

Natural satellites. The Moon.

A **satellite** is a body that orbits a planet. Some of the planets in our Solar System have **natural satellites**, called **moons**. The Earth has one – the Moon, Saturn has 18 of them.

Just like any other objects in the night sky, moons are visible because **they reflect light** that comes from the Sun.

The Moon is about 4 billion years old and it is our closest neighbour in space. The Moon is actually moving away from Earth at a rate of about 3.8 cm each year. When it was formed, it was about 22,530 km away. It's now more than 350,000 km away.

Just as the Earth orbits the Sun, the Moon goes around planet Earth. This journey is called an **orbit**. It last one month (around 27 days).

As the Moon travels, it also turns like a spinning top. It spins exactly once during each orbit of the Earth. Because of this, we only ever see one side of the Moon. However, spaceships have travelled around the Moon so we know what the far side looks like. The Russian probe called *Luna 3* was the first spacecraft to take pictures of that side.

As the Moon moves, different parts of it are lit by the Sun. This is why the Moon seems to change shape. These changes are called **phases**. The first phase is the **New Moon**, when it cannot be seen at all. Then we see the **Crescent**, the **First Quarter**, the **Gibbous**, and finally the **Full Moon**. And again – the Gibbous, the Last Quarter and the Crescent.

There is no life or weather on the Moon – **no clouds, wind, rain or snow**. The footprints left by the Apollo astronauts will last at least 10 million years because there is no 'force' to rub them away .

It has no atmosphere but there is water at both, north and south, poles. The *Lunar Prospector* probe discovered some **frozen water**. This ice is probably left over from comets that crashed into the Moon's surface a long time ago. So future Moon colonies will have a water supply! :))

When you look at the Moon you see a bright disc with dark patches which seem to form a face. The bright areas are the ancient crust leftover from when the Moon was made. The dark patches (called **maria**, Latin for 'seas') are newer rock formations from volcanic eruptions.

Most of the Moon's **craters** were made millions of years ago when huge chunks of rock crashed into it. Bailly, the largest crater is three times the size of Wales.

The Moon is covered with moon dust which proper name is **regolith**.

The Moon causes the **tides** in the oceans. The gravitational pull from the Moon is greatest on the side of Earth that is closest. This actually pulls the ocean towards it causing a bulge.

But because the Earth rotates much faster than the Moon moves in its orbit, the bulges move around the Earth about once a day giving two tides per day.

Journey to the Moon

The Moon is the only other world people have visited. There have been six successful missions to put people on the Moon, all between 1969 and 1972. A total of 12 astronauts have explored the surface.

The crew of the *Apollo 8* were the first people to see an 'Earthrise' – the Earth rising above the lunar landscape – when they flew around the Moon in 1968.

In 1969, three American astronauts set off from Earth in a space capsule called *Apollo 11*. The capsule was launched into space by *Saturn V* – a powerful rocket. In space, the *Apollo 11* craft separated from the rocket and made its way towards the Moon. When it reached the destination, a special lunar landing module, called the *Eagle*, dropped down onto the surface with two astronauts inside. The first men to walk on the Moon were Neil Armstrong and Edwin 'Buzz' Aldrin. They spent nearly a whole day on the surface. Meanwhile, Michael Collins orbited the Moon inside the *Apollo 11* Command Module. Armstrong collected 21 kg of soil samples, took photographs, and set up some scientific experiments. On the Moon they left the American flag, a plaque saying:

'HERE MEN FROM PLANET EARTH FIRST SET FOOT UPON THE MOON. JULY 1969AD.

WE CAME IN PEACE FOR ALL MANKIND'.

That wasn't all they left. In addition to the flag and the plaque, there were also boots, backpacks, empty food packets, and used urine bags :(

After a lunar surface stay of 21.6 hours they returned to the orbiting Command Module.

Then they headed back to Earth, splashing down in the Pacific Ocean on 24 July.

There were many other attempts to explore the Moon. For example, in 1971, an electric car called the *Lunar Rover* was used to explore the Moon. The last voyage to the Moon took place in 1972.

The Moon's **gravity** is much weaker than Earth's. This means that objects on the Moon are not pulled down towards the ground as strongly. This makes walking difficult. In fact, the easiest way to get about is by hopping like a kangaroo. A Moon astronaut could jump almost six times as high as a person on Earth. When walking on the Moon, astronaut Alan Sheppard hit a golf ball 730m!!

once in a blue moon = very rarely (idiom) – od wielkiego święta, bardzo rzadko

He visits his grandma once in a blue moon. (On bardzo rzadko odwiedza swoją babcię.)

A **blue moon** occurs once every 2.7 years. It is when two full moons occur in the same calendar month.

Tasks

1. Draw a picture presenting all phases of the Moon. max 20p.
2. How many natural satellites orbit every of all 8 planets of the Solar System?
max 16p.
3. Create a crossword including at least 15 words connected with the Moon.
Give the explanation of every word in English -

1. *a body that orbits a planet*

(satellite)

max 3p. for each word