

THE MOON

Last month we talked about the Moon and its phases. We also considered the part of the sky and time of day that the phases will be seen. I will now give you the dates of the phases for February so you can continue to follow the Moon in its monthly cycle.

On the 2nd of February the Moon will be at first quarter in the southern part of the sky at sunset. It will be full on the 9th of the month when it will be in the eastern part of the sky, rising around sunset. It will be at last quarter on 15th of the month rising a little after midnight. New Moon will be on February 23rd.

This month I want to look at the features to be found on the first half of the Moon, that part which is illuminated at first quarter. Notice that the terminator (the line between the illuminated and non-illuminated half of the Moon) is, at first quarter, straight. The terminator only appears as a straight line at first and last quarter. At all other times the terminator line is curved. This is because the Moon is a sphere and the terminator follows the curve of the sphere. If you observe the moon regularly you will see the terminator change as the days pass.

When looking at the Moon, notice that some of the surface is light coloured and some is dark.

The Moon is thought to have been created when a body the size of Mars gave the Earth a glancing blow. Part of the body and part of the early Earth were knocked off and eventually came together to form the Moon. As the rock was molten heavier rock tended to sink while lighter rock (both in colour and texture) floated to the surface. As the surface of the Moon began to cool there came a stage when there were two layers. An outer, light coloured crust with hot, semi-liquid, dark coloured rock beneath it. During the time when this state of affairs persisted, a series of asteroids collided with the young Moon causing depressions in the crust. Over time the still molten rock beneath the crust seeped up into the depressions filling them with dark coloured material which then solidified. The dark patches that you see on the Moon are the result.

Before the invention of the telescope people noted the patterns of light and dark on the Moon and, based on their experiences on Earth, assumed that the dark patches were seas and gave them names. The most famous depression is The Sea of Tranquility where the first man set foot on the moon.

With a pair of binoculars look carefully at the right-hand side of the Moon, the part illuminated at first quarter. You will see a dark shape that looks like a lobster's claw. This is composed of four flooded impact basins. The top one is the Sea of Serenity, below this is the Sea of Tranquillity.

Joined to the southern edge of the Sea of Tranquillity are two seas which represent the lobster's pincers. The right hand pincer is the Sea of Plenty while the left hand one is the Sea of Nectar..

To the right of the claw, level with the Sea of Tranquillity, is a Sea unconnected with any other. This is the Sea of Crisis. This Sea is interesting as, from Earth it looks as if the Sea is longer north to south than it is east to west. This is an illusion produced by the curvature of the Moon. The Sea is, in reality, longer east to west.

THE CONSTELLATION OF THE MONTH

Let's move onto exploring the constellation of the month, Gemini The Twins.

This is a zodiac constellation and so lies on the ecliptic, the apparent path of the Sun on its annual trip round our sky.

The constellation lies north of Orion. The twins, Castor and Pollux, are some distance from Orion but their feet lie close to the top left-hand boundary of the constellation of Orion.

The constellation of Gemini is a long narrow rectangle with Castor and Pollux at one end and with gamma Gemini marking the foot of Pollux and mu Gemini marking the foot of Castor.

In Greek mythology Castor and Pollux are the sons of Queen Leda of Sparta. The boys had different fathers. Castor was the son of Leda's husband, King Tyndareus, while Pollux was the son of Zeus who visited Leda in the guise of a swan.

Castor and Pollux were among the crew of the Argonauts who went with Jason in search of the Golden Fleece. Seafarers regarded Castor and Pollux as patron saints and called on them in times of danger.

Castor and Pollux appear to be close together in the sky but, in reality, they are not. Castor is at a distance of 45 light years while Pollux is 36 light years away.

Castor is a complex star. It is actually six stars all gravitationally linked. A small telescope at high magnification will show Castor to be a pair of blue white stars. A fainter red dwarf is gravitationally linked. Each of the three stars mentioned is actually double, making six in all.

Gemini contains a Messier object. M35 is an open cluster situated near Castor's foot. It can be found at Right Ascension 6 hours 8 minutes 57 seconds. Declination 24 degrees 19 arc minutes 58 arc seconds.

Gemini also contains the famous planetary nebula the Eskimo, so called because, through a telescope it resembles a face within a fur hood. It is said to be one of the youngest planetary nebulae in the sky. It is to be found at Right Ascension 7 hours 29 minutes 15 seconds. Declination 20 degrees 54 arc minutes 53 arc seconds.

That is all for this month but just to summarise your challenges:

look at the Moon through binoculars and notice the difference between the light and the dark areas;

find the lobster's claw; identify 5 seas namely Serenity, Tranquility, Plenty, Nectar and Crisis.

Your constellation challenge is to find Gemini and identify Castor and Pollux.

Using a telescope split Castor into its two main components, find the Eskimo and the open cluster M35.

Good Luck and Clear Skies.