

# *St Aiden's Homeschool*



## *Our Solar System*

### **Moon**

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## The Moon



### ***Moon Facts***

- When we look at the Moon from Earth, we always see the same side. Until Luna 3 sent back photos in 1959, no-one knew what the other side looked like.
- The Moon is nearly twice as big as the planet Pluto.
- The "Man in the Moon" isn't always seen as a man. People from India see an old woman with a spinning wheel. People from Mexico see a rabbit!
- The Moon is not that small compared to the Earth. Sometimes the Earth and Moon together are called a *binary* or *double planet system*.

### **How big is the moon?**



Comparison of the size of the Moon and the Earth

Most of the planets in the Solar System are much bigger than their moons, but the Earth and the Moon are much closer in size. The Moon is just under 3,500 kilometres (km) wide and the Earth is about 12,600 (km). That's only about one third of the size of the Earth as you can see in the picture below. Because of this, the Earth and Moon together are sometimes called a *binary* or *double planet system*.



### **What is the moon's surface like?**

*Astronaut Harrison Schmitt collecting rocks from the Moon during the Apollo XVII mission.*

The Moon does not have any atmosphere. It also doesn't have any liquid water on its surface. During the day it becomes very hot, but at night it is icy cold. A person visiting the Moon needs an air supply and a special suit.

The Moon has many *craters* on its surface. The largest one is called the *South Pole-Aitken Basin* and is roughly 2500 km across.

We think nearly all the craters on moons or planets were made by huge rocks hitting them a long time ago. They are called *impacts*.

Some of the craters on the Moon look as if they have rays coming out of them. These rays are rocks thrown across the Moon by the impacts that made the craters. Some of the craters around the bottom of the Moon may have ice in them.

There are also darker areas called *maria* (said "MARR-ee-ah"). These are large pools of lava that cooled a long time ago. Most maria are on the side of the Moon we see from Earth. The lighter areas on the Moon are highlands.

## How long is the Moon's revolution?

The Moon takes just over 27 Earth days to *rotate* (rotate means spin around) once.

## How long is a year on the moon?

The Moon also takes just over 27 days to *orbit* (move around) the Earth. This is why we always see the same side of the Moon when we look from the Earth. We call this side the *near side*. The other side we call the *far side*. In 1959 a probe sent back pictures of the far side. That was the first time anyone saw what it looked like.

## What is the moon made of?

The surface of the Moon is made of rocks and dust. The outer layer of the Moon is called the *crust*. The crust is about 70 km thick on the near side and 100 km thick on the far side. It is thinner under the maria and thicker under the highlands. There may be more maria on the near side because the crust is thinner. It was easier for lava to rise up to the surface.

We think the Moon has a small *core* (centre) about 300 km across. The core is composed of solid iron. Because the core is solid, the moon does not have its own magnetic field.

## How much would the moon's gravity pull on me?

If you were on the Moon, it would pull you down about a sixth as much as the Earth does, so you'd weigh a sixth as much. So would anything else. That's why it was much easier for the astronauts visiting the Moon to pick up rocks there.

## Who is the moon named after?

*The goddess Diane, the goddess of the Moon in Roman mythology*

The names *Moon* and *month* both come from the ancient Greek name for the Moon, *Mene*. There have been other names for the Moon, like *Selene* and *Luna*. *Selene* was the Greek goddess of the Moon. *Luna* was the Roman goddess of the Moon. The Roman people also associated their goddess *Diana* with the Moon.



## Parent/Teacher Discussion Ideas

Why are the maria concentrated on the near side?

Why is the Moon's centre of mass off centre?  
Because of the tidal lock with the Earth?

Now that we've found water on the Moon, what are we going to do with it?

Only twelve men have ever walked on the surface of the Moon. Who will be the 13th?  
Who will be the first woman?



# Fact Sheet

# Earth's Moon

## Orbit

Mean distance from Earth: 238,328 miles

## Orbital Period & Length of Day

27.32 Earth days

## Tilt of Rotation Axis

6.7 degrees, versus 23.5 degrees for Earth

## Size

*Diameter:* 0.27 of Earth's diameter

## Surface Gravity

0.17 of Earth's gravity

If you weigh 80 pounds on Earth, you would only weigh about 14 pounds on the Moon!

## Mass

0.01 of Earth's mass

## Surface Temperature

*Mean temperature:* -4 degrees Fahrenheit

*Temperature extremes:* 225 degrees Fahrenheit to -243 degrees Fahrenheit

## Atmosphere

None

## Surface

Heavily cratered

Basaltic and anorthositic

## Significant Dates

**1610** Galileo makes the first telescopic observations of the Moon

**1959-60** Luna 1-3 (U.S.S.R.) were the first craft to fly by, impact, and photograph the far side of the Moon

**1964** Ranger 7 data indicated that the lunar surface would be suitable for a piloted landing

**1966** Soviet Luna 9 made the first soft landing on the Moon

**1966-67** Lunar Orbiters photographically mapped the Moon

**1968** Apollo 8, first piloted flight to the Moon, circled 10 times before returning to Earth

**1969** Apollo 11, first human landing on the Moon, returned rock and soil samples

**1970** Luna 16 was the first of 3 Soviet missions to use a robotic rover to return lunar soil samples.

**1972** Apollo 17 was the last of 6 Apollo missions to land astronauts and return samples from the Moon

**1994** Clementine conducted multispectral mapping and measured elevations on the Moon

**1998** Lunar Prospector made a geochemical map of the Moon and discovered ice at both poles



USGS/AS&A PL00-023

Every civilization has had a name for the satellite of Earth that is known, in English, as the Moon. The Moon is known as Luna in Italian, Latin, and Spanish, as Lune in French, as Mond in German, and as Selene in Greek.

7/21/2004

# Student Activity ~ Moon

**Describe the Moon.**

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**How big is it?**

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**What is its surface like?**

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**Why is there no life on The Moon?**

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**How long is the Moon's revolution?**

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**How long is a year on this planet?**

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**What is the moon made of?**

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