

# THE HISTORY OF SPACE EXPLORATION

- Although humans first went in to space in 1961, astronomers have been learning about space for hundreds of years!
- Let's have a look at the early events and discoveries that helped us go on to know what we do know about space... and will help us discover more in the future!

# GLOSSARY



**Astronomy:** The area of science that studies outer space, the universe and everything in it, such as planets, stars and asteroids (lumps of rock and metal in space).



**Orbit:** The invisible path an object in space takes around a star or planet.



**Satellite:** A natural or artificial (man-made) object that is in orbit around a planet.



**Solar System:** This consists of the Sun and all the objects that orbit around it including the planets, asteroids, comets, and other objects.

# ANCIENT GREEK ASTRONOMERS – 2000 YEARS AGO!



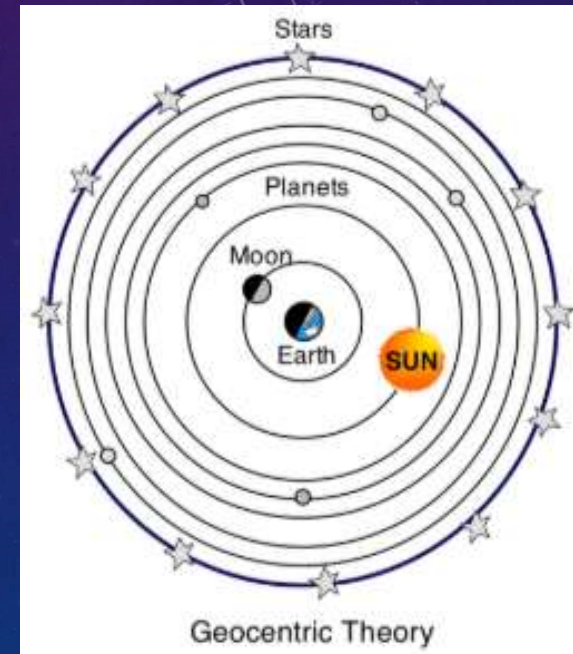
## Hipparchus (190 – 120 BC)

- Believed the Earth was in the centre of the solar system.
- Accurately measured the distance from the Earth to the Moon.
- Later astronomers used his work to predict eclipses.
- His classification system for the stars is still used in a modified form today.



## Claudius Ptolemy (85 – 165 AD)

- He strengthened the belief in an Earth-centred system.
- This is called the **geocentric** model of the Universe.
- For more than a thousand years no one seriously questioned his theory.



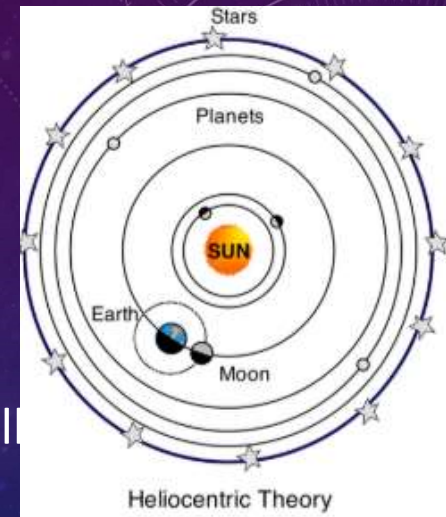


## ACTIVITY – DISCUSS THESE QUESTIONS WITH AN ADULT AT HOME IF POSSIBLE

- Why do you think ancient astronomers thought the Earth was the centre of the Solar System and that the Sun and planets orbited around us? (Now we believe the Sun is the centre).
- Name 2 things these astronomers discovered which have helped our understanding today and explain why they are useful.
- Why are these two ancient Greek astronomers' achievements so impressive? Think about what equipment they would have had – and wouldn't have had!

## FAST FORWARD 1500 YEARS...!

- Lots of important discoveries were made between 1500 and 1800.
- Astronomers realised the **sun was at the centre of the universe** – called the Heliocentric model
- Lots of evidence was found to support this, such as the phases of the moon
- The **first 7 planets were discovered** – Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus
- The **telescope was invented** by Galileo Galilei (in 1609) although there were several other versions before which he modified to create his.
- Isaac Newton **discovered gravity** – which led to understanding why the planets orbit the sun, and why moons orbit planets... more on this in future science lessons!



# ACTIVITY

In July 1610, Galileo first observed (saw) Saturn through his telescope. At first, he thought the planet had 2 handles on either side, but 45 years later, another astronomer, Christian Huygens (who had a more powerful telescope) realised it was a ring, which we now know is made up of chunks of ice and rock. Look at the top image – this is Galileo's sketch of Saturn as seen through his telescope. Do you see handles, like Galileo did, or a ring?!

**Write a diary entry as Galileo on the day after he first saw Saturn through his telescope. Include:**

- **How he would be feeling at his telescope working**
- **How he feels to see the planet**
- **His thoughts and questions about the planet**
- **A description of the planet – use the bottom image below to help you**



A real photograph of Saturn  
taken by NASA's Hubble Space  
Telescope in 1995