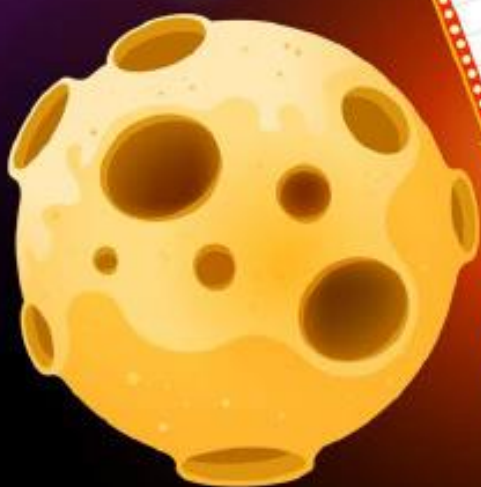




It's out
of this
world!

SPACE

Includes amazing facts and
fun activities

www.spaceplace.nasa.gov

for 7-11 year-olds

Contents

Fun facts about
Space

All about Venus

Fun & Games

Why is the Sky
Blue?

Quiz

Should we have
a base on the
Moon?

Colouring Fun

Answer Sheet



Out of this world

FUN FACTS ABOUT SPACE AND THE SOLAR SYSTEM!

W26 is "the largest known star in the Universe" at around 3000 times the diameter of the sun.

Jupiter, the largest planet, has 63 known moons.

It takes light eight minutes to travel from the sun to Earth. When looking at the sun you are seeing into the past!

The sun is so hot anything burns up before hitting it!

The eight planets are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. Pluto is no longer called a planet because it is too small.

When a star dies, it sometimes becomes a black hole that is so dangerous nothing can escape its gravity! The rest of the time it just explodes into a super nova.

The International Space System is the only object in space, apart from the Earth, with people living on it.

A shooting star is actually just a moving meteor with gas burning up behind it.

Felix Baumgartner skydived from the 'edge of space' in 2012.

A single day on Venus lasts longer than a year on Earth.

The first manmade object in space was the German V2 Rocket test number V-4 made on 3rd October 1942.

Only 12 people have ever walked on the moon!

The sun is part of a galaxy called the Milky Way. No one knows what is at the centre of the galaxy, but many people think that it is a giant black hole!

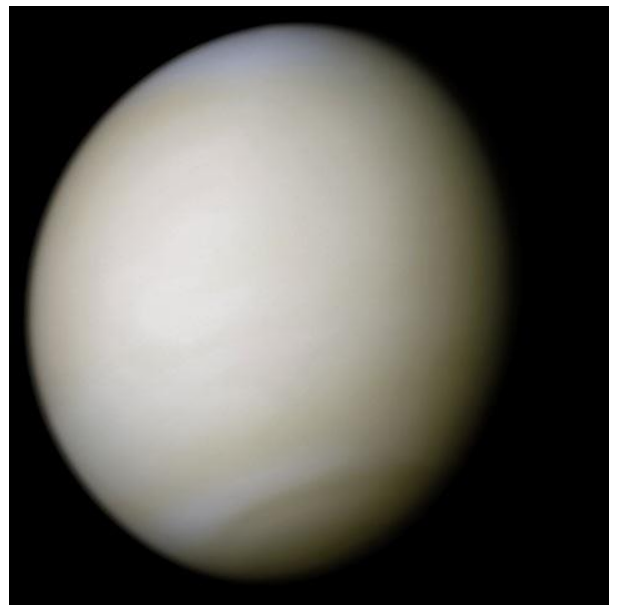
The first creatures intentionally sent into space were fruit flies.

Venus

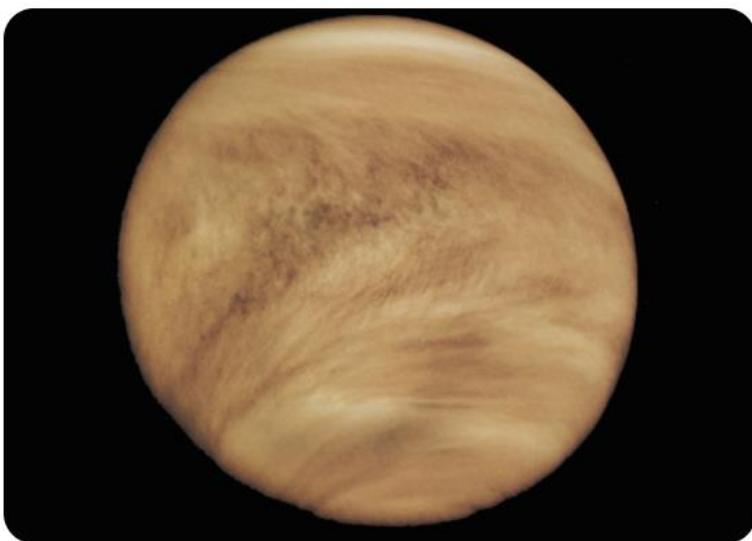
Venus, which is the closest planet to Earth, is the second closest to the Sun after Mercury. Because Venus is almost the same size and mass as Earth, it is sometimes called Earth's twin or Earth's sister planet. Venus' diameter (12,104km) makes it the second largest rocky planet in the Solar System: slightly smaller than Earth.

Atmosphere

The atmosphere on Venus, which is 96% carbon dioxide, is extremely dense. Due to the dense atmosphere, Venus has extremely strong atmospheric pressure which means that on the surface it would feel the same as being at the bottom of the ocean on Earth. Carbon dioxide in the atmosphere creates the greenhouse effect on Venus. This means the planet is very hot and life would not be possible on Venus.



[Photo](#) by NASA or Ricardo Nunes / Public domain



Seasons

Unlike Earth, Venus does not tilt on its axis and therefore has no seasons. Venus – average surface temperature 471°C – is the hottest planet in the Solar System.

Days and Years

One year on Venus, the time it takes for the planet to orbit the Sun, takes 225 Earth-days. There are two ways to calculate the length of a day on any planet. A **sidereal day** on Venus (the length of time it takes a planet to rotate once on its axis) is 243 Earth-days; whereas, a **Solar day** on Venus (the length of time it takes for the Sun to reach the same point in the sky from the planet's surface) is 117 Earth-days. Venus rotates much more slowly than Earth: 4mph compared to 1,040mph on Earth. Because of its slow rotation, a sidereal day on Venus is longer than a Venusian year. Venus is also unusual because its rotation, which is clockwise, is in the opposite direction to most other planets in the Solar System. This clockwise rotation is called **retrograde rotation**.

DID YOU KNOW?

Venus is named after the Roman goddess of love and beauty because it appears as a beautiful, sparkling, star-like object in the sky.

Because Venus is the second closest object in the Solar System to Earth (only the Moon is closer), it is extremely bright and can be easily seen without a telescope.

Venus, which appears to be so beautiful, is actually an extremely hostile environment with more than 1000 volcanoes and a poisonous atmosphere.

Even though Venus is a planet, it can be seen twinkling in the night sky only in the evening and early morning and is therefore known as the **Evening** or **Morning Star**.

Wordsearch

T	E	K	C	O	R	A	L	I	E	N	G
V	U	X	O	Y	J	U	P	I	T	E	R
E	N	E	P	T	U	N	E	N	U	S	A
N	I	Y	E	V	R	Y	O	R	A	R	V
U	V	S	R	L	R	M	A	M	N	O	I
S	E	X	U	U	O	N	X	A	O	E	T
N	R	N	C	N	U	H	M	R	R	T	Y
O	S	R	P	S	A	S	K	S	T	E	R
O	E	E	A	R	T	H	O	C	S	M	A
M	V	E	T	I	L	L	E	T	A	S	T
A	X	S	A	T	U	R	N	O	M	L	S
S	A	M	N	Y	X	A	L	A	G	O	B

ALIEN
EARTH
MERCURY
BLACK HOLE
UNIVERSE

SATURN
STAR
GRAVITY
SATELLITE
VENUS

NEPTUNE
MARS
GALAXY
ASTRONAUT
JUPITER

ROCKET
URANUS
MOON
METEOR

Answers on page 8

Why is the Sky Blue?

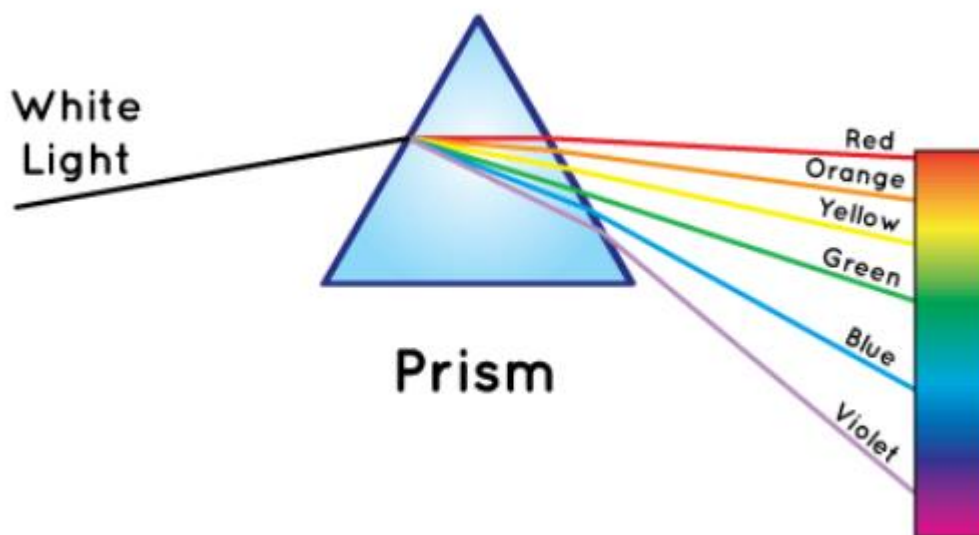
From the surface of the Moon, the sky looks black – just like the night sky on Earth.

So why does the sky look blue during the daytime?

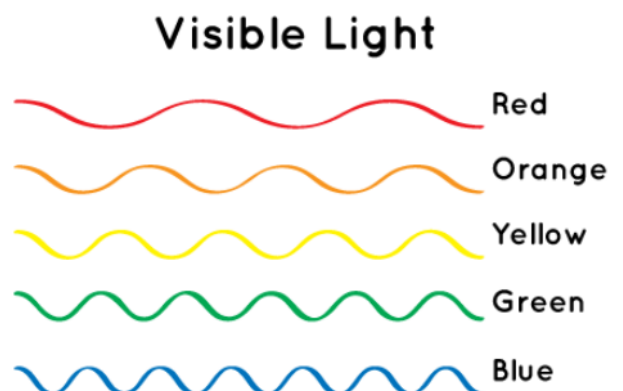
The answer is because of Earth's atmosphere.

Sunlight travels through the atmosphere and is scattered by all gases and particles in the air around us.

Sunlight is not actually white but is made up of the whole **spectrum** of colours. If the light **refracts**, it is split into its constituent colours. This happens when sunlight passes through water droplets (creating a rainbow) or if light is passed through a **prism**.



Light travels in waves. Red light travels in long shallow waves, but blue light (at the other end of the spectrum) travels in short, choppy waves.



Light travels in straight lines unless one of three things happens to it:

- it is reflected (from a shiny surface like a mirror)
- it is bent (by something like a prism or raindrops)
- it is scattered (by molecules of gas in the atmosphere)

Because blue light travels in shorter, smaller waves, it is scattered more than the other colours.

So the sky is blue because the blue light is scattered more than the other colours in the spectrum.

That is, of course, when the sun is shining and is not covered by the clouds!

For a short video explanation of this please visit:

https://www.youtube.com/watch?v=ehUIhKhzDA&feature=emb_logo

GLOSSARY	
prism	a solid figure with ends that are parallel
refracts	to make waves, such as those of light, sound or energy, change direction when they go through at an angle
spectrum	a band of coloured lights in order of their wavelengths, as seen in a rainbow and into which light may be separated

Space Quiz

1. What was Uranus originally called?

- ☐ Apollo
- ☐ Planet Herschel
- ☐ William's Star
- ☐ George's Star

2. Which planet is fifth from the sun?

- ☐ Saturn
- ☐ Mercury
- ☐ Jupiter
- ☐ Earth

3. The spacecraft to land the first men on the moon was called ...?

- ☐ Apollo 11
- ☐ Apollo 12
- ☐ Apollo 13
- ☐ Apollo 14

4. What does NASA stand for?

- ☐ National Astronauts Space Advancements
- ☐ Never Ask Spacemen for Answers
- ☐ Nice Astronauts and Space Aliens
- ☐ National Aeronautics and Space Administration

5. Which of the following appears every 75 to 76 years?

- ☐ A solar eclipse
- ☐ Halley's Comet
- ☐ A meteorite
- ☐ A black hole



6. Which planet is the only one to rotate clockwise?

- ☐ Venus
- ☐ Mercury
- ☐ Neptune
- ☐ Mars



7. Which planet has 52 named moons?

- ☐ Saturn
- ☐ Jupiter
- ☐ Venus
- ☐ Mercury

8. What is the Hubble?

- ☐ A galaxy
- ☐ A star
- ☐ A telescope
- ☐ A spacecraft

9. Which planet is the smallest in the solar system?

- ☐ Mars
- ☐ Earth
- ☐ Mercury
- ☐ Saturn

10. Which of the following isn't the name of a constellation?

- ☐ Ursula Major
- ☐ Cetus
- ☐ Gemini
- ☐ Orion

Should a Base be Built on the Moon?

There are many different opinions about a Moon Base. Some people think that a base on the Moon would allow scientists to learn more about the Moon. Others believe that a Moon base would be a waste of money. We will look at both sides of the argument and decide whether a Moon base should be built.

Firstly, building a base on the Moon would cost a huge amount of money. Many people think that this money could be better spent on research to find cures for disease, or aid for third world countries.

Alternatively, others argue that a Moon base would allow humans to mine the Moon's minerals and provide much needed resources for Earth. Also, a Moon base could provide a refuelling station for space travellers hoping to explore Mars.

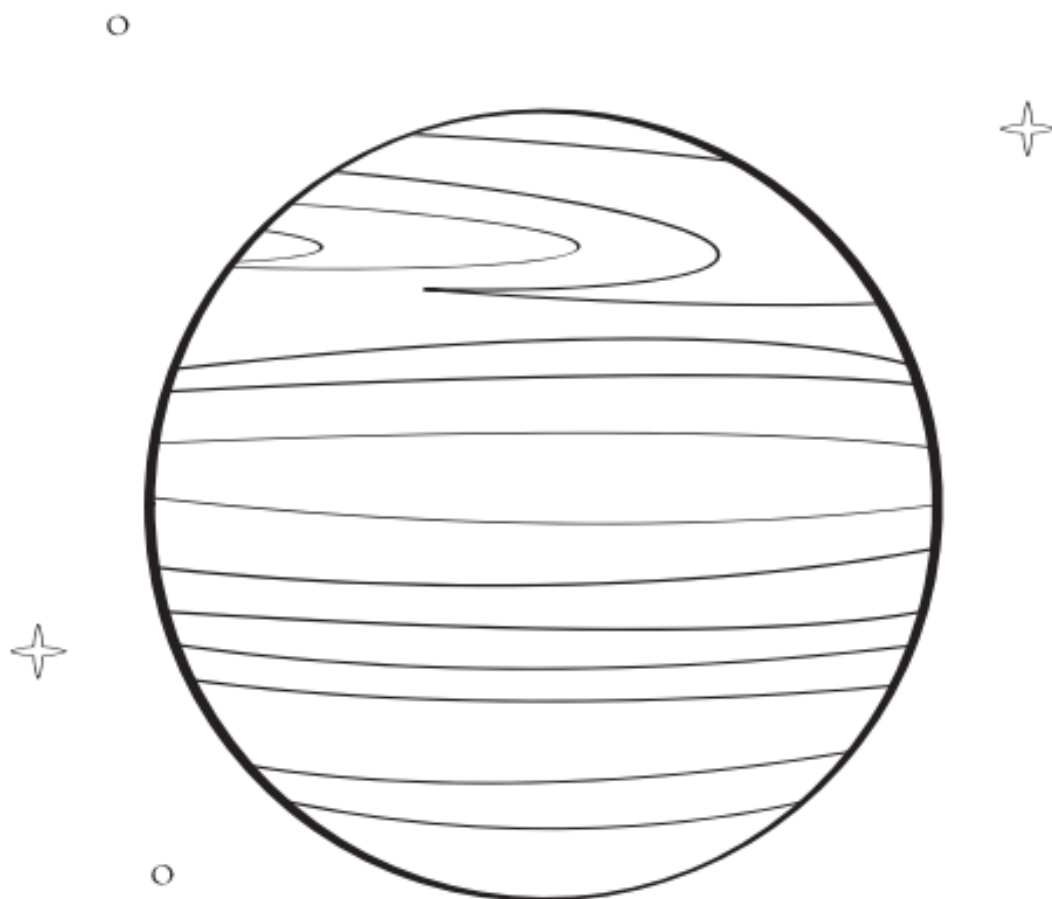
On the other hand, many argue that the Moon's resources should not be mined. Humans have already damaged the environment here on Earth and we should not be travelling to the Moon to do the same.

In addition, some people worry that establishing a base on the Moon would be very dangerous. Thirty astronauts have lost their lives on missions or in training since space exploration began. A base on the Moon would be an inhospitable and dangerous place for humans.

However, others think that a base on the Moon would provide scientists with opportunities to explore the Moon's lava tube caves and answer the question once and for all – is there frozen water on the Moon?

Furthermore, a base on the Moon would allow scientist to study the effects on the human body of living in space. This would provide vital information to space travellers about how best to survive on longer journeys such as to Mars or beyond.

To sum up, there are arguments for and against a base on the Moon and opinions will always differ. I personally believe that a Moon base is an exciting prospect and, if space tourism was ever possible, I would like to visit the Moon.



VENUS

- The hottest planet in our solar system
- Small and rocky
- Has an active surface with mountains and volcanoes
- Color: Venus's clouds and atmosphere give it a pale yellow appearance

For more information about Venus, visit: spaceplace.nasa.gov/all-about-venus



Answer Sheet



QUIZ

WORDSEARCH

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- George's Star

2. Which planet is fifth from the sun?

- Jupiter

3. The spacecraft to land the first men on the moon was called ...?

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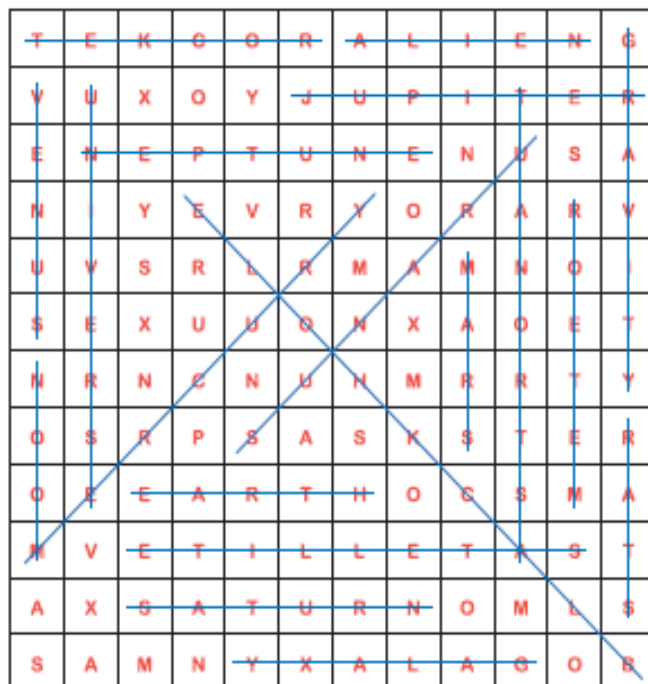
- A telescope

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ALIEN
 EARTH
 MERCURY
 BLACK HOLE
 UNIVERSE
 SATURN
 STAR
 GRAVITY
 SATELLITE
 VENUS
 NEPTUNE
 MARS
 GALAXY

ASTRONAUT
 JUPITER
 ROCKET
 URANUS
 MOON
 METEOR

