



■ Essential Question:

–What were the important contributions of Copernicus, Kepler, Galileo, & Newton during the Scientific Revolution?

■ Warm-Up Question:

From 1550 to 1700, Europe experienced a Scientific Revolution when new ideas in physics, astronomy, biology, anatomy changed the way Europeans viewed the natural world



Changing Idea: Scientific Method

Observations

Question

Hypothesis

Prediction

Test:
experiment or
additional
observation

Test does not support hypothesis: revise hypothesis or pose new one

Test supports hypothesis: make additional predictions and test them

New Science

In time, scholars began to use observation, experimentation, and scientific reasoning to gather knowledge and draw conclusions about the physical world.

Everything was questioned & nothing was assumed to be true

Thinkers used logic & the scientific method to find answers to questions



Reasons for Scientific Revolution

- The Scientific Revolution began in 1550s because of the recent discoveries in other areas of European life:
 - During the Renaissance, people began to question old beliefs & thought that humans could accomplish anything



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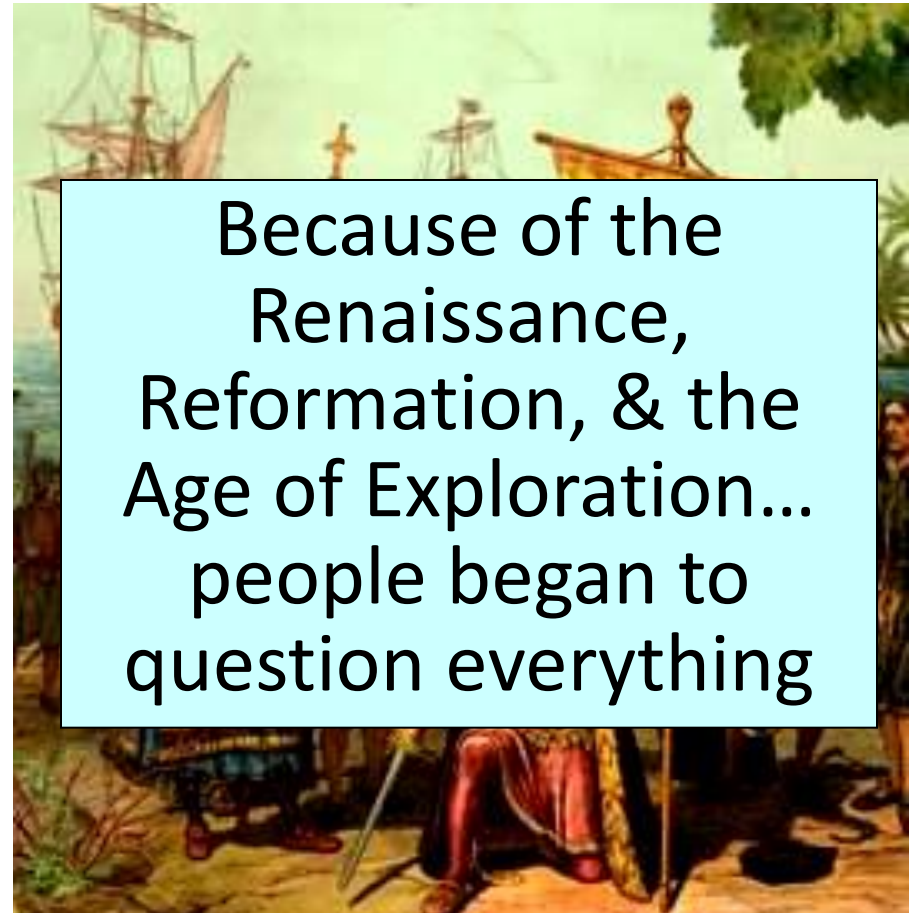
- During the Reformation, people began to question the ideas of the Roman Catholic Church



Reasons for Scientific Revolution

■ The Scientific Revolution began in 1550s because of the recent discoveries in other areas of European life:

–In the Age of Exploration, the discovery of new lands led people to search for other “new” things



Because of the Renaissance, Reformation, & the Age of Exploration... people began to question everything

What were some of the key ideas of the Scientific Revolution?

Major Steps in the Scientific Revolution



1520

1566 Marie de Coste Blanche publishes *The Nature of the Sun and Earth*.

1570

1543 Copernicus publishes heliocentric theory.
Vesalius publishes human anatomy textbook.

1590 Janssen invents microscope.

pub
law

What were some of the important discoveries of the Scientific Revolution?

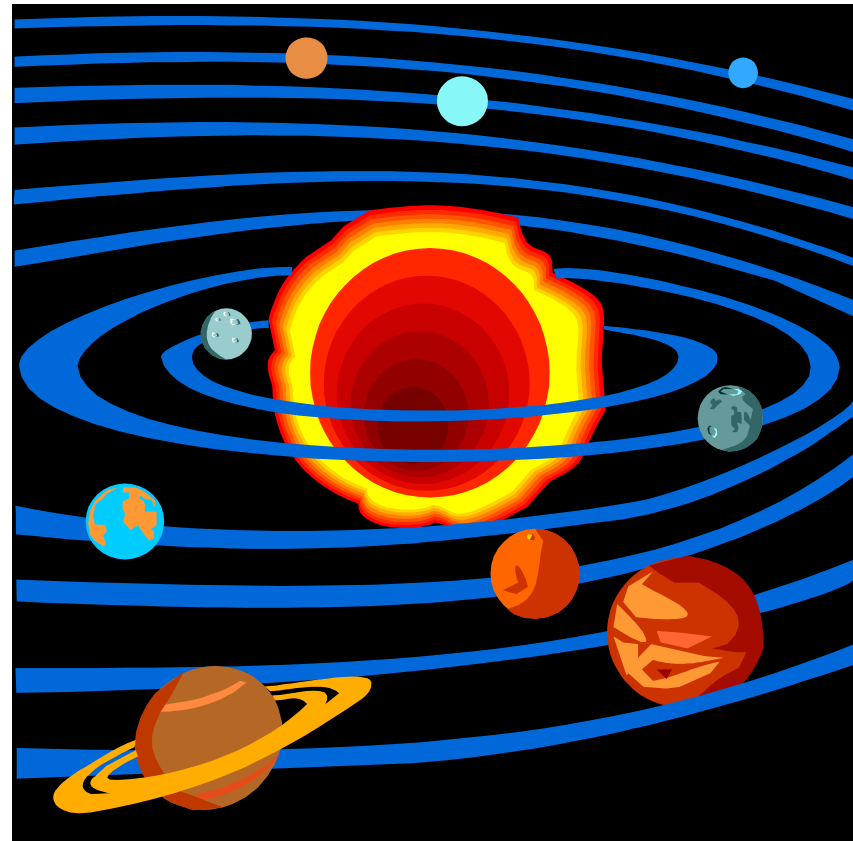
- Work with a partner & complete the “Flow Chart on Scientific Breakthroughs”
 - Match the cards with the appropriate place on the flow chart
 - Check with the teacher when you think you have the answers correct & then glue the cards onto the flow chart
- After the activity, use the flow chart to match the following images to the correct scientific thinker & explain why

#1 Who's Scientific Idea?



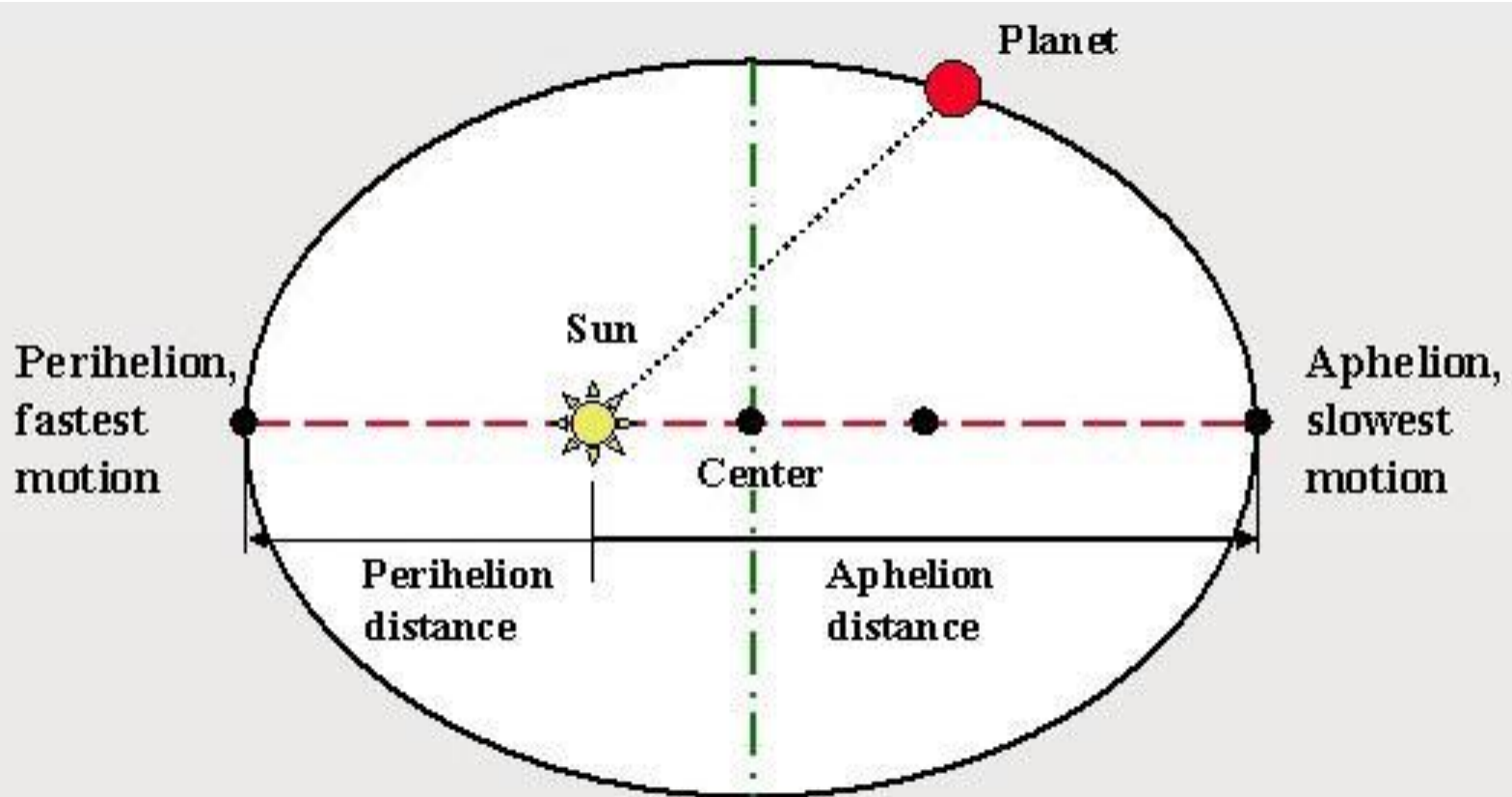
#1 Nicolaus Copernicus

- Copernicus' heliocentric hypothesis proposed that the earth & other planets revolve around the sun, not around Earth
 - This radically changed Europe's concept of the universe & laid the foundation for modern astronomy



Johannes Kepler

- Johannes Kepler mathematically proved Copernicus' heliocentric theory & proposed that planets move in elliptical orbits & do not always travel at same speed around the sun



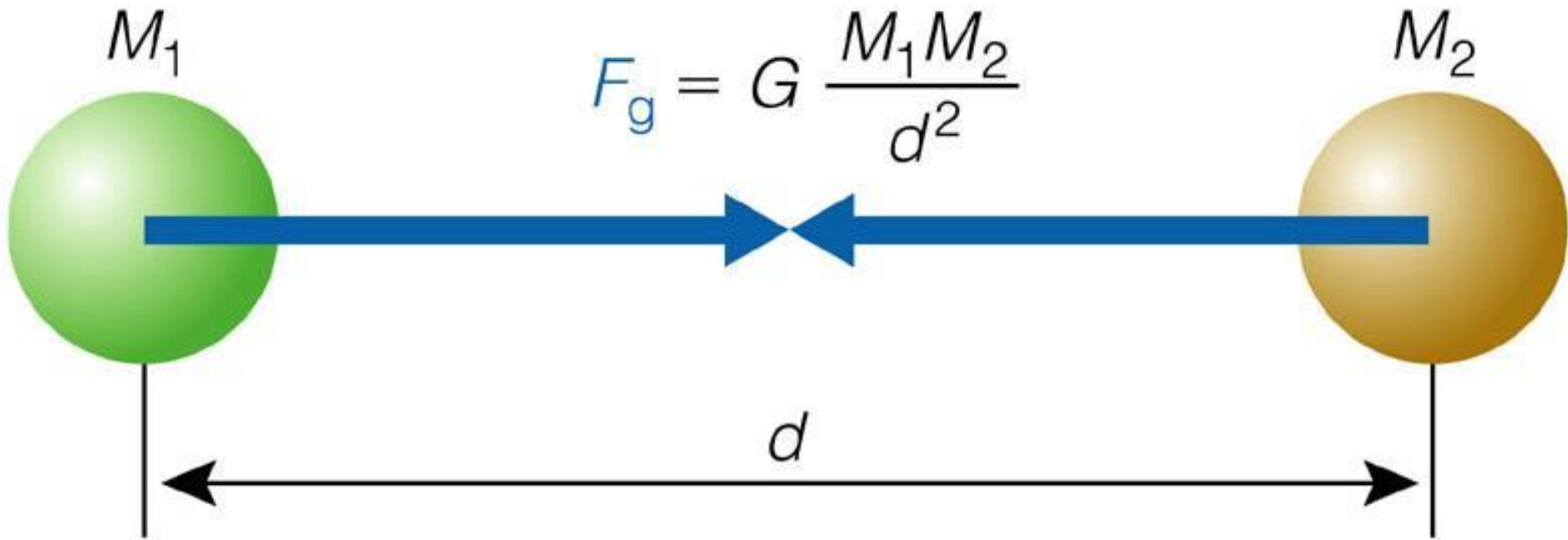
#2 Who's Scientific Idea?





■ Galileo's works challenged long-held church teachings; He was brought before the Inquisition & forced to recant his ideas

#3 Who's Scientific Idea?



#3 Isaac Newton

■ Isaac Newton created many scientific breakthroughs in physics:

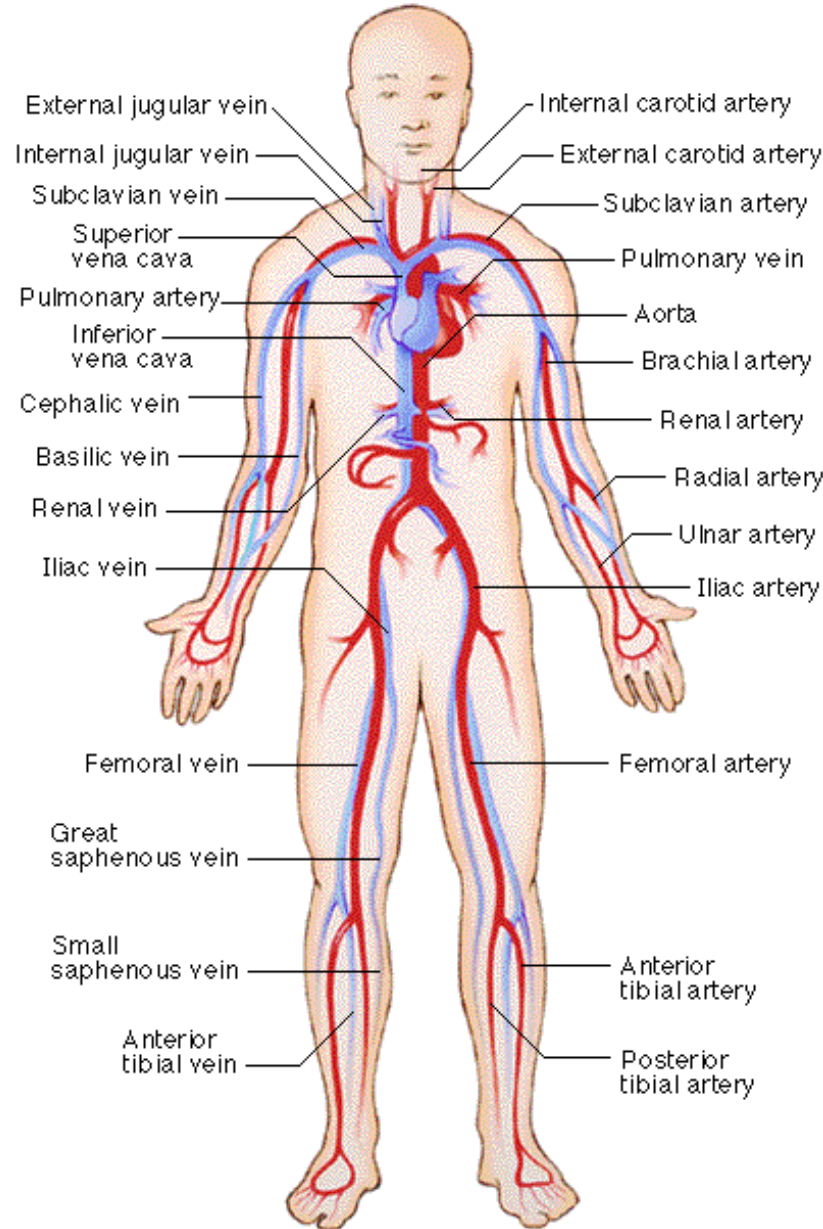
–Discovered & explained the theory of gravity

–He studied the physics of motion, light, & heat

–Created calculus to prove his theories

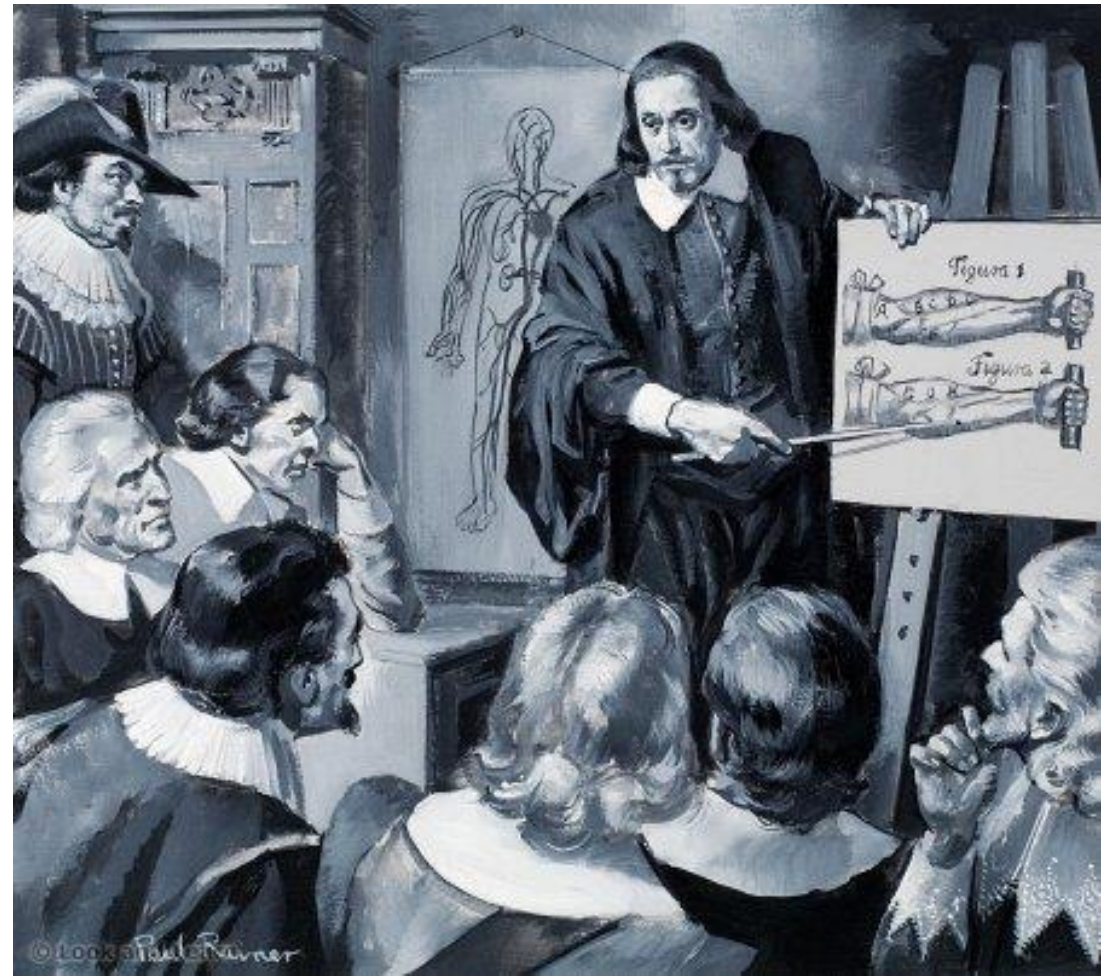
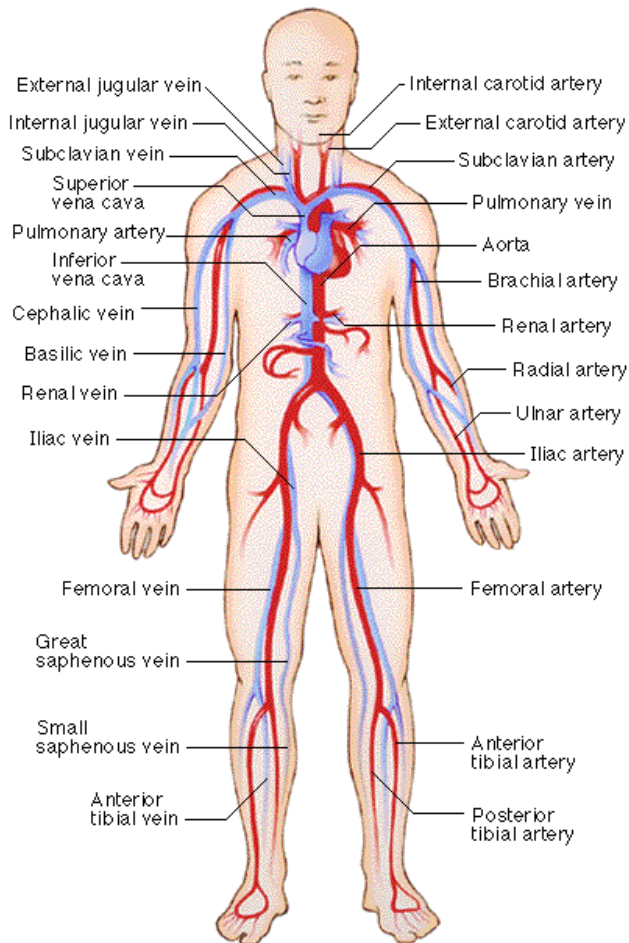


#4 Who's Scientific Idea?



#4 William Harvey

- William Harvey was an English doctor who proved that blood circulates through the body & is pumped by the heart



#5 Who's Scientific Idea?



#5 Andreas Vesalius

- Andreas Vesalius studied human anatomy
 - His work added to European knowledge of the human body for first time in more than 1,500 years
 - Marked the beginning of modern science

