

Planet Earth

Have you ever wondered why humans live on Earth and not the other planets in our Solar System? Well, Earth is the only planet in our solar system that has all the things we need to survive: 21% oxygen in the air to breathe, water to drink and all at just the right temperature warmed by the Sun. Scientists call this the 'Goldilocks Zone' because everything is 'just right'...not too hot, not too cold. Its name is derived from the Old English word 'ertha' and the Anglo-Saxon word 'erda' which means ground or soil.

The Blue Planet

Earth, the third planet from the Sun after Mercury and Venus, is referred to as 'The Blue Planet' because of how it looks from space. This is due to the fact that over $\frac{2}{3}$ of the Earth's surface is covered in oceans and seas.



Did you know?

- Age: approx. 4.54 billion years
- Diameter: 13,000 km
- Distance to Sun: 150,000,000 km
- Surface Temperature: 15°C
- Highest point: Mount Everest 8.8 km
- Lowest point: Challenger Deep 10.9 km below sea level

I'm Spinning Around

The Earth spins on its axis once every 24 hours – that's what gives us day and night. You wouldn't notice but the Earth's spin is actually slowing down by 17 milliseconds per hundred years. Eventually this will lengthen our days but it will take around 140 million years before our day will have increased from 24 to 25 hours. I wonder if children 140 million years from now will have an extra hour at school.

Whilst it is spinning, the Earth is also orbiting the Sun, which takes $365 \frac{1}{4}$ days to do one full circuit. This gives us the length of our years. Our seasons are also dependent on the orbit of the Earth as our planet is tilted at an angle. This means that around one side of the Sun we are tilted towards it – giving us warmer temperatures and longer days...our summer. However, around the other side of the Sun we are tilted away from it giving us less light and cooler temperatures – so this is our winter. All in all, it's a pretty amazing planet and I, for one, am glad to call it home.

Questions

1. What percentage of the air we breathe is not Oxygen?

2. What is the difference between the highest and lowest points on Earth?

3. How long does it take the Earth to spin once on its axis?

4. Will the Earth always spin at this speed? If not, how will it change?

5. How many planets are between us and the Sun and can you name them?

6. Why do we experience summer around one side of the Sun?

7. In the Fact File section the author has written 'approx.', what is the reason for the full stop in this word?

8. In the 'I'm Spinning Around' section, the author writes:
You wouldn't notice but the Earth's spin is actually slowing down by 17 milliseconds per hundred years'
Why does the author say we wouldn't notice?

9. Why do we need to add an extra day to our year every 4 years?

10. Which fact or piece of information has amazed you the most and why?

The Moon

Do you ever look up in the sky at night and see the spherical Moon lighting up the night-time town? Do you sometimes ponder what it would be like to visit the Moon or wonder why it shines so bright? Well here's some facts and figures that might interest you...

Moon and Sun

The Moon shines extremely brightly but is only reflecting the rays of the Sun whilst it is round the other side of the Earth. The Moon cannot make its own light as it is not a star, like the Sun. When we rotate back towards the Sun for our daytime, we assume the Moon goes away but it doesn't, it's just harder to see because it is so bright. Sometimes, if you look carefully, you can see the Moon in the sky during the daytime.



Did you know?

- Average surface temperature in the day: 107°C
- Average surface temperature at night: -153°C
- Distance from Earth: 238 857 miles
- Diameter: 2160 miles
- Length of day: 708 hours
- Selenophobia is fear of the Moon

Orbit

The Moon is the Earth's only natural satellite (an object that orbits a larger object). It takes the Moon approximately 28 days to orbit the Earth once, this is referred to as a lunar month. During this time, we only ever see the same side of the Moon as it rotates slowly whilst it moves around us. The Moon is not quite spherical and is slightly heavier on one side, so gravity keeps the heavier side facing us.

During its orbit, the angle between the Earth, Moon and Sun changes so the part of the Moon that is lit up can not always be seen from Earth. This is what gives us the phases of the Moon, when it is waxing (getting bigger) and waning (getting smaller) with shapes including crescent and gibbous.

Moonwalking

Only 12 people have ever walked on the Moon! The first person to do this was Neil Armstrong on 20th July 1969. There were two other astronauts on the mission: Buzz Aldrin, who also walked on the moon, and Michael Collins, who stayed to orbit around the moon, travelled on the Apollo 11 spacecraft.

You may have seen footage of astronauts walking on the moon and you will notice it looks bouncy. This is because the Moon's gravity is only that of one sixth of the Earth's so people take longer to return to the surface when they are up in the air.

Questions

1. Who was the second man to walk on the Moon? How do you think he felt?

2. How does the moon look like it lights up when it doesn't?

3. Explain how a satellite and an object work together?

4. How much colder is the Moon at night than in the daytime?

5. Why does the Moon have different phases during its cycle?

6. People refer to the 'dark side of the Moon'. What do you think this means?

7. Why do you think someone might have selenophobia?

8. How far did Neil Armstrong travel to get to the Moon and back?

9. Work out how long it would take a car travelling at 70mph to get to the Moon.

a: In whole hours

b: In whole days

10. Read the following sentence:

"The Moon cannot make its own light as it is not a star, like the Sun"

Why has "like the Sun" been added to the end of this sentence?

11. Read the following sentence:

"Only 12 people have ever walked on the Moon!"

Why has an exclamation mark been used in this sentence?

The Sun

The Sun is the star at the centre of our solar system. That is why it is called a solar system. The word solar means 'relating to the Sun'. The planets in our solar system stay together because the Sun is so big its gravity keeps us all locked in orbit.

Making Energy:

The Sun provides almost all the energy, light and heat needed on Earth mainly using hydrogen and helium. Energy is made at its core in the centre of the Sun's sphere. Around the core is the radiative zone which carries the energy to the next layer – the convection zone. It takes about 170,000 years for the energy to move from the core to the convection zone! The photosphere is at the Sun's surface and the energy gets to there from the convection zone in large bubbles. From here, the energy escapes (through the chromosphere and corona) and some of it comes to Earth. It takes about 8 minutes for heat to reach us from the Sun.



Did you know?

Surface temperature: 5505°C

Distance to Earth: 149.6 million km

Radius: 696,342 km

Circumference: 4,366,813 km (2,713,406 miles)

Mass: 1,989,000,000,000,000,000,000,000,000kg

(About 1.3 million Earths could fit inside the Sun)

Lifespan:

The Sun is actually a yellow dwarf star and was created about 4.6 billion years ago. The Sun will eventually run out of energy and fade, but don't worry...this won't be for another 4.5 to 5.5 billion years yet! Before the Sun eventually fades, in an unimaginable time from now, it will get bigger and turn into what is called a 'red giant'. In 1.1 billion years from now, the Sun will be 10% brighter than it is today. This will make Earth a bit like a greenhouse – hot and moist. 3.5 billion years from now, it will be even brighter than that: at 40% more than it is today. This will be so hot that the oceans will boil and the ice will melt. It's safe to say that then there will be no life on Earth by then, but with space travel already making new discoveries and exploring other planets, where do you think humans will be by then?

Questions

1. What gases is the Sun mainly made from?

2. How long does it take energy to reach Earth from the Sun?

3. In the final paragraph the author uses the word 'unimaginable'. Why have they used this word?

4. What type of star is the Sun now?

5. List the different layers of the Sun from the centre to the outside.

6. What keeps our solar system of planets orbiting the Sun?

7. Solar means 'relating to the Sun'. Think of two (or more) examples where we use the word 'solar'.

Questions

8. Will the Sun last forever? If not, why not?

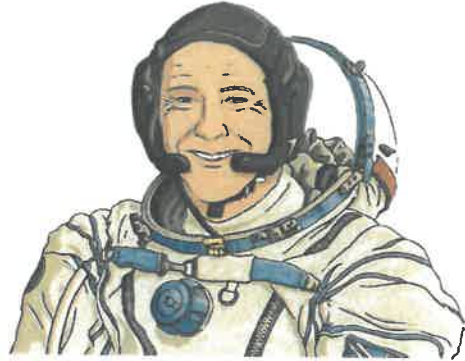
9. In the final paragraph it says that Earth will become 'a bit like a greenhouse'. A greenhouse is warm and moist inside because of the glass that lets heat and light in and keeps it in. Our Earth is not surrounded by glass, so what will let the heat and light in and keep it in?

10. Look at the final line - where do you think humans will be by then?

Tim Peake

Early Life

Timothy Nigel 'Tim' Peake was born in Chichester, West Sussex, England, on 7th April 1972, and grew up in a nearby village. Tim and his older sister, Fiona, enjoyed a stable upbringing and ordinary family life. Their mother worked as a midwife and their father, who was a journalist, had always been interested in historic aircraft so he took Tim to air shows from an early age. This is where Tim's fascination with flying began.



He studied at the Chichester High School for Boys, leaving in 1990 to enrol at the Royal Military Academy Sandhurst.

Military Career

Despite having been interested in stars and the universe as a child, as a career choice Tim followed his passion for flying and trained to be a pilot. This resulted in an eighteen-year military career where Tim flew all types of helicopters and aircraft.

Tim later trained to be an instructor, before flying Apache helicopters in Texas with the US Army. On his return to the UK, the Apache was being introduced into the British Army so Tim helped develop the training activities.

European Space Agency

In 2008, when the European Space Agency (ESA) announced it was accepting applications for new astronauts, Tim saw the advert online and decided it was too good an opportunity to miss. His application joined 8000 others!

In 2009, following various exams and assessments, Tim received a phone call from the ESA offering him one of the six available places with the European Astronaut Corps.

Blast Off!

On 15th December 2015, at 11:03 a.m., the nation collectively held their breath as Tim Peake launched alongside Yuri Malenchenko and Tim Kopra. Tim reached his destination at 5:33 p.m. but the docking procedure did not go to plan. More than two hours later, the hatch opened and Tim was welcomed onboard, becoming the first British ESA astronaut to live on the International Space

Station (ISS). Tim spent six months living and working in space, during which time he completed the first spacewalk by a British astronaut.

Coming Home

Tim returned to Earth on 18th June 2016, travelling at 25 times the speed of sound, landing in Kazakhstan at 9:15 a.m. During his mission, Tim had made 3000 orbits of Earth, covering about 125 million km. It took around two months for Tim's body to recover from the effects of zero gravity.

While in space and since returning home, Tim has worked a lot with children on various science projects to spread the excitement around being an astronaut.

Glossary

Test pilot – A pilot who flies an aircraft to test its performance.

Astronaut – A person who is trained to travel in a spacecraft.

Zero gravity – The state or condition in which there is no apparent force of gravity acting on a body.

Spacewalk – A period of physical activity engaged in by an astronaut in space outside a spacecraft.

Questions

1. 'Tim... enjoyed a stable upbringing...' What does the word stable mean? Tick one.

- ☐ something which is unexpected
- ☐ something unpleasant
- ☐ something which is safe and steady
- ☐ something noisy

2. Match each question to the correct answer.

Where did Tim go to school?

Royal Military Academy Sandhurst

Where did Tim go after he left school?

Chichester High School for Boys

In 2008, where did Tim apply to become an astronaut?

European Space Agency

3. Name two things that Tim has done as a job.

1. _____
2. _____

4. Fill in the missing words from this sentence:

'Tim spent six months _____ in space, during which time he completed _____ by a British astronaut.'

5. Find and copy a word which tells you that Tim had always loved flying.

6. How do you think Tim felt when the docking procedure didn't go to plan?

7. What do you think attracted Tim to the online advert to train to become an astronaut?

8. How has Tim contributed to scientific knowledge?

First Man on the Moon

In July 1969, Neil Armstrong became a hero, a national treasure and worldwide name. He was the American astronaut who was the first person to ever set foot on the surface of the Moon.

His Early Life

Neil Armstrong was born on 5th August 1930, in the state of Ohio in the USA, the eldest of three children. He developed a passion for aviation from a young age. His first experience of aircraft was when his parents took him to Cleveland Air Race as a toddler. At the age of six, he flew for the first time with his father. As a teenager, he took flying lessons which he paid for himself by working at a local chemist. He practised and persevered. Consequently, by 16 years old he had achieved his first pilot's licence, before he could even drive a car!

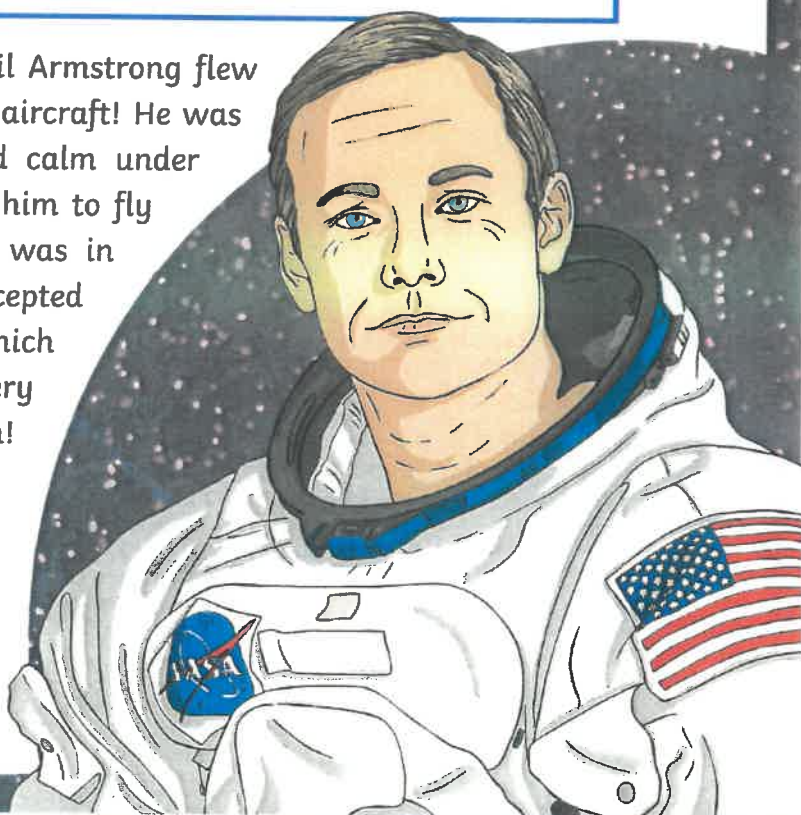
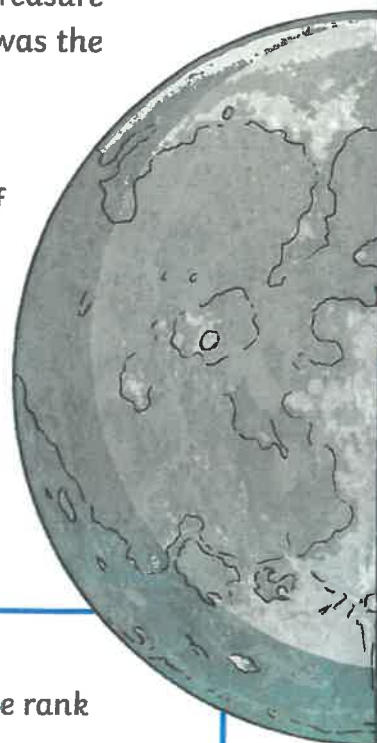
Fun Facts

- Neil Armstrong was a committed Boy Scout and earned the rank of Eagle Scout!
- He loved making model aircraft in his spare time.
- As a child, he suffered from travel sickness, but fortunately he did not experience space sickness.

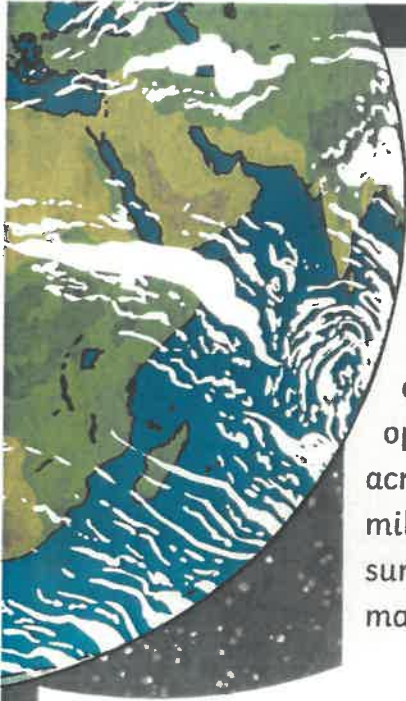
During his career in aviation, Neil Armstrong flew more than two hundred different aircraft! He was renowned for being resilient and calm under pressure, strengths which helped him to fly in very dangerous situations. It was in September 1962 that he was accepted to the NASA astronaut corps, which would eventually lead to the very difficult job of landing on the Moon!

The Moon Landing

Finally, everything was ready! On 16th July 1969, at 13:32, the powerful Saturn V rocket blasted Neil Armstrong and his crew



First Man on the Moon



mates Edwin (Buzz) Aldrin and Michael Collins into space. It was a long journey to the Moon which lasted over three days. Once they arrived, the crew split up. Armstrong and Aldrin climbed into the lunar module, called 'the Eagle', to begin the descent to the Moon's surface. Collins stayed in orbit, doing experiments and taking photographs. Finally, following checks and preparation, on 20th July 1969, Neil and Buzz opened the Eagle's hatch. The Moon landing was shown all across the world on television to an estimated audience of 600 million people. As he stepped off the ladder, on to the Moon's surface, Armstrong was heard to say, "That's one small step for man, one giant leap for mankind."

After landing, Armstrong and Aldrin had a moonwalk around the landing site where they planted the flag of the United States of America. They also spent time collecting moon rocks from the surface so they could be studied back on Earth.

The astronauts arrived home on Earth on 24th July 1969 where they were quarantined (put in isolation) in case of infectious diseases or illnesses before being released to tour the country.

Later Life

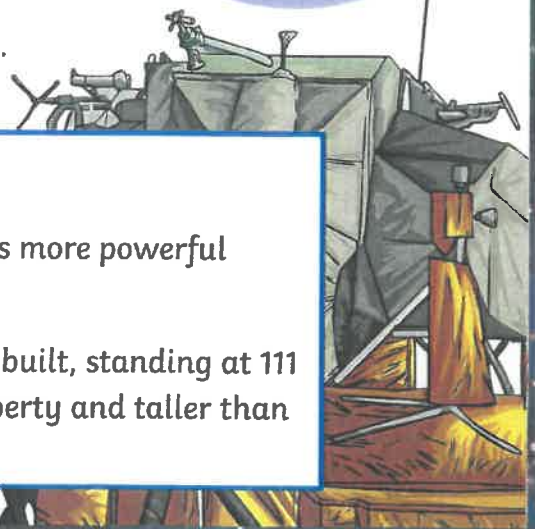
After he had returned home, Armstrong retired from being an astronaut. However, his enthusiasm for space and aircraft continued and he became a professor in order to share his passion.

Neil Armstrong died on 25th August 2012, aged 82.



Did You Know...?

- A modern smartphone is several thousand times more powerful than the computers used for Apollo 11!
- The Saturn V rocket was the largest rocket ever built, standing at 111 metres tall! It was higher than the Statue of Liberty and taller than many tower blocks!



Questions

1. When was Neil Armstrong born? Tick one.
 - ☐ July 1969
 - ☐ August 1930
 - ☐ September 1962
 - ☐ September 1946
2. What happened to him when he was six years old? Tick one.
 - ☐ His parents took him to Cleveland Air Race.
 - ☐ He took flying lessons.
 - ☐ He became a hero.
 - ☐ He flew for the first time with his father.
3. What did Neil Armstrong love to do in his spare time?

4. What does the author mean when they describe Neil Armstrong as a '**worldwide name**'?

5. How could Armstrong afford to take flying lessons?

6. Explain why the crew did not come straight back home after landing on the Moon.

7. Why do you think people wanted the astronauts to tour the country after arriving home?

8. How would you describe Neil Armstrong? Use evidence from the text to support your answer.

HOMEWORK GIVEN OUT:	Monday, 23 rd March 2020
HOMEWORK TO BE HANDED IN:	Friday, 27 th March 2020
DATE OF TEST:	Friday, 27 th March 2020 (Y4)

Use this method to learn your spellings:

LOOK READ COVER WRITE CHECK

This week's focus is on words ending -sure and -ture.

DON'T FORGET TO WRITE YOUR SENTENCES IN A PAGE IN YOUR BOOK
NEATLY!

measure			
treasure			
pleasure			
enclosure			
creature			
furniture			
picture			
nature			
adventure			
departure			

Parent/Guardian comment:

HOMEWORK GIVEN OUT:	Monday, 30th March 2020
HOMEWORK TO BE HANDED IN:	Friday, 3rd April 2020
DATE OF TEST:	Friday, 3rd April 2020 (Y4)

Use this method to learn your spellings:

LOOK READ COVER WRITE CHECK

This week's focus is words ending with -sion.

**DON'T FORGET TO WRITE YOUR SENTENCES IN A PAGE IN YOUR BOOK
NEATLY!**

division			
invasion			
confusion			
decision			
collision			
television			
conclusion			
persuasion			
supervision			
procession			

Parent/Guardian comment: