

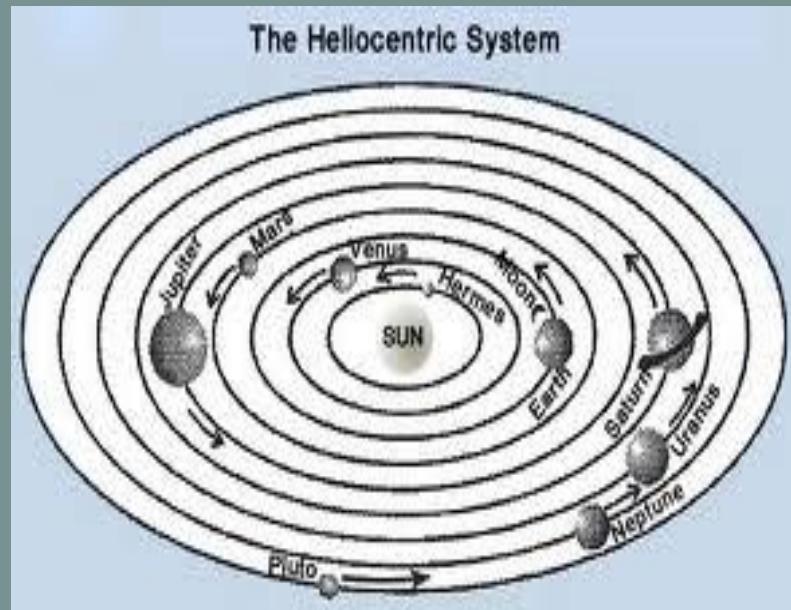
The Scientific Revolution

- 1500-1700
- A new way of thinking about the physical universe



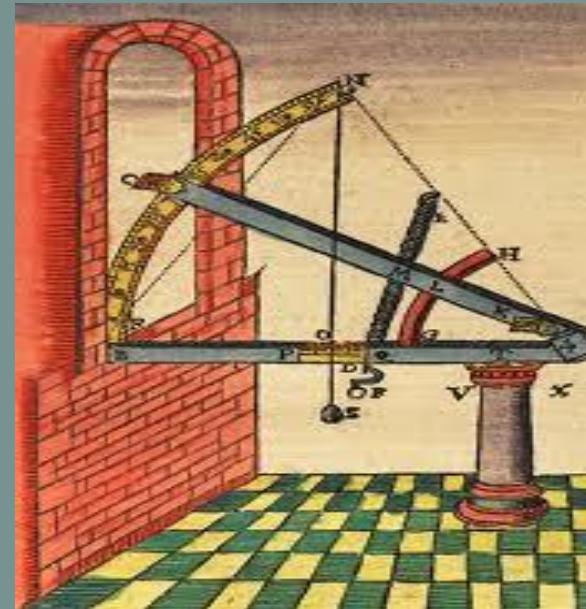
Copernicus

- 1543: a sun centered universe; heliocentric
- Many rejected this idea...why?



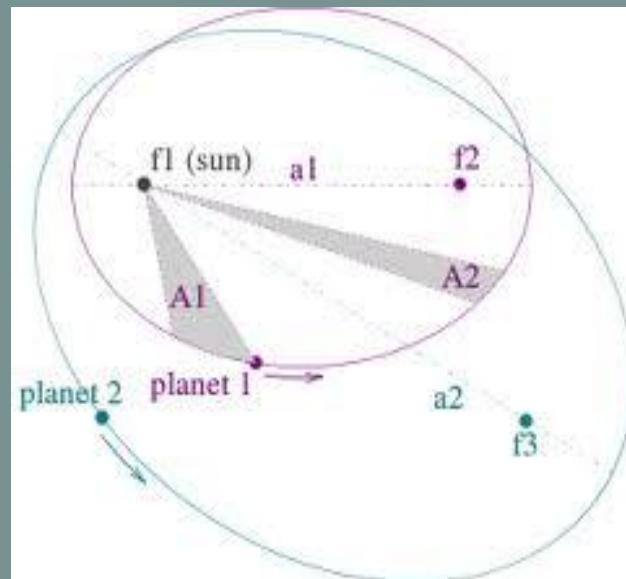
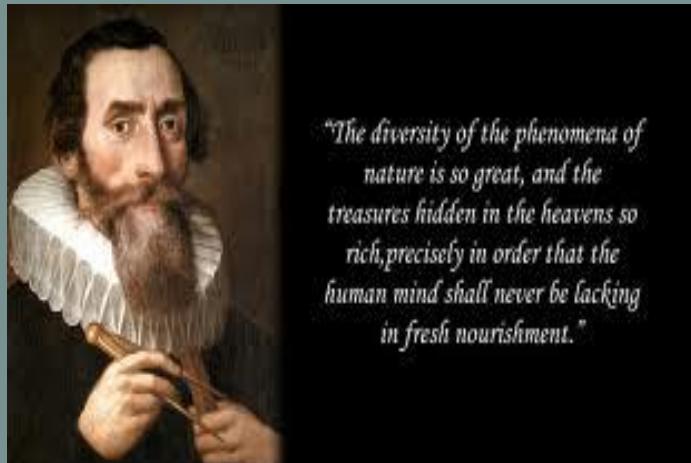
Tycho Brahe

- Provided the evidence that proved Copernicus's theory



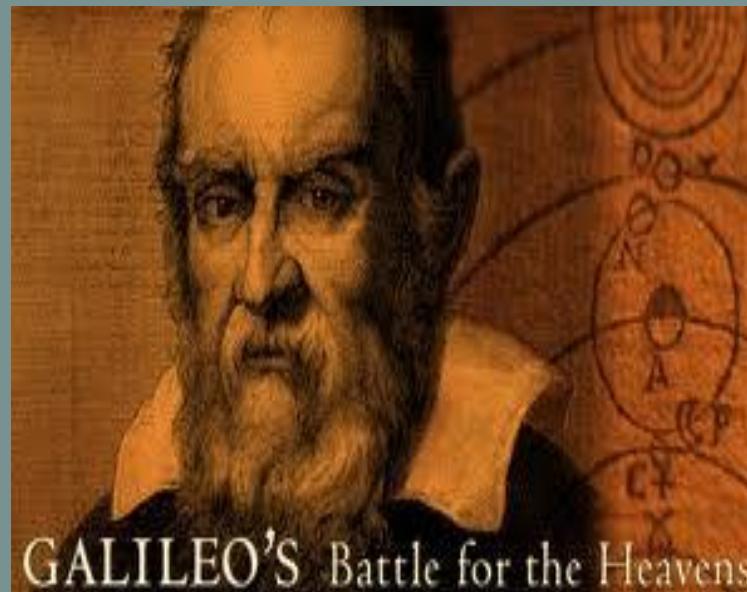
Johannes Kepler

- Was able to calculate the orbits of the planets; elliptical in shape



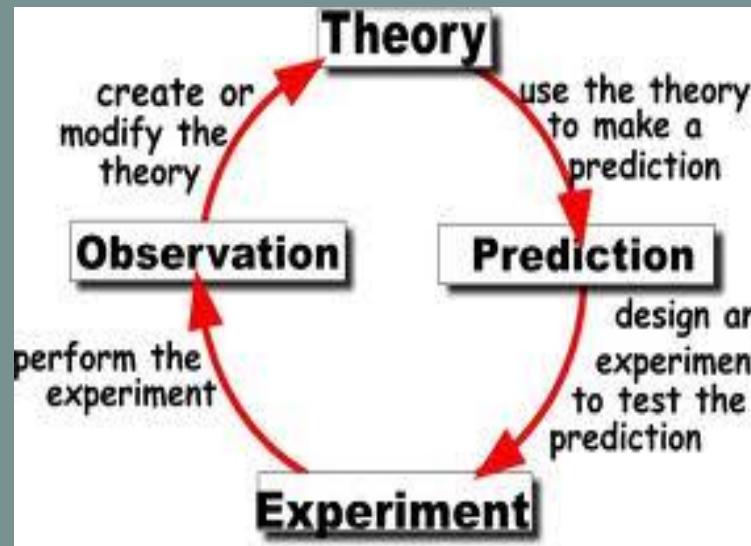
Galileo

- With his telescope; the first person to see mountains on the moon and sunspots
- His discoveries caused an uproar...why?

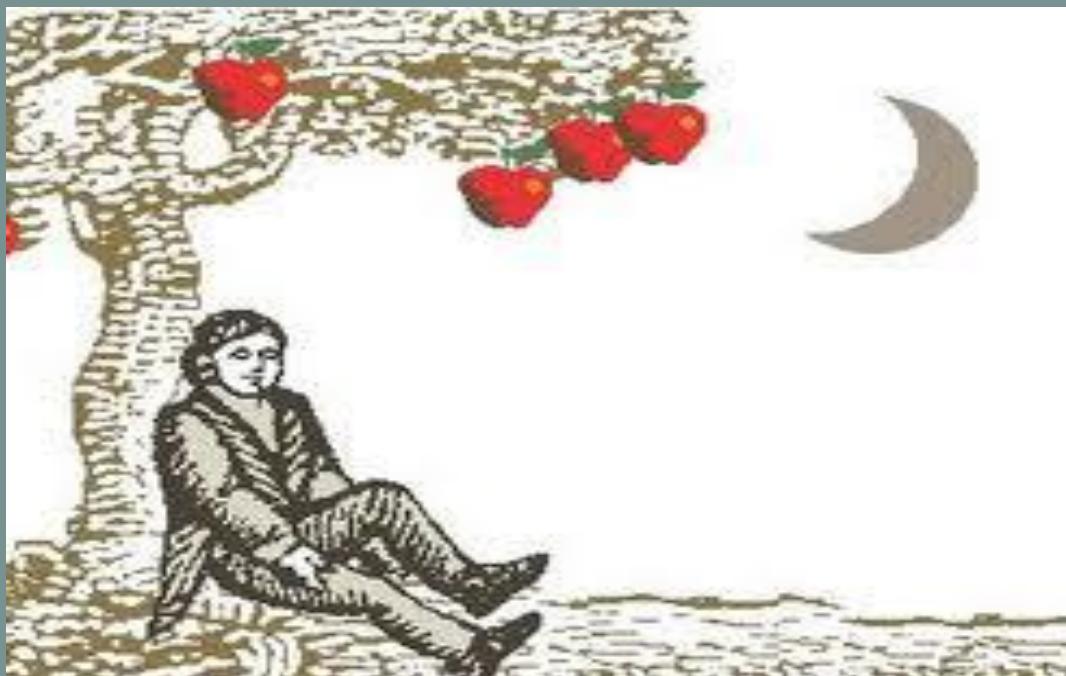


The Trial

- 1633...threatened with death unless he renounced his beliefs...
- The new scientific method; based on observation and experimentation

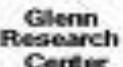


Newton



Gravity

- Math based...gravity keeps planets moving and keeps us tied to earth
- Nature follows uniform laws

 *Newton's Laws of Motion* 



"Every object persists in its state of rest or uniform motion in a straight line unless it is compelled to change that state by forces impressed on it."

"Force is equal to the change in momentum (mV) per change in time. For a constant mass, force equals mass times acceleration."
 $F=ma$

"For every action, there is an equal and opposite re-action."

More Advances

- Chemistry was no longer magic
- Robert Boyle: the difference between elements and compounds



Medicine

- Vesalius: first accurate and detailed study of anatomy
- Pare: closing wounds with stiches; ointments
- Harvey: circulation of blood



Bacon/Descartes

- What is knowledge and how do we produce it?
- Rejected idea that church teachings should direct scientific inquiry
- Truth is known at the END of investigation



Francis Bacon (1561–1626)



René Descartes (1596–1650)

Different Methods

- Bacon:
experimentation/observation...practical application of science
- Descartes: “I think therefore I am”
- Emphasized human reasoning

