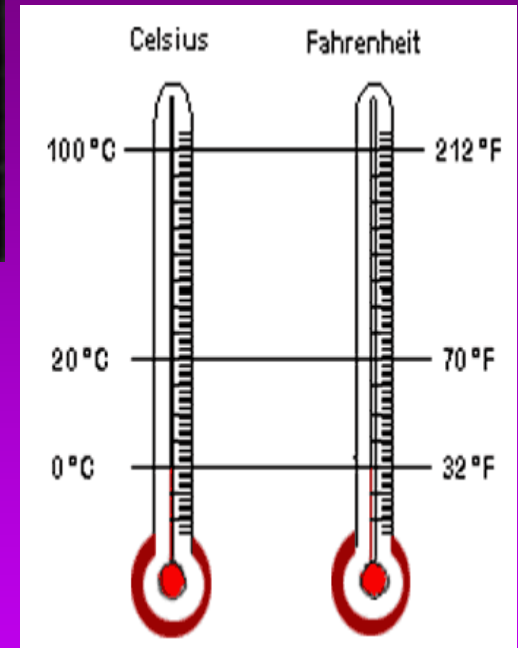
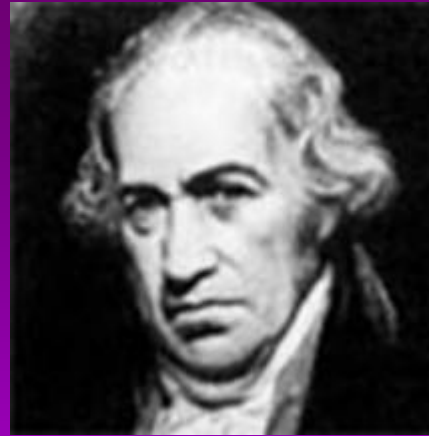
Spread of Scientific Revolution

- New tools of discovery were invented such as the microscope by Dutch scientist Anton van Leeuwenhoek (1670s)
- Mercury barometer developed by Italian Torricelli Evangelista in 1643



Spread of Scientific Revolution

- 1713, German physicist Gabriel Fahrenheit developed the first mercury thermometer in glass
- Swedish astronomer Anders Celsius created another scale for the mercury thermometer in 1742



Medicine and Human Anatomy

- Dissection of human corpses dispelled ancient assumptions about the human body
- British physician Edward Jenner introduced first vaccine to prevent smallpox
- Robert Boyle reshaped the understanding of chemistry with Boyle's Law explaining how volume, temperature and pressure of gas affect each other



Effects of the Scientific Revolution

- Early scientists such as Copernicus and Galileo were condemned by the church for challenging the church's geocentric theory of the universe
- Science and philosophy combined to make observation of the world more acceptable as means of discovery
- Scientific Revolution made philosophers, scholars and ordinary people begin to challenge and rethink long held beliefs about the human condition
- The movement helped move thinkers to challenge age-old relationships between government and people and foster the Enlightenment in Europe

