

CELESTIAL MARIPOSA

# A big month for the Moon

By MANNY LEINZ

If you are someone who even occasionally turns your gaze skyward, you have of course seen the Moon, hanging like a bright white beacon in the sky.

But have you ever seen a red Moon? Sometimes, when the Moon is low on the horizon, the Moon may redden for the same reason that we see an orange or red Sun at sunset — our atmosphere. But on March 3, we will see a much more dramatic dimming and reddening with the Moon high in the sky — a total lunar eclipse, sometimes called a “Blood Moon.”

We here on the West Coast are perfectly positioned to see the entire event, which won't happen again until 2029. But what actually causes this phenomenon, and eclipses in general, and how can you best experience this event for yourself? For the answers to these questions and more, you need only read on!



Manny Leinz

### Celestial geometry

The Moon, of course, has no light source of its own; we only see it shining brightly by reflected light from the Sun. Simply stated, a lunar eclipse happens when the Sun, Earth and Moon are precisely aligned.

It is then that the full Moon is immersed in the shadow of the Earth. But the Moon orbits the Earth about once a month, so why don't we see a lunar eclipse on every full Moon?

The reason is that the Moon's orbit is inclined — tilted — by about five degrees to the Earth's orbit around the Sun. So usually, the Moon flies either above or below Earth's shadow. An eclipse happens when the path of the Moon crosses the ecliptic — the plane of the Earth's orbit around the Sun — and the three celestial bodies align.

The Moon dims dramatically during an eclipse, but why does it turn red? The only light that reaches the Moon during an eclipse comes through Earth's atmosphere. As is the case during sunrise and sunset, light from the Sun is filtered and scattered, with red light bent, or refracted, but passing through more directly, and blue light scattered away in all directions.

So, during an eclipse, the light you see on the Moon is literally the combination of all the Earth's sunrises and sunsets happening at that moment.

Not all lunar eclipses are blood red, however. It depends on how closely the Moon passes through the center of Earth's shadow, and interestingly, it also depends on the weather on Earth.

Clear skies around our planet will cause the Moon to look brighter, more copper colored, while clouds, high humidity and volcanic ash will make the Moon look darker and more brown or gray.

In this month's eclipse, the Moon will pass off-center through Earth's shadow, so it will look brighter along one edge. As far as what color the rest of the Moon will be, go out and see for yourself.

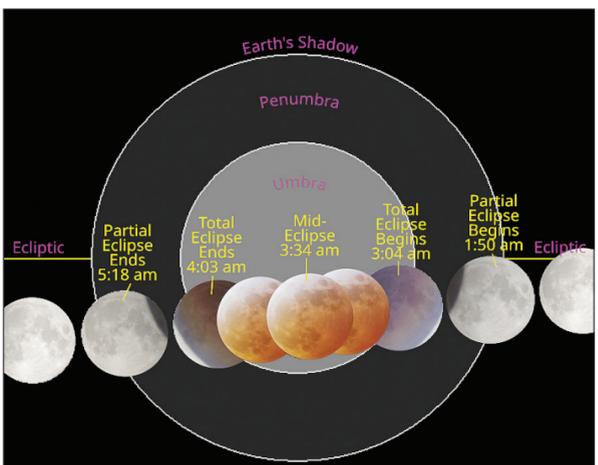
### Seeing is believing

In order to enjoy this eclipse, you need to be willing to give up on some sleep. The Moon will begin to dim slightly around 1 a.m. on March 3 as it moves into Earth's penumbra, the lighter outer part of Earth's shadow where the Sun's light is only partially blocked.

At 1:50 a.m., the Moon enters Earth's umbra, the deepest shadow where the Sun's light is almost completely blotted out. It's at this time that you'll see the first “bite” out of the Moon as the eclipse begins.

The total eclipse phase — the Moon completely immersed in the umbra — starts at 3:04 a.m. and lasts about half an hour. The show is over by 5:18 as the partial eclipse ends with the Moon sinking in the western sky.

Thankfully, no special equipment is needed to enjoy the lunar eclipse, and you need to travel no further than your backyard. Bring a lawn chair, warm blanket, maybe some hot chocolate and get comfortable.



Watch the Moon pass through Earth's shadow very early in the morning of March 3.

Binoculars are helpful to see more detail on the Moon's surface, but your eyes are really all you need to enjoy the show. As the eclipse progresses, you'll see Earth's shadow slowly march across the Moon's surface. Its subtle red color becomes easier to see, as the overpowering light of the Sun decreases.

Look around as the sky darkens and more stars begin to appear. The red giant star Arcturus will be almost directly overhead, with blue-white Regulus to the lower right of the Moon.

One more thing to look for: if you observe the bright edge of the Moon just before or after totality, sometimes you can see a blue band due to sunlight passing through the high ozone layer of Earth's stratosphere. Unlike the lower atmosphere, the ozone absorbs red light and allows blue to pass through.

### But I want a picture!

If you're like me, and you want to capture a memory of the eclipse, there are a few things to consider. The Moon will be dim against the dark sky background and this is going to fool your camera's built-in automatic settings, causing the image to be overexposed; the Moon looks white with all of the details washed out.

If you're using a smartphone, make sure the flash is off, zoom in and enable the camera's advanced features so that you can control the exposure manually. Decrease the exposure — often a Sun icon on a slider — until you can see details on the lunar surface.

If you have an SLR or mirrorless camera with or without a zoom lens, and some experience, you'll get much better results. Zoom the lens in as much as possible, and put the camera into manual mode, so that you can individually control ISO, aperture and shutter speed. Use manual focus set at infinity — auto focus will probably fail under the dim light of the eclipsed Moon.

As a starting point set ISO to 800-3200, aperture to f/4-f/5.6 and shutter speed to 1/2-2 seconds. Any longer than a second or two will start to smear the image due to the Moon's motion across the sky.

Take multiple exposures and adjust settings until you get a good balance of light and shadows. If you are considering using software to process the image later, shoot in RAW mode, if your camera has it, rather than JPEG. This will better preserve the finer details.

Whatever camera you use, a tripod is essential. It's not possible to hold the camera steady enough to avoid shaking during the long exposures you'll be using.

Finally, use the built-in self-timer on your phone or SLR to avoid shaking the camera when you click the shutter. Good luck and feel free to send me your results if you get a picture.

### The other eclipse

Lunar eclipses are a wonderful sight to behold, and a great way to get in touch with the rhythm of the natural world. No discussion of eclipses would be complete, however, without mentioning what is arguably one of the most awe-inspiring spectacles in nature: a total solar eclipse.

Just as in a lunar eclipse, shadows are at work during a solar eclipse, except that here it is the Moon's shadow that blocks the Earth. The Moon, however, is much smaller than the Earth, and so presents a much smaller shadow. Total solar eclipses, as a result, are seen only over a very narrow path — typically only around 100 miles — so you'll need to travel to see one. The experience is not one that will be soon forgotten.

During a total solar eclipse, for a period of a few seconds to several minutes, the daytime sky darkens to deep twilight, stars and planets appear, the temperature drops and animals begin their nighttime routines.

The Sun is replaced by an inky black dot — as if someone had punched a hole in the sky. That blackness is surrounded by the bright strands of the solar corona and brilliant red prominences — energized gas leaping off the surface.

Having personally seen four eclipses, I can say that it is something everyone should try to experience at least once in their lifetime. The next total solar eclipse will be on Aug. 12 of this year, but you'll need to travel to Iceland or Spain to see it.

On average, a total solar eclipse happens somewhere in the world about every 18 months. However, if you're planning to stand in the Moon's shadow here in the United States, you'll be waiting another 19 years, until Aug. 12, 2045.

Celestial Highlights for March, 2026		
Mar 3		Don't miss the <b>Total Lunar Eclipse</b> early this morning! The Earth's shadow begins to cover the Moon — a partial eclipse — at 1:50 a.m., with 'totality' lasting about an hour from 3:04 a.m. until 4:03 a.m. The partial eclipse ends at 5:18 a.m., less than an hour before sunrise at 6:28 a.m. (see text for more info).
Mar 8		Daylight Savings Time begins today. At 2 a.m. we "spring forward" one hour to 3 a.m. — and lose an hour of sleep.
Mar 11		The <b>Last Quarter Moon</b> rises in the Constellation <i>Ophiuchus</i> at 2:40 a.m., is highest in the sky — transit — at 7:11 a.m., and sets at 11:42 a.m..
Mar 18		Our <b>Milky Way Galaxy</b> is easiest to see around this date of the <b>New Moon</b> . Catch <b>Venus</b> very low to the west about half an hour after sunset. It will be fully dark by 8:37 p.m. Bright <b>Jupiter</b> will be visible high in the southwest as soon as it is dark, and can be seen until well after midnight in the constellation <i>Gemini</i> .
Mar 20		Today at 7:46 a.m. is the vernal equinox. Day and night are approximately equal, and Spring begins here in the northern hemisphere. Half an hour after sunset, look low to the west to see the sliver of the two-day old crescent <b>Moon</b> hanging above <b>Venus</b> .
Mar 25		The <b>First Quarter Moon</b> rises in the constellation <i>Gemini</i> at 11:32 a.m., transits at 7:27 p.m., and sets at 2:22 a.m. on the 26th. <b>Jupiter</b> closely trails the Moon high in the southeast at sunset and will be visible most of the night in the constellation <i>Gemini</i> . <b>Venus</b> is low to the west after sunset, but getting a bit higher every night.

### What's else is up this month?

On March 8, about half an hour after sunset, look very low to the west to see Venus, separated from Saturn by less than a degree — about the distance of your pinky extended at arm's length.

Binoculars will help in locating much dimmer Saturn. On the following nights, the separation will increase, with Saturn dropping lower, while Venus rises higher.

The King of Planets, Jupiter, still rules the night sky all month. See it blazing brightly, high up in the constellation of Gemini, as soon as it gets dark in the evening. Use binoculars to see Jupiter's four large Moons.

The Moon makes a spectacle this month beyond the total eclipse on March 3. On the morning of March 2, look low to the west to see the bright star Regulus trailing the Moon by less than 2 degrees as they sink toward the horizon before dawn.

On March 10, the Moon will be 1-1/2 degrees below and to the right of the red supergiant star, Antares. Perhaps the most impressive sight, outside of the eclipse, will be at dusk on March 20, when the razor-thin crescent Moon will be below and to the left of brilliant Venus in the western sky.

I hope this article inspires you to get out and see this month's lunar eclipse, and explore other wonders of the night sky.

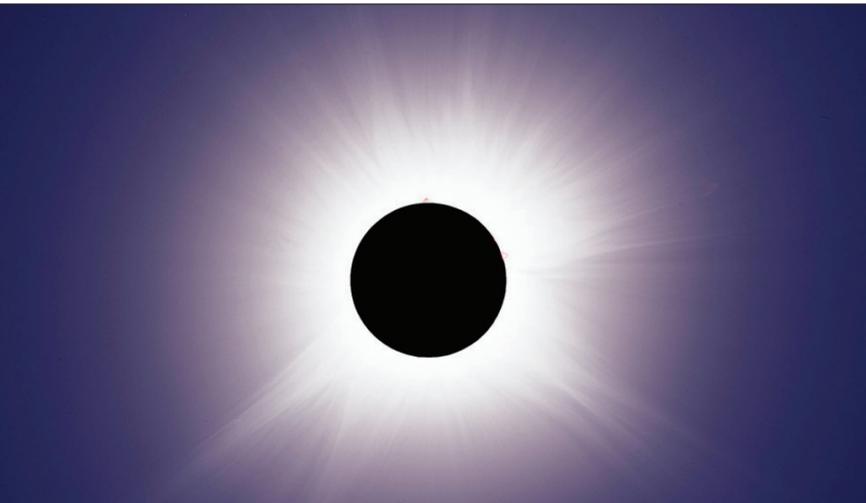
If you would like to get a chart to help you find planets, stars, and other celestial sights checkout <https://skyandtelescope.org/interactive-sky-chart/> or <https://theskylive.com/> for starters.

There are also some great free smartphone apps, including Stellarium, SkySafari and SkyView.

As always, if you have questions, comments or suggestions for future articles, you can get in touch with me by email at: [celestialdeep5@gmail.com](mailto:celestialdeep5@gmail.com).

You can find pictures and videos of my solar eclipse adventures as well as my prior *Gazette* articles on my website at <https://celestialdeep.space/>

*Manny Leinz is a long-time amateur astronomer and night sky photographer. He and his wife live part time in Bootjack where they also have an observatory.*



The author took this picture of the April 8, 2024, total solar eclipse from Pencil Bluff, Ark.



The author took this picture of the March 13, 2025, total lunar eclipse with a Canon EOS R camera.

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