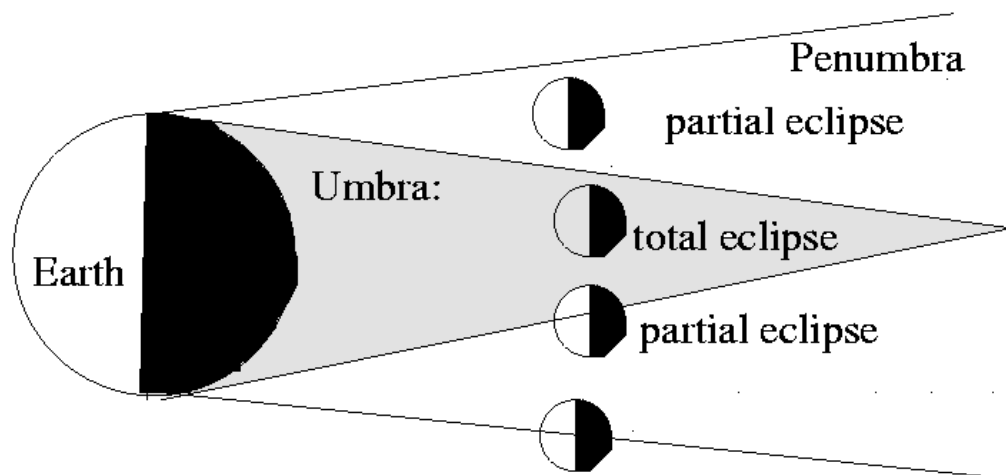


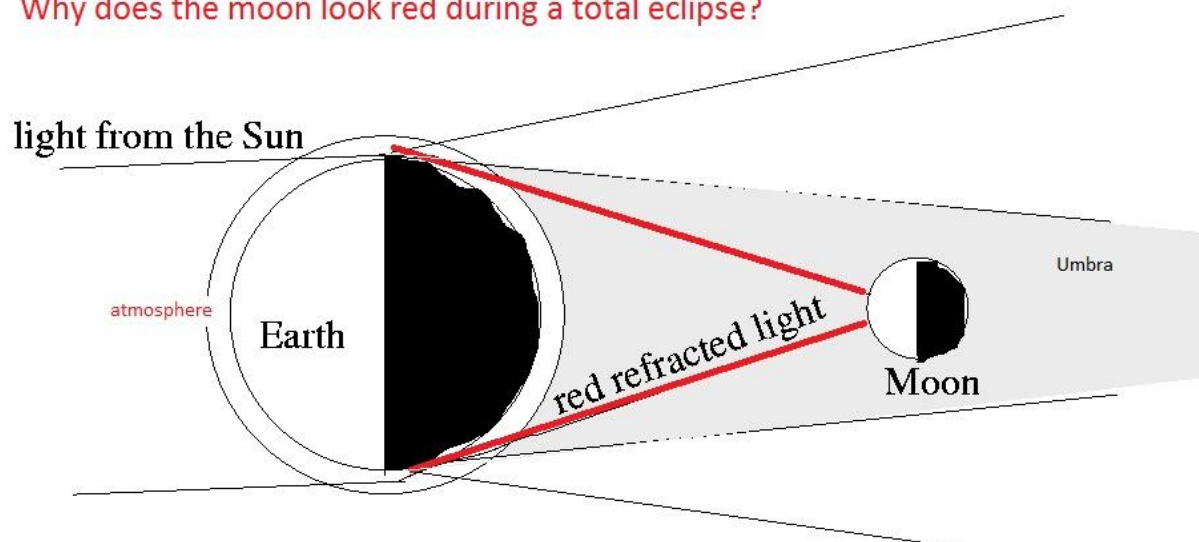
## The lunar eclipse of 31<sup>st</sup> January 2018

The lunar eclipses occur when the moon moves into the shadow of the earth.



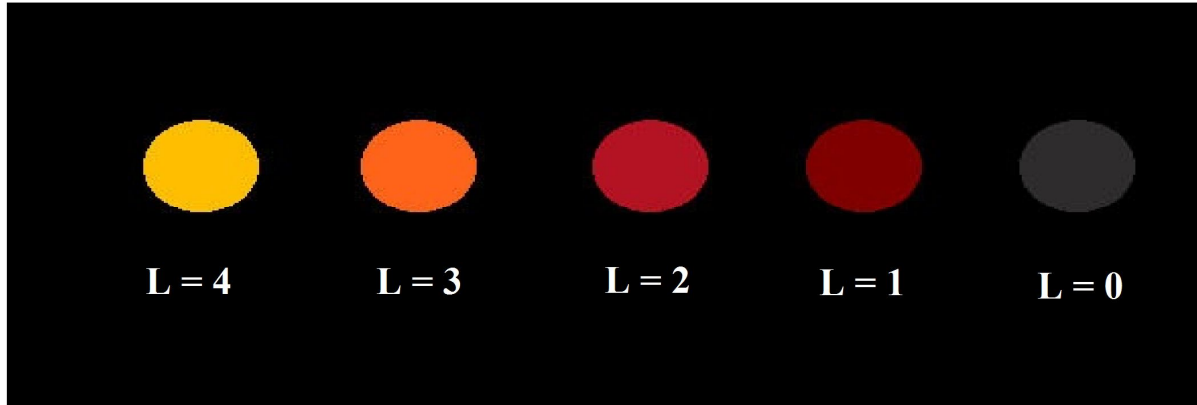
The moon can be orange, brown or simply dark and completely invisible.

**Why does the moon look red during a total eclipse?**

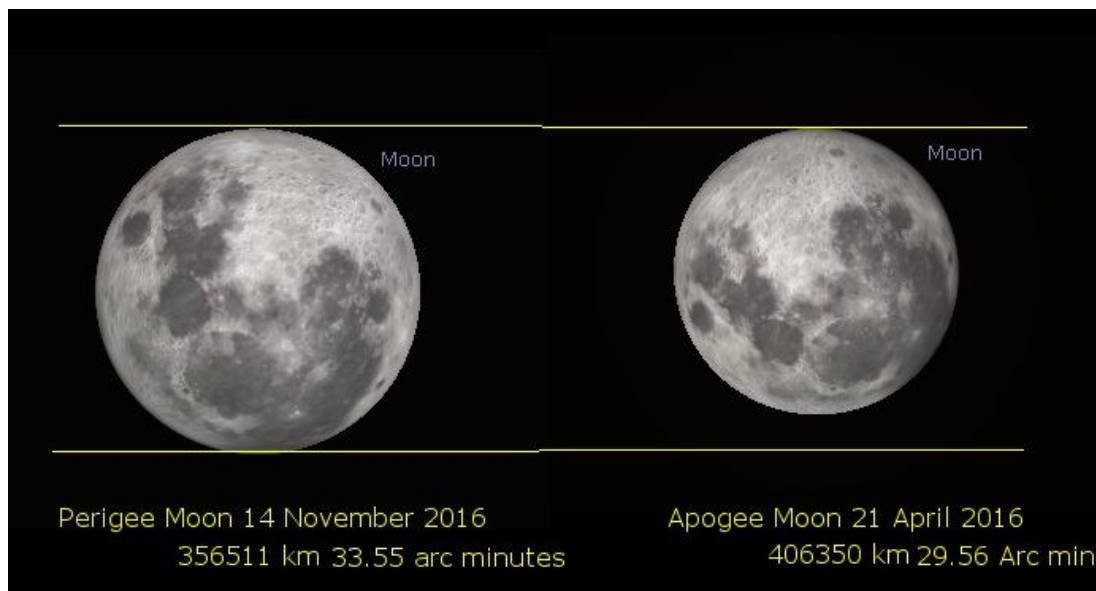


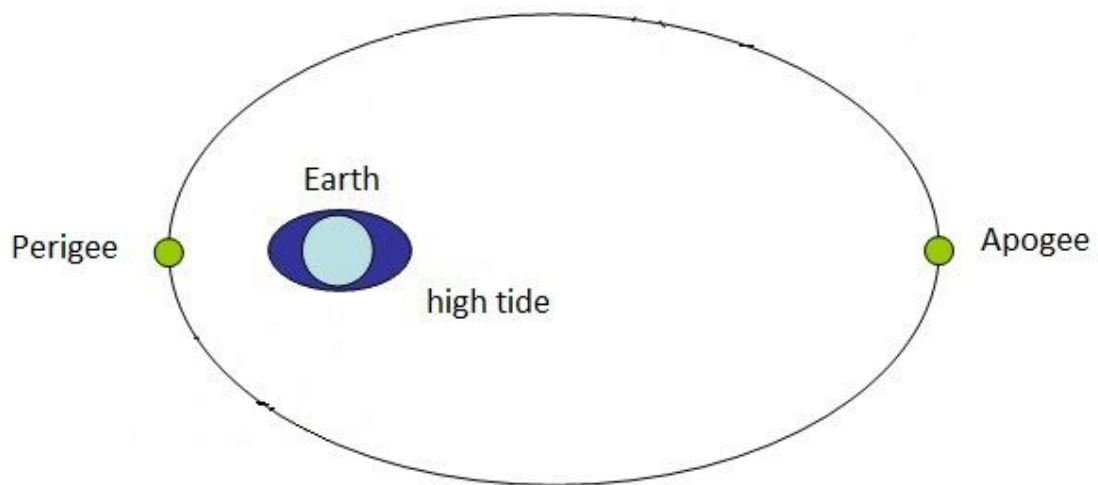
The colour of the eclipsed moon is measured in Danjon scale devised by the French astronomer Andre Danjon. The darkest is numbered zero and the brightest as 4.

Normally, the fully eclipsed moon appears reddish. This is due to the sunlight scattered by the particles in the earth's atmosphere falling on the moon. Most of the other colours are scattered away and red is scattered the least. Hence it illuminates the moon. The size and number of particles in the atmosphere affect the colour of the fully eclipsed moon.



The word "supermoon" is of a recent origin. It was coined to attract the attention of the otherwise reluctant readers. As a consequence of the (varying distance from earth due to the) elliptical orbit of the moon, it appears larger on a specific day of the month and smaller approximately 15 days later. When this day of proximity (called the perigee) of the moon happens to be a full moon quite naturally it has to appear larger than the usual size. This variation in its apparent size is not perceptible to naked eye.





Let us look at the distances of the two previous full moons. We will recall that full moon is an *instant* – not a day. Let us also check how far apart the perigee and full moon instants were. On January 3<sup>rd</sup> the moon was closest to earth at a distance of 356566km just four and a hour hours earlier to full moon. On December 3<sup>rd</sup>, 2017, it was 360064km; the full moon occurred 17 hours before the perigee. On January 31<sup>st</sup> the full moon, which was also declared as “supermoon”, occurs after 27 hours after the moon has passed closest to earth at 359000km. For records, one may write that there were three successive “supermoons” because these differences of a few thousands in 3,84,000km hardly matters.

The eclipse of 31st January is considered special since it is happening when the moon is close to the perigee; for us in India, it is visible at moon rise, in the comfort zone of almost everyone. The second eclipse of the year is later in July. It happens just 2 hours after the moon has passed the farthest point called apogee. Therefore that full moon will be the smallest. The word “micro” has been coined just recently for this.

If there are two full moons in a month, the second one is called as a “Blue moon”. However the moon does not appear blue.

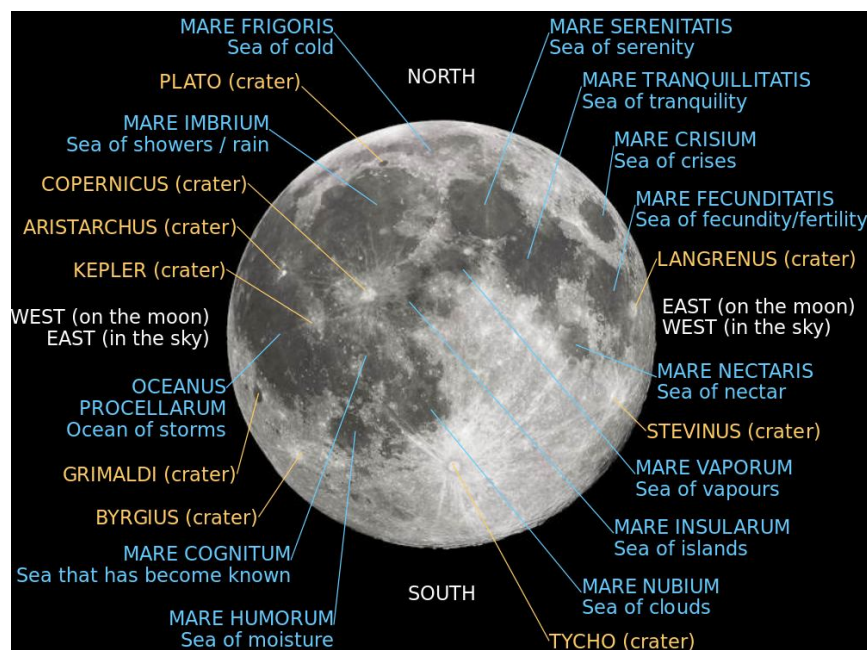
The eclipse at moon rise is something enjoyable - evening, a cool moon rise and a guaranteed weather to watch - these are all the plus points.

All you need to do is just occupy a place which provides the best visibility of moon rise. Observing the rise of an eclipsed moon should be a good experience. The colour of the moon may be orange, brown or copper - let us wait and see. Telescope or binoculars are not essential. In case you have them search for a faint star cluster very close to the moon. Just watch and enjoy - you can have snacks too!!

The eclipse would have started at 4:20pm itself. So you will be watching the moon at the midpoint of the eclipse when it is in the umbra - the darker shadow region.

Gradually you can see the edge getting brighter. By 9:40pm the full moon is clearly visible. The star cluster that you had seen earlier is not visible any more.

Remember to take a picture. Take a sequence from moon rise onwards. You will see that the size of the moon is the same in all images. You have disproved the myth that moon "looks" big at the horizon and then it gets smaller as did the famous astrophotographer David Malin



Identifying the craters on the full moon night may be a bit difficult during normal times due to the brightness of the Moon's disc. Eclipsed Moon is less bright. Try identifying them.

Wishing clear skies!

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