



The background is a vibrant, cartoon-style illustration of outer space. It features a dark blue and purple starry sky with various celestial bodies. On the left, there's a large yellow and orange planet with a ring system. In the center, a bright yellow sun or star is visible. To the right, there's a blue and green planet with a ring system. The overall scene is colorful and imaginative, typical of children's educational materials.

Through the Looking Glass

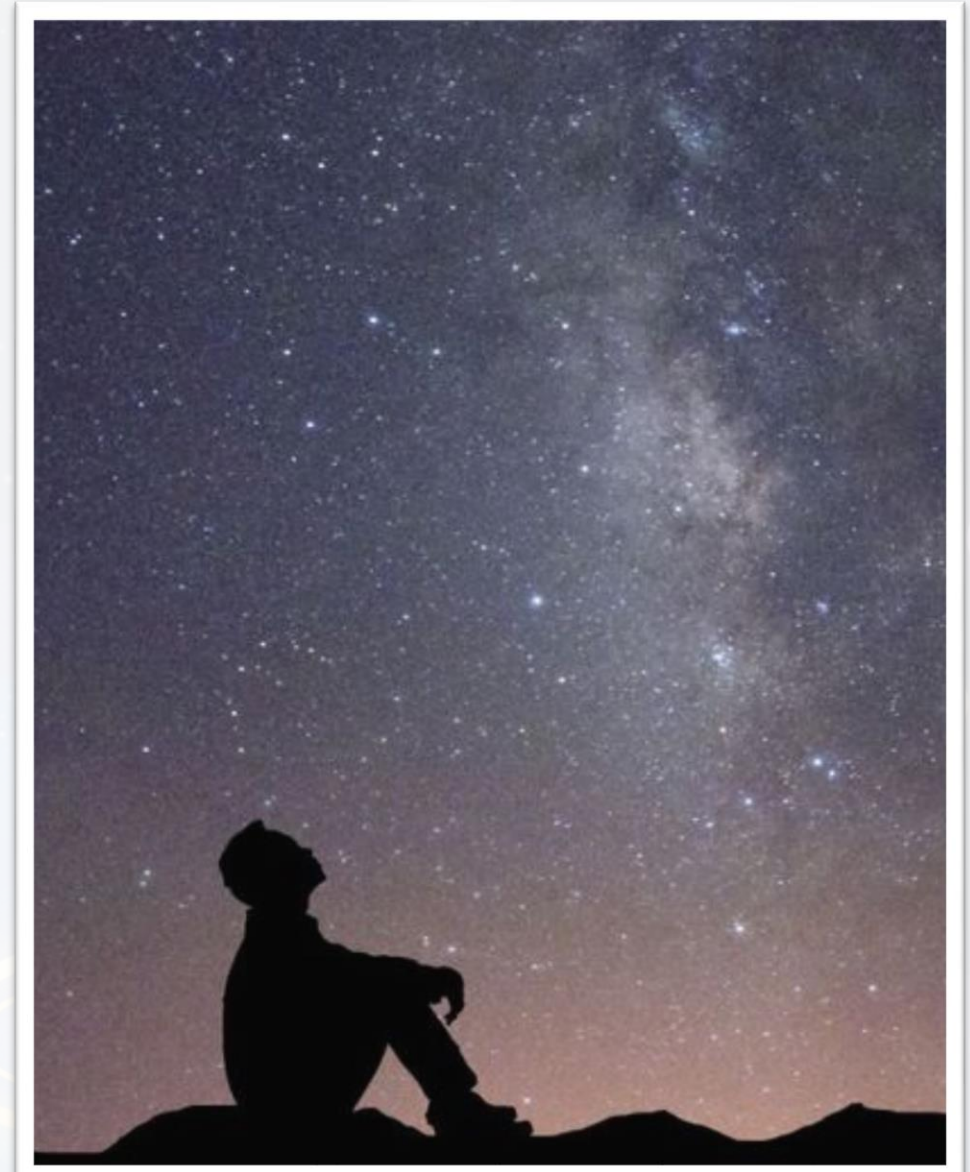
W.A.L.T: examine the changes in technology used to learn about space

How do we learn about
outer space? What
technology do we use?

Think, Pair, Share.



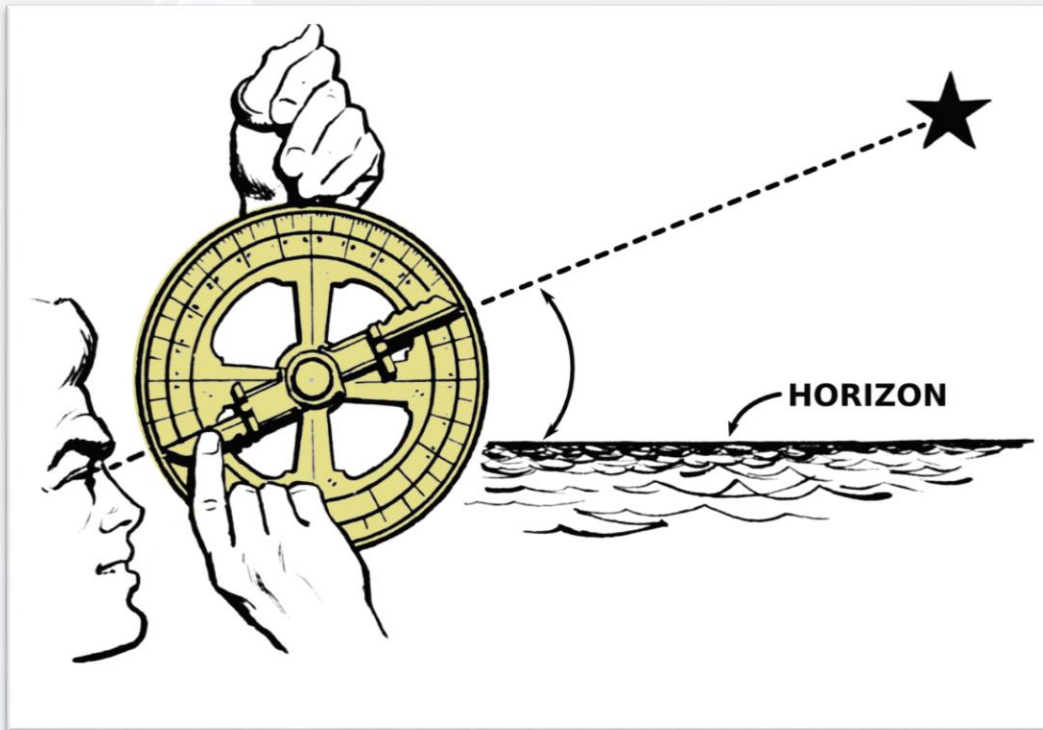
Ever since humans first started to appear on this planet, we have always looked to the stars and wondered about what was out there. Throughout history, humans have used the starry night sky for a lot of different uses.



The Ancient Romans and Egyptians believed that the stars were Gods and Goddess. They believed that the Gods and Goddess were always watching them from high above in the night sky. The planets are named after some of these Gods and Goddesses!



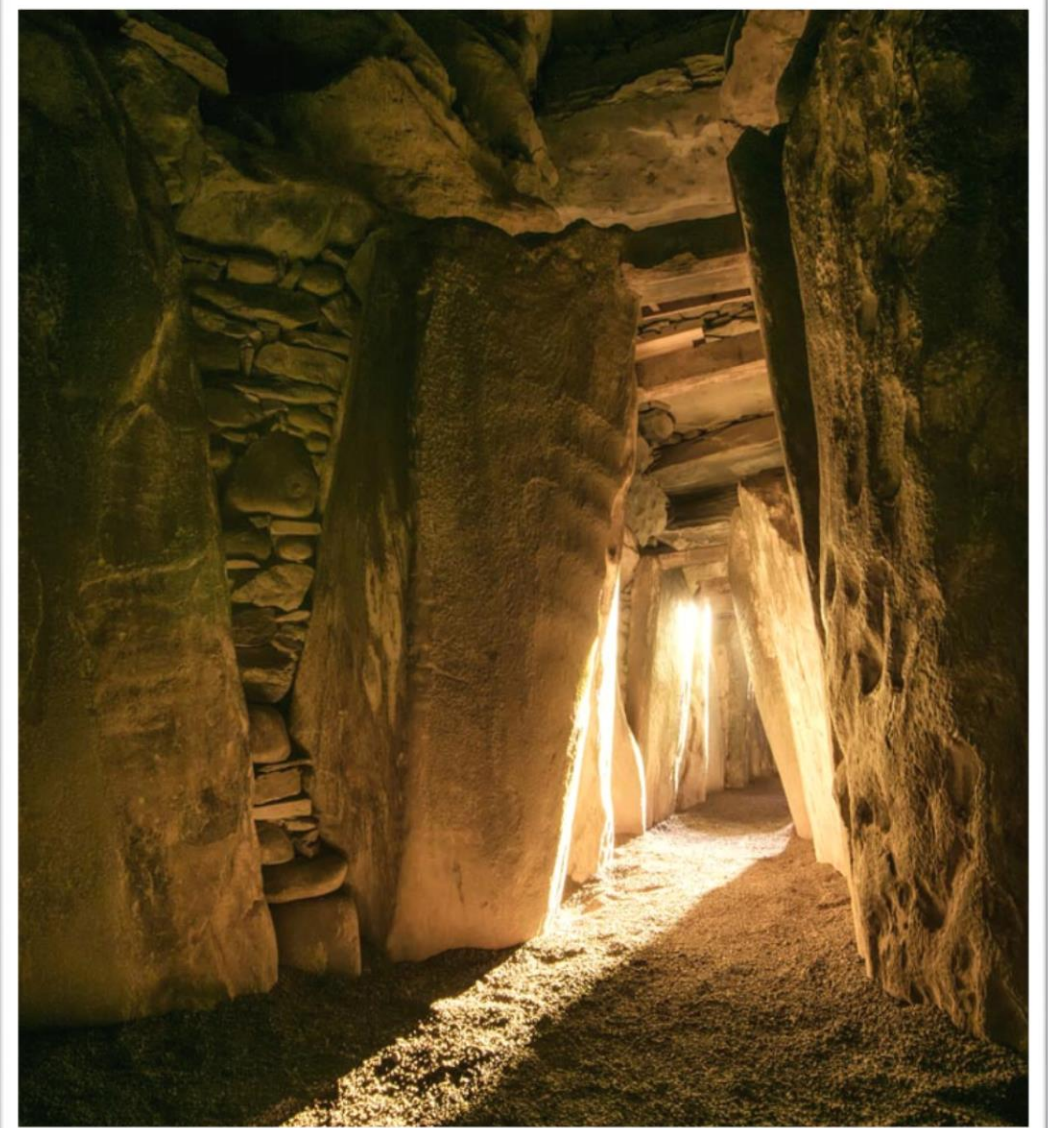
During the Age of Exploration, explorers like Christopher Columbus relied on the night sky and the sun to help them sail in the correct direction. They used tools call astrolabes to help them figure out where they were in the vast Atlantic ocean. Without their knowledge of the stars they would be lost forever!



In Ancient Ireland, our ancestors used their knowledge of the sky to help them build some of the oldest surviving buildings in the world. Newgrange shows their incredible knowledge perfectly. The creators of this 4000 year old tomb knew enough about the sky to create an amazing illusion



Every year, on exactly the winter solstice the sun slowly rises above Newgrange. As it does, the light passes through a small roof-box above the doorway. Over the course of 17 minutes, the light slowly fills the chamber, eventually reaching the back of the tomb. This was built 500 years before the pyramids!





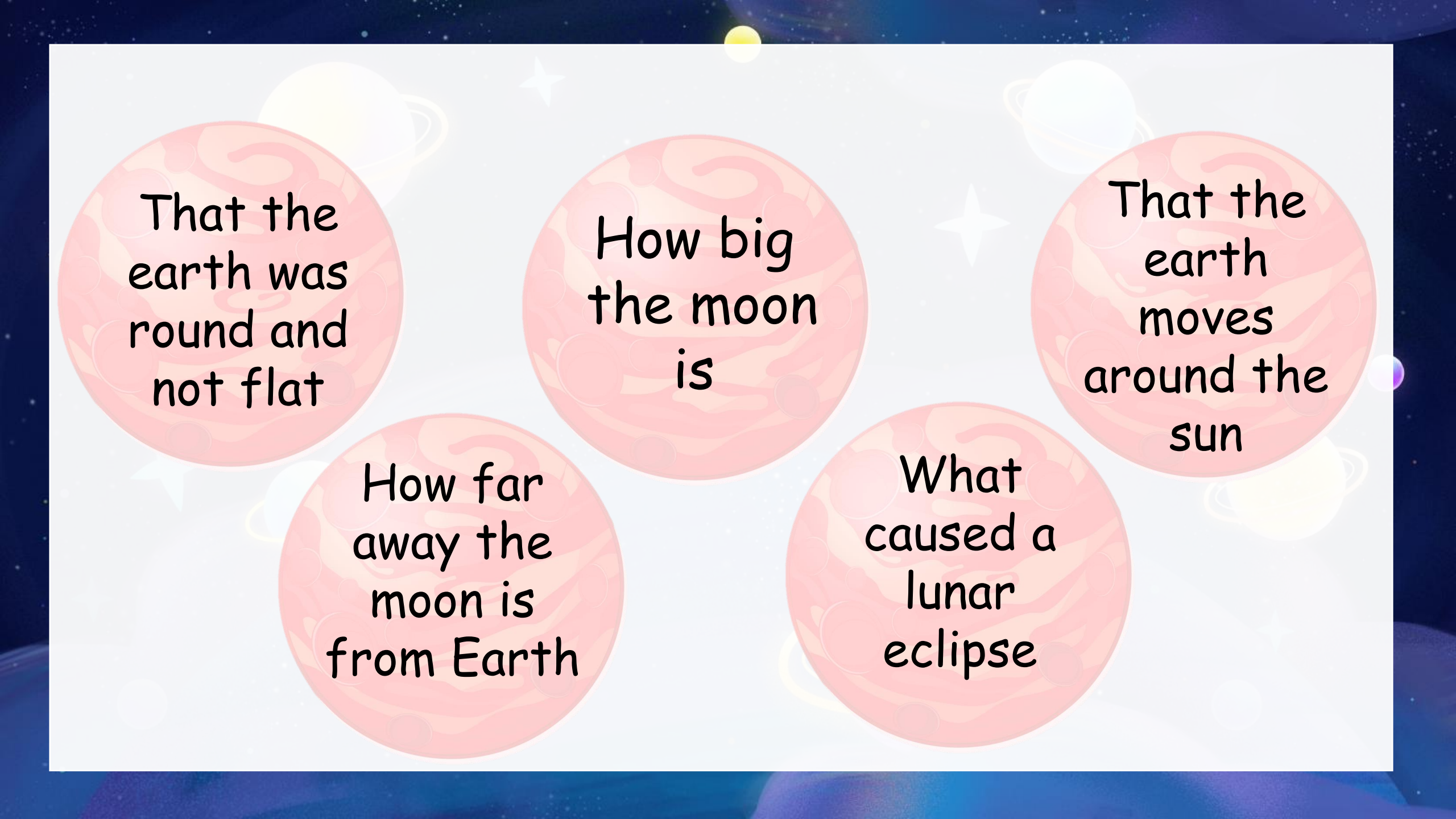
The Ancient Greeks were the first group of people to really take a lot of time to study the night sky. The study of the stars and space is called **astronomy**. Really, the Greek were the first full time **astronomers**.

Activity Time

I'm going to show you some **astronomy** facts. With your group, try figure out which ones were discovered by the Ancient Greeks and which came after them!

(Hint: The Greeks lived 2500 years ago!)





That the
earth was
round and
not flat

How big
the moon
is

That the
earth
moves
around the
sun

How far
away the
moon is
from Earth

What
caused a
lunar
eclipse

The Greeks discovered all of them!

That the earth was round and not flat

How big the moon is

That the earth moves around the sun

How far away the moon is from Earth

What caused a lunar eclipse

The Greeks were great **astronomers**, especially considering their technology for learning about space was so limited! It was very difficult for these early scientists to prove some of their theories to others though. The most difficult was explaining that the earth was not at the centre of the universe.



That all changed with
one invention in the
1600s. What do you
think it was?
Think, Pair, Share.



In a small workshop in the Netherlands, an eye-glasses maker by the name of Hans Lippershey started playing around with some spare lens lying around. He discovered that if he placed certain lens over one another, he could make things look 3 times bigger! He called his invention 'The Looker' and went home a happy man!



Activity Time

Let's see if we can transport ourselves back in time to Hans Lippershey's workshop. Let's dust off the plans for the original 'Looker' and see how it works.



Little did Hans know that his little invention would change the world forever, leading to a boom in space discovery that has led to everything from a man on the moon to Elon Musk's Space X programme. This all came about thanks to a curious man called Galileo.



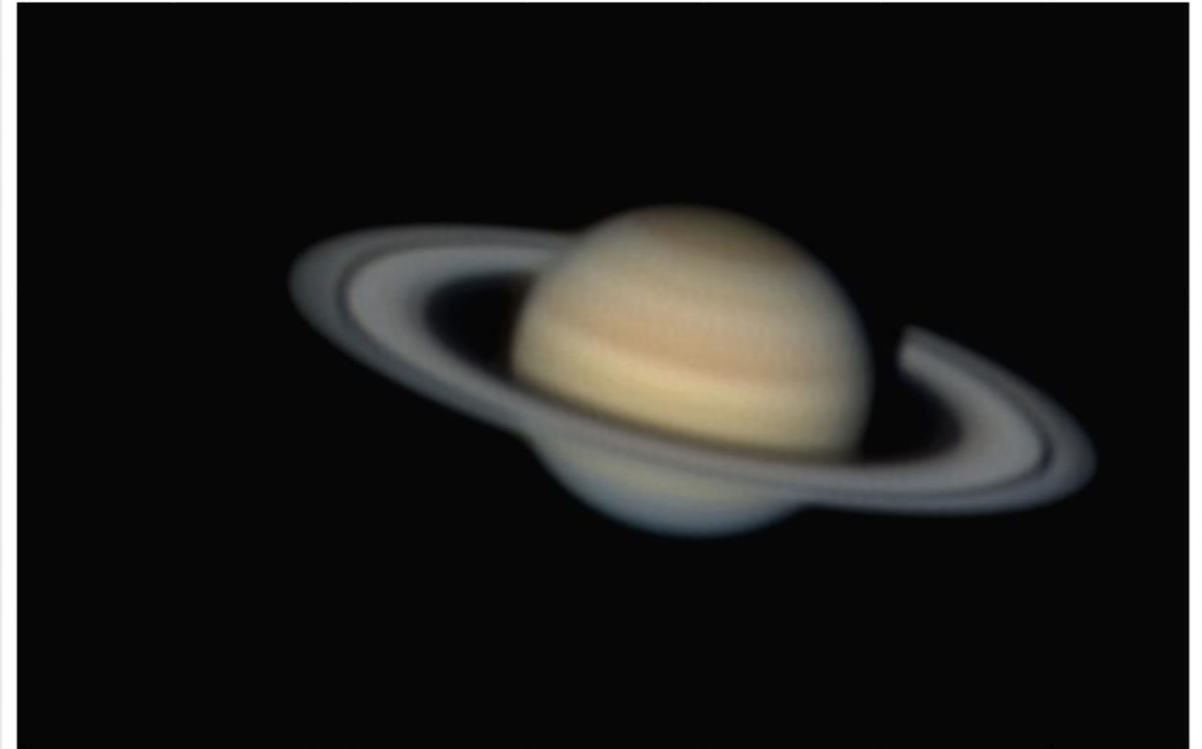
Even though the telescope was invented by Hans, it was a man called Galileo who first used the invention to look at the night sky. Galileo had heard about Hans' invention and decided to build one 20 times more powerful. As Galileo pointed his telescope into the night sky, he was astonished by what he saw.



What do you think Galileo
saw when he looked
through the telescope for
the first time?
Think, Pair, Share.



Galileo saw a LOT! He was able to see the craters made by asteroids on the moon. He was able to see the rings of Saturn and describe the Milky Way. He also learned that stars were much further away than planets.

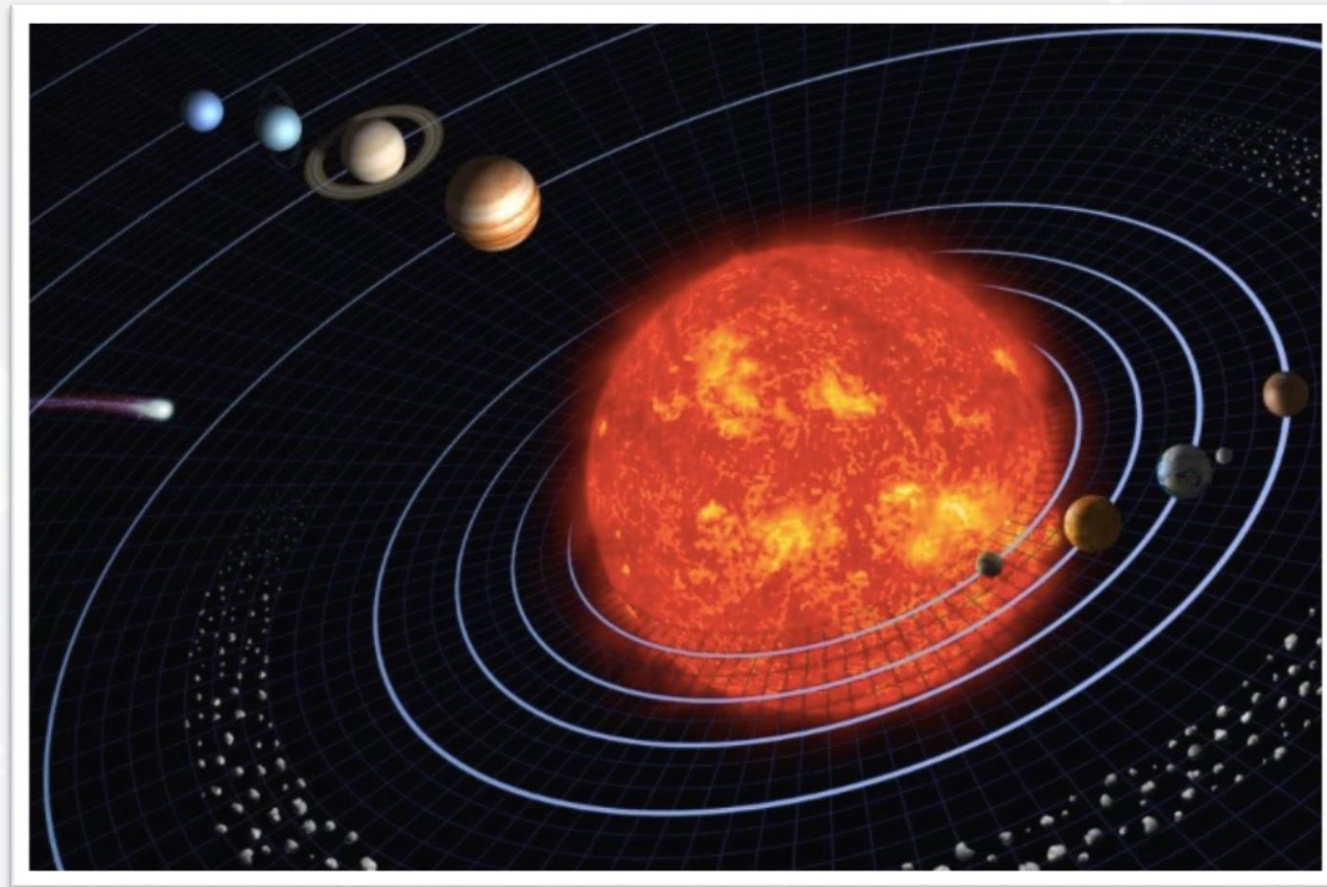


Activity Time

Let's see if we can transport ourselves back in time to Galileo's study. Try to imagine what he would have seen as he looked through the telescope for the first time. Choose 2 things he saw and draw them.



The more Galileo learned, the more certain he was that the earth was in fact not at the centre of the universe. He was even able to prove this for the first time ever using his telescope discoveries!



How do you think people reacted when Galileo shared this exciting discovery with them?
Think, Pair, Share.



Well some astronomers and scientists were very excited by this news.

However, the very powerful Catholic Church was not. They thought Galileo was spreading dangerous lies against the teachings of the church. He was imprisoned in his home for 9 years until he died.



Activity Time

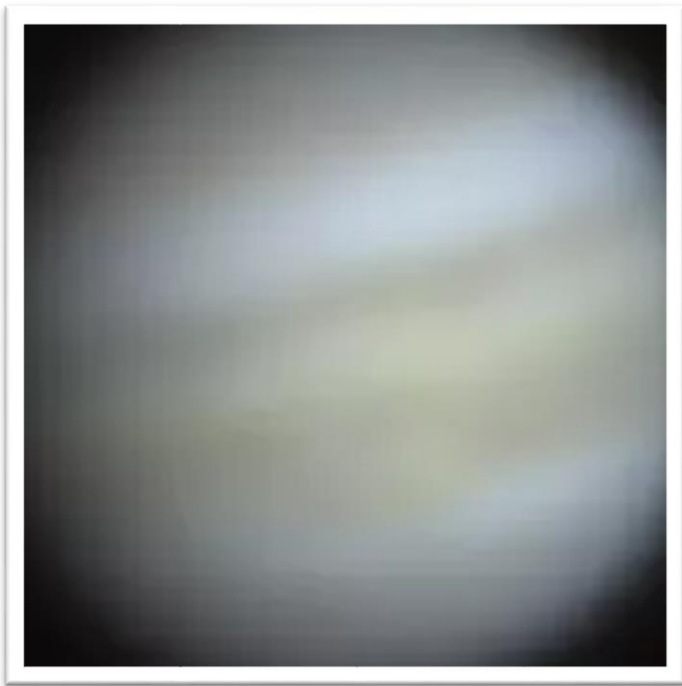
In your groups, create a 'courtroom' drama piece for Galileo's trial. Your drama piece should show Galileo trying to convince the Bishop of what he found. It should also include how the Bishop reacted to this information



Since Galileo's first peak through the telescope, technology had advanced a lot! We now have telescopes that can see much further because of their size. The most famous telescope is the Hubble Telescope which floats in space and can see billions of light years away!



When Galileo looked through his telescope he would have seen something like this:



When we look through the Hubble Space Telescope we can see something that looks like this:

