The Scientific Revolution

What were the sources of knowledge in the Middle Ages?

science

religion

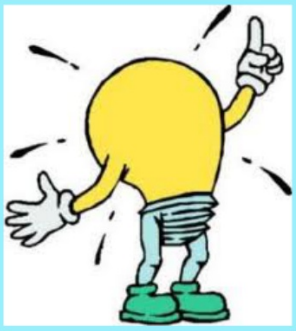
What did Medieval people think the universe looke like? What about Earth?

geocentric theory - sun, star, moon revolved around the earth

The Scientific Revolution will change ALL of that!!!

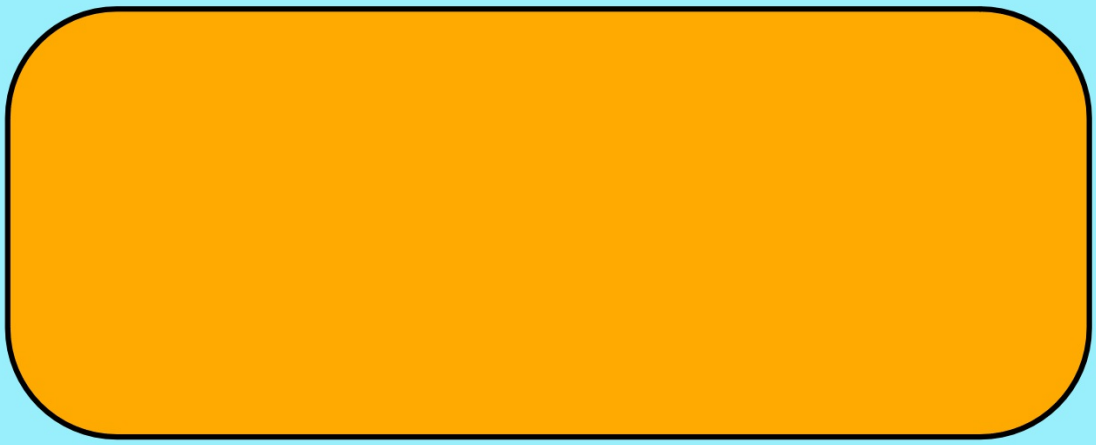
Scientists no longer looked only in the Bible for answers to questions, they began observing the world around them.

They took a cue from the Enlightenment and began to question EVERYTHING!!

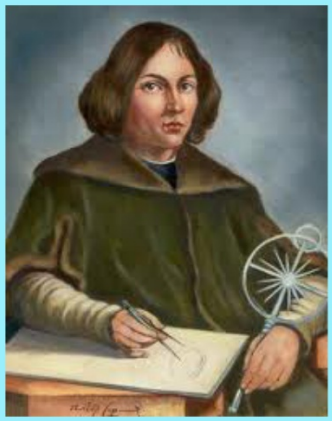


For centuries the Catholic Church had endorsed a Greek philosopher named Ptolemy. Ptolemy said that the universe was **geocentric or earth centered** and that the sun along with all the planets orbited the earth...don't laugh...yet...

Why would that seem logical?



In the early 1500's a Polish scientist named Nicolaus Copernicus studied the stars and planets. He believed in a **heliocentric theory meaning he believed the sun was at the center of the universe** and that the planets orbited the sun...the Catholic Church was NOT happy!



Draw what you think Copernicus' universe looked like below...

Another scientist, the Italian, Galileo Galilei supported Copernicus' idea of a heliocentric universe. He EVEN wrote a book about it

Think about geography and time period...why would it have been more dangerous for Galileo to challenge accepted Church thinking on the universe than for Copernicus to challenge it...

The answer is.....

question the churches authority

Galileo had several of his own thoughts, inventions, etc. Listen to this song made by a ninth grader and write down as many ideas associated with Galileo as possible. Person with the most CORRECT ideas wins a prize. :)

In the early 1600's Johannes Kepler used math to prove that Copernicus' basic idea about a heliocentric universe was correct. However, Kepler also used math to prove that Copernicus' universe having perfect circular orbits was NOT right.

Instead through his studies Kepler found that the planets orbited the sun in eliptical (oval) patterns.

Draw what Kepler's universe looked like below:

The Scientific Revolution was about questioning your world and then using logic, math, discussion to arrive at the correct answers. To prove what is true rather than just accepting what other people tell you.

Sir Francis Bacon came up with a method to test questions and come up with a reliable answer/solution...The Scientific Method! Bacon intended for inventors to test inventions with it, farmers to test new crops, and one day for scientists to learn how to control the weather with it.

Organize the steps of his method below.

Hypothesis **Observe/Collect Data** **Test Data** **Analyze Data**

Evaluate Original Hypothesis

Rene Descartes was a French philosopher who advocated using reason and logic to solve all problems.

He reasoned that you could only be sure of anything's actual existence if you could reason through its existence

"I THINK THEREFORE I AM"

ARE YOU SURE YOU EXIST?

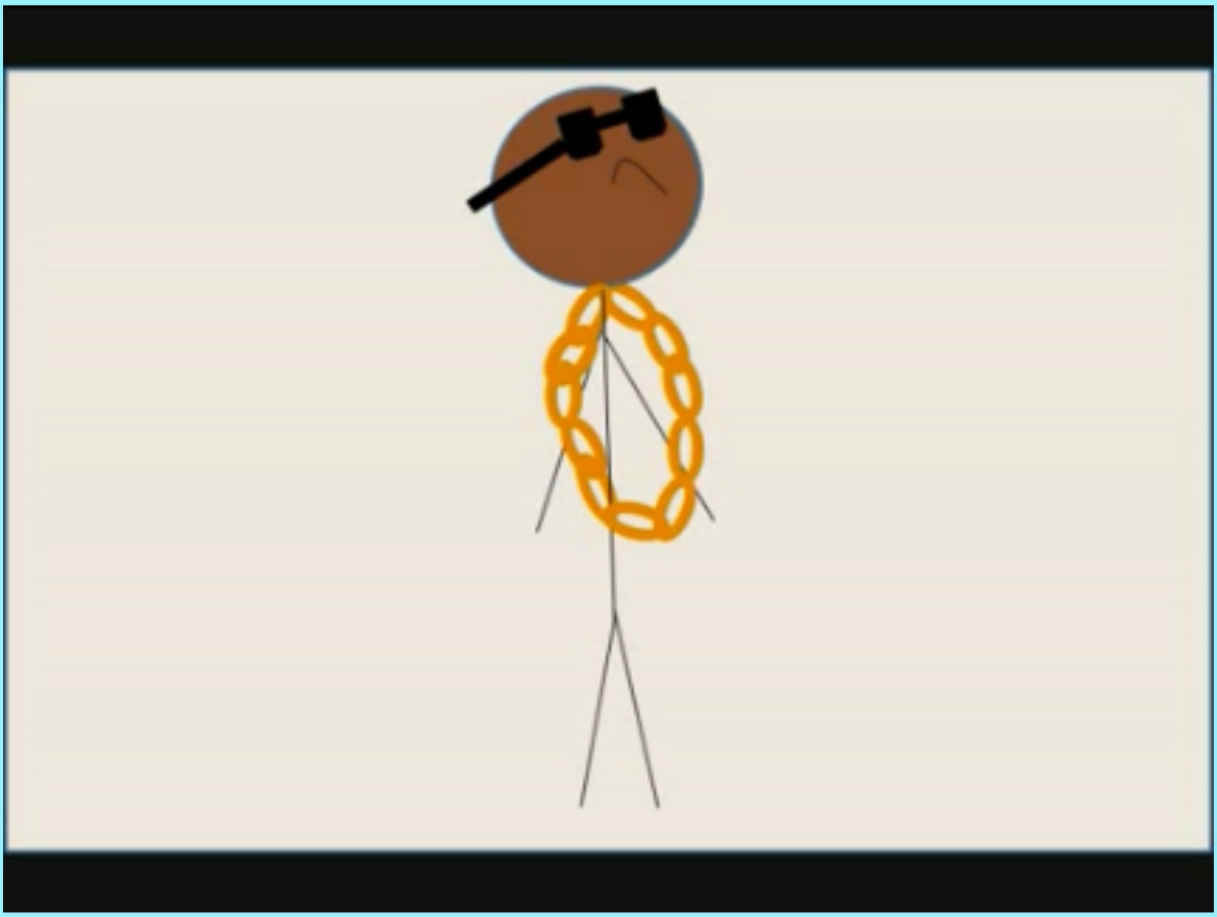
ARE YOU SURE THE WORLD IS REAL?

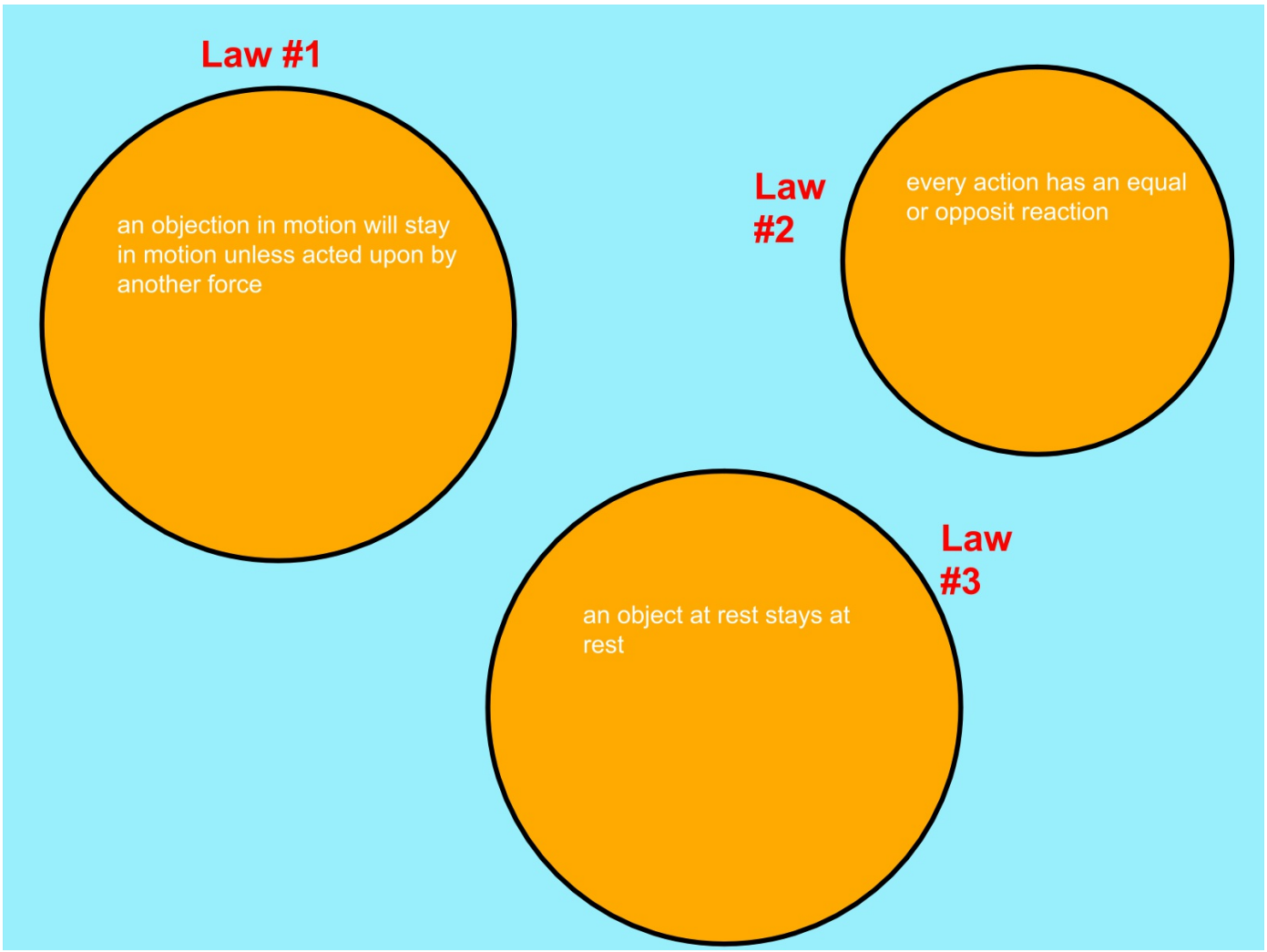
HOW DO YOU KNOW YOUR CAT/DOG IS REAL?

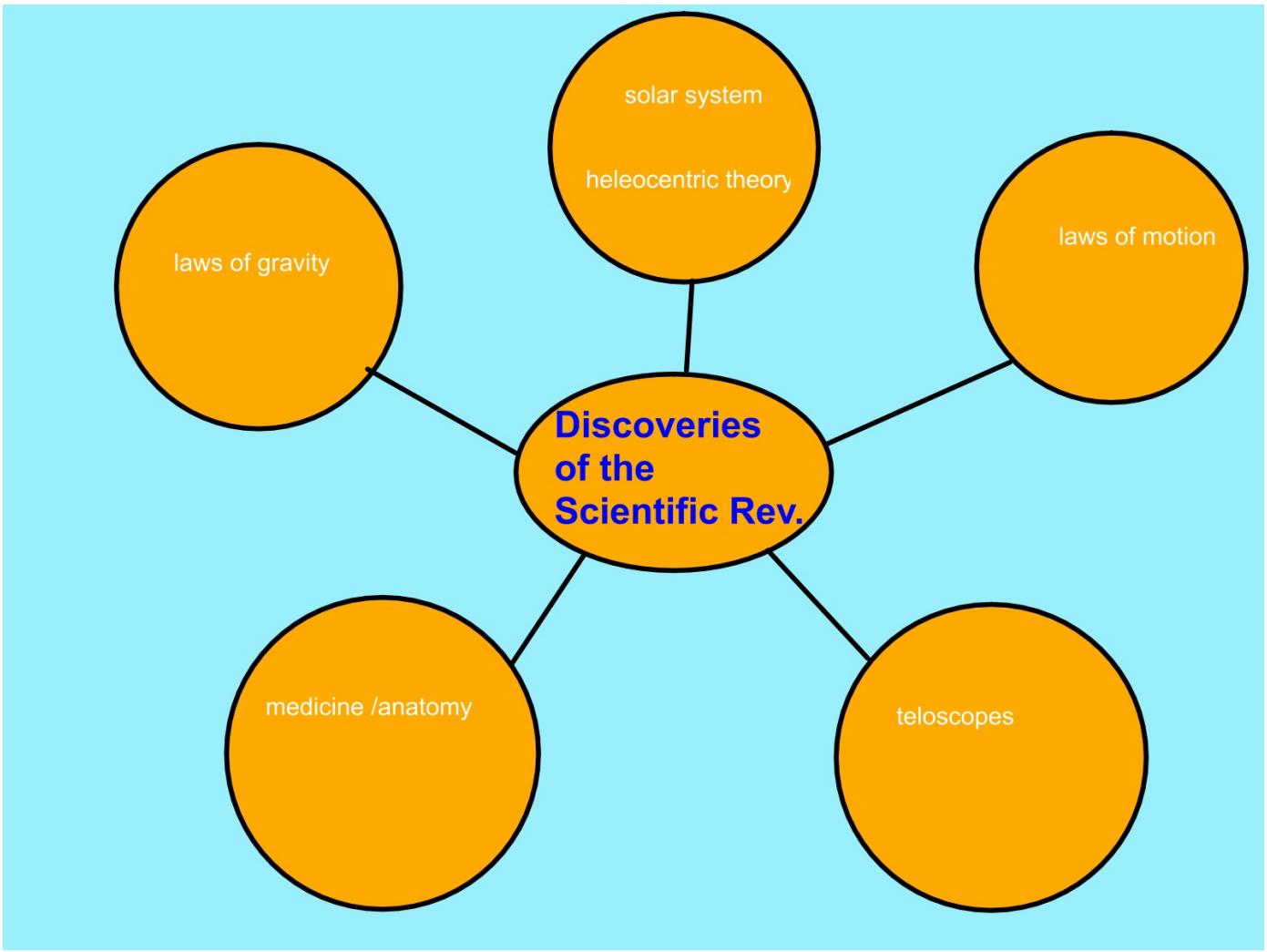
Other important discoveries from this time period included the telescope, microscope, and the first vaccination.

Sir Issac Newton used the scientific method and reason to conclusively prove his three laws of motion...watch the short video on the next slide and be prepared to discuss his ideas which without the discoveries of others wouldn't have been possible...

Newton's Three Laws of Universal Motion




Law #1
an objection in motion will stay in motion unless acted upon by another force
Law #2
every action has an equal or opposit reaction
Law #3
an object at rest stays at rest


solar system
heleocentric theory
laws of gravity
laws of motion
Discoveries of the Scientific Rev.
medicine /anatomy
teloscopes