

## Galileo and the Moon

With all the **advancements** in science around space and the universe, one **influential astrophysicist** is still **renowned** today for his work in early **astronomy**. That scientist was named Galileo Galilei (1564-1642). Galileo lived back in the 16<sup>th</sup> and 17<sup>th</sup> century in Pisa, Italy for some of his life and later moved to Florence. People often consider Galileo as a genius as he was ahead of his time with his theories about space and astronomy. He was also an influential mathematician and is known for discoveries such as working out speeds of which things fall, pendulums and mechanics. He played a major part in what is now called the **Scientific Revolution** during a period of time called the **Renaissance**.

In his later years, Galileo caused much **controversy** in the world thanks to his theories as they often conflicted with what was thought to be true at the time. So much so, that Galileo ended up living his final days under house arrest and under guard at all times as the church thought him as **blasphemous**. During this time, Galileo became frail and lost his sight. He remained under house arrest right up until his death in January 1642.

### What did Galileo discover about space?

In 1609, Galileo heard of a new discovery from Holland called a telescope, also known as a spyglass. Immediately, Galileo went about creating his own version which ended up being more advanced than the first. Using this copied invention, Galileo went on to make many discoveries about the moon, planets and stars. A year later in 1610, Galileo published the first scientific paper about his observations of space, named *The Starry Messenger*. Galileo spent much of his life observing space through his advanced telescope and he wrote many papers and books about his findings.

One surprising discovery Galileo made with his spyglass was the discovery that the moon was not indeed smooth and flat as everyone thought, but rather uneven and rough. This was the first time that anyone had seen the moon with anything other than the naked eye. What Galileo described in his writings was that the moon had craters in it as well as peaks.

### Galileo, the Earth and the Sun

Galileo caused much upset when he announced his findings regarding the Sun and the Earth. At that time, the church was very influential on people and what he discovered **contradicted** what the church believed: a **geocentric** belief that the Earth was at the centre of the universe. People were told by the church that the Earth was at the centre of the universe and that it could not move as it was created by God.

At the time, Galileo only had observations, not evidence, to support his **controversial** theory (which was originally proposed by the astronomer Copernicus back in 1543) so many people did not believe his ideas. It wasn't until many years later, after Galileo's death, that the evidence was collected to prove he was right.

Galileo spent much time observing the sun at different times of the year and of the day. He noticed that the sun had spots on it which showed up on his telescope as dark areas. He did not know that looking directly at the sun through a telescope would damage his eyesight; something that he would not realise until later on in life.

### Galileo and the Planets

Apart from the creation of a more powerful telescope, Galileo is most famously remembered for the discovery of the four moons of Jupiter (in 1610): Io, Ganymede, Europa, and Callisto. They are now called the Galilean moons: a fitting tribute for the person who discovered them.

### How is Galileo Remembered?

Scientists believe that we would not be where we are today in science if it was not for Galileo. Galileo became a huge influence on science today therefore scientists have strived to ensure that he is remembered and taught about in schools. To keep Galileo's legacy alive, scientists at NASA (National **Aeronautics** and Space Administration) named an exploration mission after him back in 1989. This mission involved sending a probe to Jupiter for fourteen years. It was a fitting gesture as Galileo discovered that Jupiter had four moons over 350 years before.

There is no doubt that Galileo was a 'man before his time' and thanks to his **inquisitiveness** and discoveries, science has advanced as a direct result of his work. Galileo teaches us that anything is possible and possibilities are **infinite**. He strived through public **condemnation** of his work as well as many people not believing in him or his ideas. I would have liked to have thanked him for his hard work back in the 17<sup>th</sup> century, as he has formed and shaped science as we know it today. This is one person I would have really liked to have met.

## Galileo and the Moon – Follow-Up Work

The text only talks about the moon in part of it. It talks about many other achievements by Galileo.

Can you think of a more appropriate title for the text?

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According to the text, what were Galileo's most prestigious achievements?

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What does the author of the text want you to believe?

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Does the author have a viewpoint on Galileo? Give an example to prove your answer.

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Give a reason why the Church would not accept Galileo's theory about the Sun being the centre of the universe.

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Why has the author used brackets in the extract below?

'That scientist was named Galileo Galilei (1564-1642).'

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Why have italics been used in the extract below?

'A year later... Galileo published the first scientific paper... *The Starry Messenger*.'

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What are the main points made in the section with the subheading 'What did Galileo discover about space?'

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Why were Galileo's theories controversial?

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What is the purpose of the first two paragraphs?

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Do you think things would be different if Galileo wasn't alive at this period in time?

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Give an example of how Galileo has been remembered since his death in 1642.

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If Galileo was alive today, what might he think of space exploration?

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## Galileo and the Moon – Vocab 1

Write the meaning of each of the words.

influential \_\_\_\_\_

astrophysicist \_\_\_\_\_

advancements \_\_\_\_\_

renowned \_\_\_\_\_

astronomy \_\_\_\_\_

scientific revolution \_\_\_\_\_

renaissance \_\_\_\_\_

controversy \_\_\_\_\_

blasphemous \_\_\_\_\_

contradicted \_\_\_\_\_

geocentric \_\_\_\_\_

controversial \_\_\_\_\_

aeronautics \_\_\_\_\_

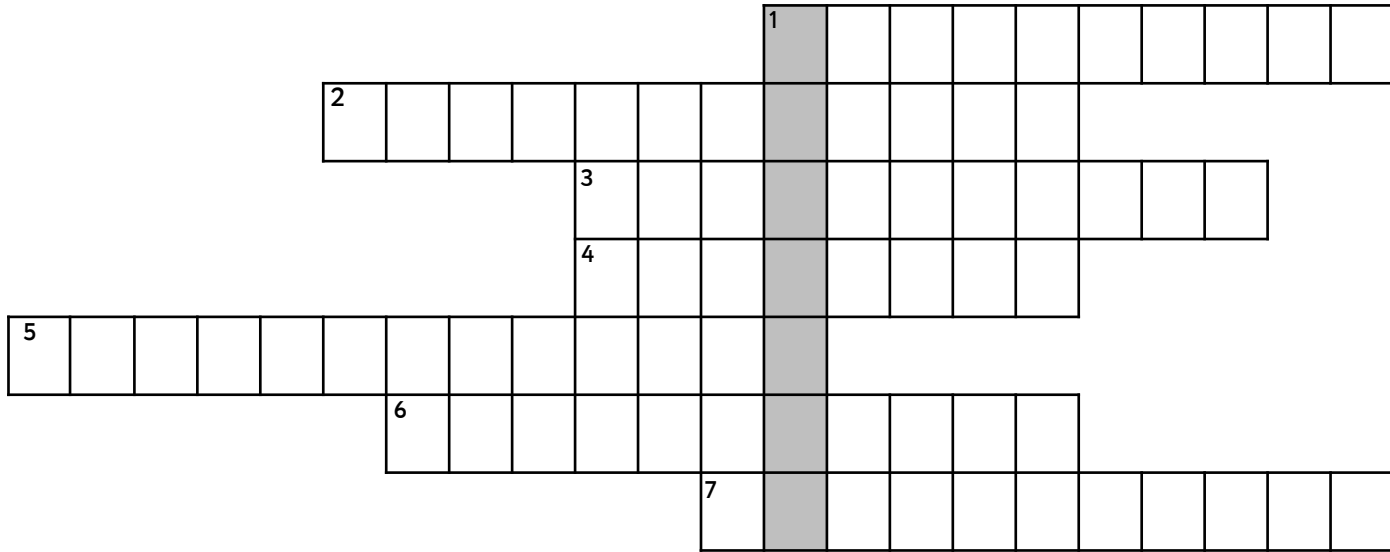
inquisitiveness \_\_\_\_\_

infinite \_\_\_\_\_

condemnation \_\_\_\_\_

## Galileo and the Moon – Vocab 2

Use the clues to below to complete the crossword and find the hidden word.



### Clues

1. The name of the idea that the Earth is at the centre of the solar system.
2. Disapproval at a strong level.
3. Someone or something who has had great influence on something.
4. Never ending.
5. Something that gives rise to disagreement.
6. Against God or Godly things.
7. Public disagreement for a long time.

What is the hidden word? \_\_\_\_\_

In the table below circle the words with the correct spelling.

blasphemus	renowned	condemnation	astrophysicist
controversy	reknowned	aeronortics	controversy
aeronautics	contriverty	infinite	infernit
astrophysicist	comdenation	astrophysicist	blaspheamous

Aero is used as a prefix to change some root words. Some examples of these are below.

aeronautics      aeroplane      aeromagnetic      aerosol

What does the prefix aero- means?

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Astro is used as a prefix to change the meaning of some words for example in the word astronomy.

Give three more words below that use the prefix astro-.

astro \_\_\_\_\_

astro \_\_\_\_\_

astro \_\_\_\_\_

What do you think the prefix astro- means?

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## Galileo and the Moon – SPAG

The table below shows the subheadings of an article about Galileo and the contents of those sections. Fill in the missing parts as if you were writing your own text about Galileo.

<u>Subheading</u>	<u>Information to include</u>
Who was Galileo?	
	Telescope invention
	Discovery that the moon is not flat
Galileo's later years	

Tick the sentence below that begins with a subordinate clause.

Galileo made discoveries because he made a more powerful telescope.

He was interested in lots of things, especially space.

Even though people did not believe him, Galileo continued to observe and record the planets.


Rewrite the sentence and insert a pair of dashes in the correct places.

- Galileo was interested in many subjects especially mathematics and astronomy and spent a lot of time studying them.

## Galileo and the Moon – Oral Teacher Questions

The text only talks about the moon in part of it. It talks about many other achievements by Galileo. Can you think of a more appropriate title for the text? **Personal response.**

According to the text, what were Galileo's most prestigious achievements? **Recreating the telescope, discovering the moon was not smooth and flat, and that Jupiter has 4 moons.**

What does the author of the text want you to believe? **That Galileo was an influential scientist.**

Does the author have a viewpoint on Galileo? Give an example to prove your answer. **Yes, the author thinks that Galileo was influential. The author says they would like to meet Galileo.**

Give a reason why the Church would not accept Galileo's theory about the Sun being the centre of the universe. **Because the church believed that the Earth was at the centre of the universe.**

Why has the author used brackets in the extract below?  
'That scientist was named Galileo Galilei (1564-1642).'

**To give more information, it tells you the year Galileo was born and the year he died.**

Why have italics been used in the extract below?

'A year later... Galileo published the first scientific paper... *The Starry Messenger.*'

**To show the name of the book.**

What are the main points made in the section with the subheading 'What did Galileo discover about space?' **That he created a telescope to observe space; that he wrote up his findings in a scientific paper; and that the moon was not smooth and flat as people thought.**

Why were Galileo's theories controversial? **They were observations and had no evidence to prove they were true. They also contradicted what the church was saying.**

What is the purpose of the first two paragraphs? **To introduce Galileo and inform the reader about what the text is going to be about.**

Do you think things would be different if Galileo wasn't alive at this period in time? **Personal response.**

Give an example of how Galileo has been remembered since his death in 1642. **Jupiter's moons were named after Galileo. An exploration mission is named after him. Scientists want to teach about him in schools today.**

If Galileo was alive today, what might he think of space exploration? **Personal response.**



Write the meaning of each of the words.

influential – having great influence on something

astrophysicist – a part of astronomy concerned with the physical nature of stars and space

advancements – developments and improvements

renowned – known for

astronomy – branch of science that deals with space and the universe

scientific revolution – a period of time when many scientific discoveries were made that changed science

renaissance – a period of time from 14<sup>th</sup>–16<sup>th</sup> centuries known for its culture, art and architecture

controversy – prolonged public disagreement

blasphemous – ungodly, against God

contradicted – be in conflict with something

geocentric – representing the Earth as the centre of the universe

controversial – give rise to disagreement

aeronautics – the science of building aircrafts

inquisitiveness – curious and interested in things

infinite – limitless, will go on forever

condemnation – very strong disapproval

Use the clues to below to complete the crossword and find the hidden word.

							1	g	e	o	c	e	n	t	r	i	c			
							2	c	o	n	d	e	m	n	a	t	i	o	n	
							3	i	n	f	l	u	e	n	t	i	a	l		
							4	i	n	f	i	n	i	t	e					
							5	c	o	n	t	r	o	v	e	r	s	i	a	l
							6	b	l	a	s	p	h	e	m	o	u	s		
							7	c	o	n	t	r	o	v	e	r	s	y		

### Clues

1. The name of the idea that the Earth is at the centre of the solar system.
2. Disapproval at a strong level.
3. Someone or something who has had great influence on something.
4. Never ending.
5. Something that gives rise to disagreement.
6. Against God or Godly things.
7. Public disagreement for a long time.

What is the hidden word? **Galileo**

In the table below circle the words with the correct spelling.

blasphemus	renowned	condemnation	astrophysicist
controversy	reknowned	aeronortics	controversy
aeronautics	contriversy	infinite	infenit
astrophysicist	comdenation	astrophysicist	blassphemous

Aero is used as a prefix to change some root words. Some examples of these are below.

aeronautics      aeroplane      aeromagnetic      aerosol

What does the prefix aero- mean?

Involving the air or the atmosphere.

Astro is used as a prefix to change the meaning of some words for example in the word astronomy.

Give three more words below that use the prefix astro-.

Possible answers:                      astronaut, astrophysics  
    astrology, astrophysicist  
    astronomers, astrologers

What does the prefix astro- mean?

Star, or things to do with out of space.

## Galileo and the Moon – SPAG

The table below shows the subheadings of an article about Galileo and the contents of those sections. Fill in the missing parts as if you were writing your own text about Galileo.

<u>Subheading</u>	<u>Information to include</u>
Who was Galileo?	Who he was, when and where he lived, why he is important.*
Galileo and the telescope*	Telescope invention
Galileo and the moon*	Discovery that the moon is not flat
Galileo's later years	Old age and house arrest.*

\*or any appropriate answer relating to the text

Tick the sentence below that begins with a subordinate clause.

Galileo made discoveries because he made a more powerful telescope.

He was interested in lots of things, especially space.

Even though people did not believe him, Galileo continued to observe and record the planets.

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Rewrite the sentence and insert a pair of dashes in the correct places.

- Galileo was interested in many subjects especially mathematics and astronomy and spent a lot of time studying them.

Galileo was interested in many subjects – especially mathematics and astronomy – and spent a lot of time studying them.