

CELESTIAL MARIPOSA

Discover the wonders of the night sky

By MANNY LEINZ

If you’ve ever been curious about the night sky, and want to know more about all those brilliant points of light that we can see from the dark skies of Mariposa, then this series of articles is for you.

Here you will find tips on how to get started, increase your knowledge and understanding of what’s up there and hopefully have some fun along the way. Plus, each article will provide a calendar of the key celestial events for the month as well as a star chart to get you acquainted with the night sky.

Getting started
Probably the biggest misconception people have when it comes to astronomy is that you need a telescope to get started. Nothing could be further from the truth! In fact, getting a telescope too early may actually hinder you from developing an appreciation for the night sky, and that shiny new telescope may just gather dust in the closet.

It is far better to start with the fundamentals. Get the big picture first. The best way to do that is to use the two telescopes you were born with — your eyes. You will be amazed what you can see with a little patience, and a dark sky. We are blessed here in Mariposa with an abundance of dark skies and many clear nights. The key is to choose a time when the Moon is down, and a place away from bright lights — or any lights at all, if that’s possible. For the best experience, bring a lawn chair, a blanket and bug spray, as appropriate. If you have a pair of binoculars, bring them as well. Turn off your flashlight, put your phone away and let your eyes adapt to the dark. This takes time: allow a minimum of 20 minutes, 45 minutes is ideal. On a moonless night — late July is ideal — you should be able to see the smoky arc of our Milky Way Galaxy stretching from horizon to horizon. That “smoke” is actually made up of the combined light of thousands of individual stars. If you’ve brought along some binoculars, follow along the path of the Milky Way to see brilliant clusters of stars.

Monthly star chart
When you visit a new town, you want to get to know the place, learn the lay of the land. A map — paper or digital — can be a big help in finding points of interest; so too it is with the night sky. A star chart will help you get to know your way around the night sky, introduce you to the constellations and make finding the planets and other celestial sights easier. Accompanying this column is a star chart to help identify objects in the night sky.

To read the chart, face north and turn the page so that the red “N” is toward you. The chart shows what the sky looks like around 10 p.m. in early July. As the night progresses, objects in the sky move to the west due to the Earth’s rotation. Objects in the sky also move west as the month progresses, with the Milky Way being nearly overhead at 10 p.m. on July 31. If you go out early in the evening, look to the west (left) and you will see the rusty glow of the planet Mars shining low on the horizon in the constellation of Leo the Lion. If you have the dedication to sometimes get up early or stay out late, July provides the opportunity to see five planets: Mercury, Venus, Mars, Jupiter and Saturn during the course of the month. If you would like to print out your own custom star chart, you will find easy to follow instructions here: <https://skyandtelescope.org/how-to-use-sky-telescope-star-chart/>. If you would rather have a chart on your phone, checkout Stellarium® or SkyView®; both are available for free for either Android or iPhone. Our Milky Way Galaxy is easiest to see around this date of the New Moon. Go someplace away from bright lights and allow your eyes to adapt to the dark for at least 30 minutes. The Milky Way will stretch in a high arc from horizon to horizon!

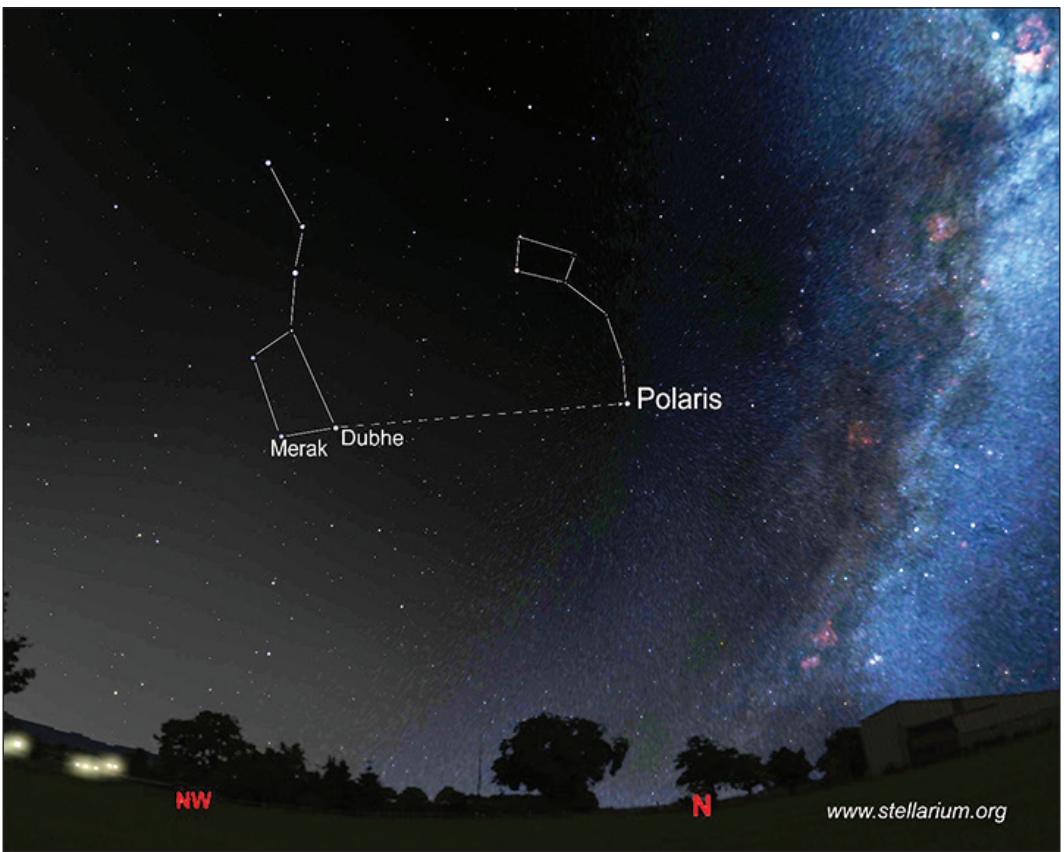
Which way is north?
Finding north during the daytime is fairly easy these days. Most of our cars have a compass and there are apps for your phone that will help you find your way also. But how do you orient yourself at night without a compass or an app? Here in the northern hemisphere, we have a convenient guidepost: the North Star, aka Polaris. The Earth’s axis of rotation passes very close to Polaris, and so it always remains nearly stationary, and the entire sky appears to rotate around it. But how do you find Polaris? The answer lies in the seven bright stars that make up the familiar asterism — or star group — we call “The Big Dipper,” which forms part of the constellation Ursa Major, the Great Bear. During early evening in the summer, the Big Dipper’s handle points nearly straight up, and the two lowest stars, Merak and Dubhe, point in the direction of Polaris. If you’re someplace dark, you can confirm that you’ve found Polaris by tracing out the pattern of the Little Dipper; Polaris marks the end of the dipper’s handle. **Fun fact:** Did you know that Polaris is not the brightest star in the sky? In fact, not counting the Sun, it is only the 47th brightest.

Do you have questions, comments or suggestions for future articles? You can reach me by email at: celestialdeep55@gmail.com, or visit 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.

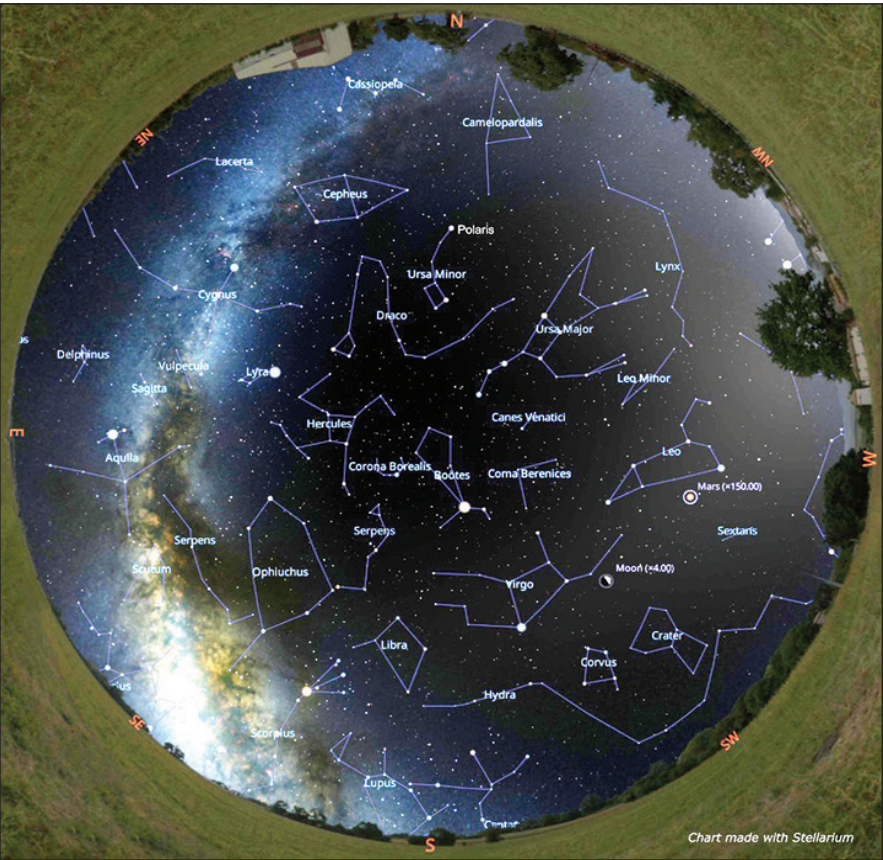


The Earth rotates about Polaris over a period of 2.5 hours as a meteor flashes over our observatory on Aug. 12, 2018.



How to find Polaris in the night sky is shown.

July 1-15		Look for <u>Mars</u> in the constellation Leo just after dark in the first half of July. It looks like a star - the brightest point of light in the western sky, and will appear slightly orange in color. Mars will gradually get lower to the horizon as the month progresses.
July 2		The <u>First Quarter Moon</u> rises in the constellation Virgo at 1:14 PM – you can see it in the daytime! - and sets at 12:45 AM on July 3 rd .
July 4		To see the planet <u>Mercury</u> look very low to the west 30 minutes after sunset. Binoculars may help. Mars will also be visible, above and to the left of Mercury. Both will look like stars.
July 10		The <u>Moon</u> is opposite the Sun in the sky, and so is fully illuminated – a Full Moon. It rises at 8:06 PM and sets at 4:16 AM on July 11 th , and so will be in visible all night in the constellation Sagittarius
July 15-31		Look for <u>Saturn</u> as point of light low in the eastern sky after midnight. It will move higher as the month progresses. You will find it near the Moon on July 16 th .
July 17		The <u>Last Quarter Moon</u> rises in the constellation Pisces at 11:47 PM on July 16 th . It reaches its highest point in the sky (transit) at 6:24 AM on July 17 th and sets at 1:13 PM.
July 21		Look for <u>Venus</u> , appearing like a brilliant star low in the eastern sky a couple of hours before sunrise all month. It will be near the crescent Moon on July 21 st .
July 23		<u>Jupiter</u> will join the sliver of a crescent Moon very low to the east-northeast 45 minutes before sunrise. Binoculars will be helpful to see both.
July 24		Our <u>Milky Way</u> Galaxy is easiest to see around this date of the <u>New Moon</u> . Go someplace away from bright lights and allow your eyes to adapt to the dark for at least 30 minutes. The Milky way will stretch in a high arc from horizon to horizon!



Above, this graphic shows the July 2025 highlights in the night sky. Shown at left is the Mariposa night sky in July 2025.

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