

The Moon

Overview

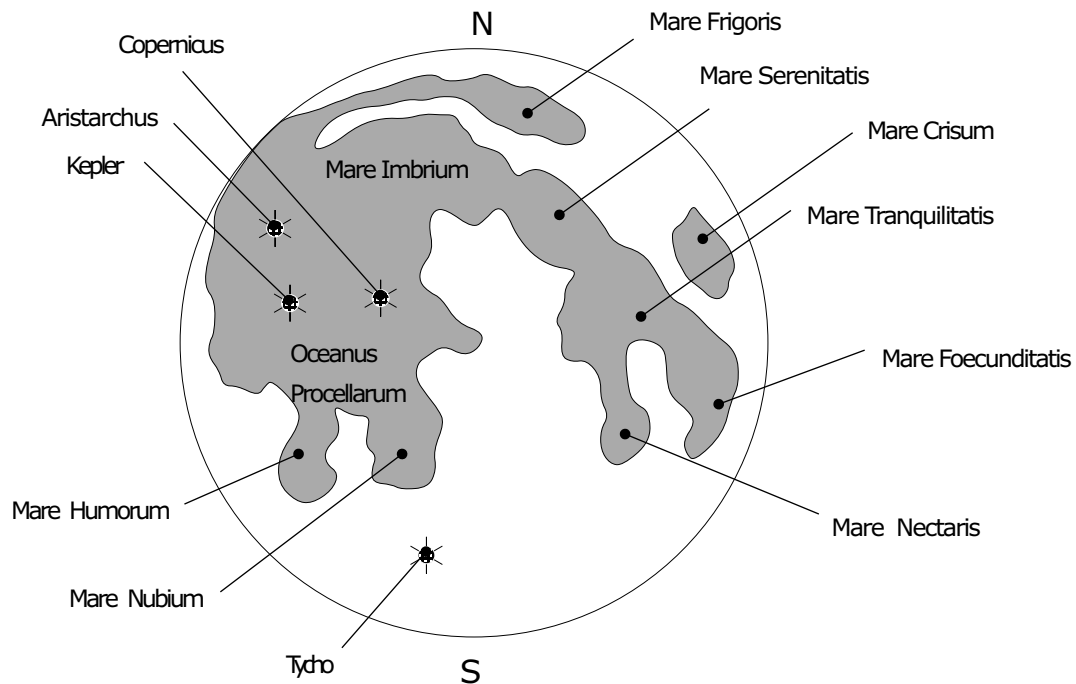
The Moon is the Earth's only natural satellite. It orbits at an average distance of 384,000 km from Earth and takes 27.5 days to complete one orbit.

The Moon rotates on its axis just like Earth. However, Earth spins much more rapidly than the Moon. The Earth takes 24 hours to rotate once, whereas the Moon takes 27.5 days to rotate once. Lunar days and nights each last just over 14 days (2 weeks) each.

The Moon is solid, like the Earth. It is made mainly of rock and has a small core of iron.

Surface

Seen from the Earth, the Moon's most obvious feature is that it has light and dark regions. Through a telescope we can see that the light regions are covered in craters, and that the dark ones have few craters.



When astronomers first used telescopes to look at the Moon, at the beginning of the 17th century, they thought that the dark regions might be seas, and called them *maria*, latin for 'sea'. We now know that there is no water on the Moon, but these dark areas are still called 'maria' or 'seas'. They are in fact plains of lava. The heavily cratered areas, which have a lighter colour than the *maria*, are called *terrae*, Latin for land.

Until recently, astronomers were not sure what had caused the Moon's craters. Since the Apollo missions, during which a total of 12 astronauts visited the Moon's surface, they now know that these have been created by objects colliding with the Moon.

The first Moon landing was Apollo 11 which landed in the sea of Tranquillity on 20th July, 1969.

The surface of the Moon is covered in impact craters. An impact crater is created when a large fast moving rock collides with the surface. Some of these objects were very large (several kilometres across), and the resulting craters are tens of kilometres wide. Large objects are called asteroids, smaller ones are called meteoroids.

Meteoroids are constantly bombarding the Moon, and are gradually pulverising the rocks on its surface. As a result, most of the surface is littered with fragments of rock and dust. This layer of smashed rock is called *regolith*.

In addition to impact craters, there are a few large lava plains which were formed when lava erupted to fill the largest impact craters.

Surface Conditions

The Moon has no atmosphere and no water. There is no weather on the Moon.

Without an atmosphere to scatter sunlight, the sky is permanently dark, even during the lunar day. Lack of atmosphere also means that the surface temperature varies hugely from +100°C in daylight to -170°C on the night side.

Origin

The Earth & Moon were created at the same time about 4,500,000,000 years ago when two large planets collided together.

We know this from the rocks brought back from the Moon by the Apollo astronauts. These rocks have a similar composition and age as some rocks found on Earth.

Moon questions

1 What is the Moon mostly made from? _____ [1]

2 Describe the Moon's surface.

_____ [2]

3 Does the Moon have an atmosphere? _____ [1]

4 Is there any liquid water on the Moon? _____ [1]

5 How long does a lunar day last? _____ [1]

6 How long does it take the Moon to make one orbit of Earth _____ [1]

7 What is the approximate size of the Moon compared to Earth

_____ [1]

8 How far from the Earth is the Moon? _____ [1]

9 What made the craters on the Moon?

_____ [2]

10 What are the highest and the lowest temperature on the Moon?

Highest temperature _____ [1] Lowest temperature _____ [1]

11 How much would you weigh on the Moon compared to what you weigh on Earth?

_____ [2]

12 Why have you got to wear a space suit to walk on the Moon?

_____ [2]

13 When did the first men land on the Moon? _____ [1]

14 What does the sky look like from the surface of the Moon?

_____ [1]

15 Astronauts who walked on the Moon found that their space suits quickly became coated in dust. Why is this?

_____ [1]

16 Is the Farside of the Moon permanently dark? Explain.

_____ [2]

Two useful sites for information about the Moon

<http://www.seds.org/billa/tnp/>

<http://www.windows.ucar.edu/>