

# Bellringer

1. What is Science?
2. What characteristics distinguish Science from nonScience?
3. What is a revolution?

# Science! Revolution!

## What is a Revolution?

A complete change, or an overthrow of a government, a social system, etc.

## The Scientific Revolution

In the 1500s and 1600s the Scientific Revolution changed the way Europeans looked at the world.



People began to make conclusions based on experimentation and observation, instead of merely accepting traditional ideas.

## A Long, Long Time Ago...

Ptolemy  
(87-140 A.D.)



Until the mid 1500's, European scholars accepted and believed the teachings of Ptolemy, an ancient Greek astronomer.

Ptolemy taught that the Earth was the center of the universe.

## A Long, Long Time Ago...

Ptolemy  
(87-140 A.D.)



People felt this was common sense, and the geocentric theory was supported by the Church.

It was not until some startling discoveries caused Europeans to change the way they viewed the physical world.

## A Long, Long Time Ago...

Ptolemy  
(87-140 A.D.)



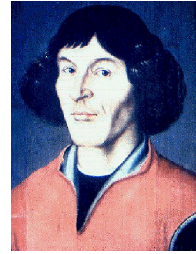
Ptolemy's geocentric model of the solar system:

1. Earth
2. Moon
3. Mercury
4. Venus
5. Sun
6. Mars
7. Jupiter
8. Saturn

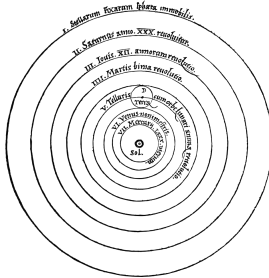
## Nicolaus Copernicus

In his book, Copernicus made two conclusions:

1. The universe is heliocentric, or sun-centered.
2. Earth is one of several planets revolving around the sun.



## The Copernican Heliocentric Model



## The Scientific Method

By the early 1600s, a new approach to science had emerged, known as the **Scientific Method**.

**Scientific Method** – painstaking method used to confirm findings and to prove or disprove a hypothesis.

Scientists observed nature, made **hypotheses**, or educated guesses, and then tested these hypotheses through **experiments**.

Unlike earlier approaches, the scientific method did not rely on the **classical thinkers or the Church**, but depended upon a step-by-step process of **observation and experimentation**.

## The Scientific Method

1. State the problem
2. Collect information
3. Form a hypothesis
4. Test the hypothesis
5. Record & analyze data
6. State a conclusion
7. Repeat steps 1 – 6

Scientists soon discovered that the movements of bodies in nature closely followed what could be predicted by **mathematics**.

The scientific method set Europe on the road to rapid **technological progress**.