VILLAGES STAR

Newsletter of The Villages Astronomy Club

Volume 7, Number 1
January 2026

Club Website:
http://vlgastroclub.org/

Facebook:
https://www.facebook.com/groups/vlgastroclub/

UPCOMING EVENTS

Executive Directors' Meeting, Jan 2nd, 11am-12pm, Fishhawk Rec Center, 2318 Buttonwood Run

All members welcome to our monthly planning meeting. This month we'll be planning our January outreach events with groups in The Villages and the Scouts on January 31st, as well as preparing for our next Starry Starry Night event on February 7th.

Observers Workshop, January 5th, 6pm, Truman Rec Ctr Pavilion, 2705 Canal St.

Join us at our monthly workshop for observers to get assistance with their instruments, learn their way around the sky, and share tips and tricks with their fellow observers.

Location & time: Truman Recreation Center Picnic Pavilion, 2705 Canal Street, 6pm-8:30pm. The picnic pavilion is behind the recreation center, follow the sidewalk around the pool.

Space Academy, Jan 5th, 6:30pm Truman Rec Ctr, 2705 Canal St.

This month's space academy we will be discussing pre-telescopic astronomy in a presentation by our own Frank Ancona. This will be the first of two parts on the subject, from ancient times to the early Renaissance.

The Andromeda Galaxy, M31, by member Mark Anders. ***"I drank the cool-aid and used my credit card reward points and purchased a SeeStar S50 last week. Received it Friday night and set it up for the first time last night. My first target was the Andromeda galaxy. Set up with stupid easy, from opening the box to scanning the skies probably was 15 to 20 minutes. Most of that was doing the firmware update. So far I love it!"***

Fruitland Park Astronomy Group, Jan 17th, 5pm, 300 Shiloh Rd, Fruitland Park

Join us for an evening of observing and astronomy talk with the Fruitland Park Astronomy Group! Come to Cales Soccer Field in Fruitland Park, 300 Shiloh Road (at the corner of Shiloh Road and Dixie Avenue, north of the Fruitland Park water tower.) Enter on Shiloh Road (some GPS's will guide you to the Dixie Avenue entrance.) Gate opens at 5pm. We will stay as late as conditions permit and people are interested in observing. Bring power if required. You can set up off your tailgate.

Public is welcome to this event, no Villages ID required! Bring family and friends to view the evening sky with our astronomers!

General Meeting, Jan. 20th, 6:30pm:
Bill Warren, "It's About Time"

Join us at Laurel Manor Rec Center, 1985 Laurel Manor Drive, at 6:30pm for a presentation by Bill Warren about the physics of time and our universe.

EAA Meeting, Homestead Astronomy Park, Jan 21st, 5pm, 6227 Meggison Road

Our EAA (Electronically Assisted Astronomy) meeting is focused on using smart telescopes, telescopes with smart controllers, and astrophotography both traditional and live-stacking. If you want to know more about how smart controllers can put your astronomy in "easy mode", come and see what current devices can do! Visual observers are also welcome to come and take advantage of the Astronomy Park while we have it open after hours.

Your Club Officers & Directors

President	Mark Graybill
Vice President	Ken Katta
Secretary	Randy Gilbert
Treasurer	Linda Meng
Space Academy	Toni Graybill
Public Relations	Jeffrey Kahler, Sr.
Directors	Craig Henry
	John Roarke

Newsletter Contact: saundby@gmail.com

See Calendar at End of Newsletter, before star chart.

Club Calendar Online:
https://vlgastroclub.org/calendar/

NEWS

Rocketlab Qualifies "Hungry Hippo"

Rocketlab has completed structural testing of its "Hungry Hippo" nose cone in preparation for the first launch of its new Neutron launch vehicle. This paves the way to it being integrated with the first stage for further pre-launch testing at Launch Complex 3 in the Mid-Atlantic Regional Spaceport (MARS) in Virginia.

The "Hungry Hippo" Fairing During Testing Rocketlab image.

To date, Rocketlab has performed all its launches with the small scale orbital launch vehicle, Electron, and has performed re-uses of the first stage of that vehicle. Neutron is the next stage of their company's evolution in launch vehicles. It can carry payloads of similar mass to those of Falcon 9 to orbit, and the first stage is also designed to be fully reusable.

Neutron Deploys A Second Stage & Payload Artist's Concept, image by Rocketlab

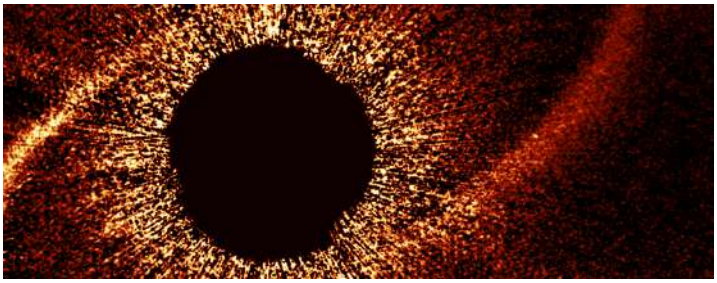
Neutron takes a new approach to reusability, though. Rather than carrying an

exposed second stage, and using a fairing that detaches like that of Falcon 9, Neutron uses a non-detachable fairing that opens to allow the fully-enclosed second stage and payload to be ejected from the first stage. Then the fairing closes and acts as part of the aerostructure for the 1st stage when it returns and lands.

Rocketlab is targeting the first quarter of 2026 for the maiden launch of Neutron.

Full story:
[Hungry Hippo Fairing Successfully Qualified: Rocket Lab Clears Significant Milestone on Path to First Neutron Launch]

More information on Neutron:
[Neutron | Rocket Lab]



Hubble image of Fomalhaut's dusty ring, including a bright spot at right seen against the darker orange dust. It looks like a planet, but is actually a growing dust cloud from a collision. NASA/ESA/STSci image.

Hubble Sees Massive Collision

During observations of the dust cloud at the star Fomalhaut, a light appeared that wasn't there before. Looking more closely, scientists discovered what looks at first like a planet in the dust ring, but is actually a growing cloud that resulted from the collision of two large asteroids.

Further investigation turned up a second source of light at the same location, now called cs2 for "circumstellar source 2" while the first is called cs1.

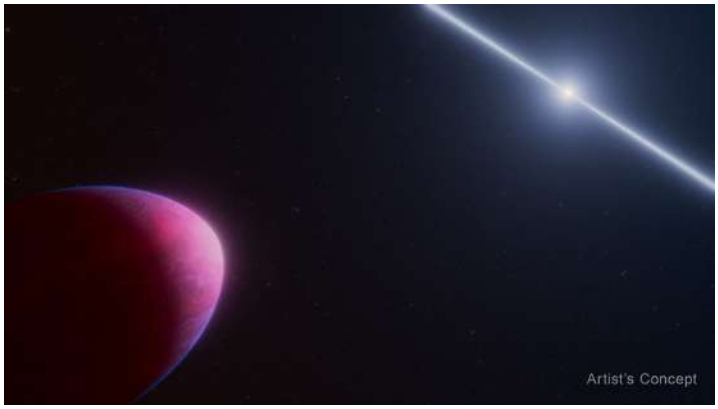
The two objects were massive, though not the size of a full grown planet, so they're called planetismals. The collision is representative of the remnants of collisions we've identified in the history of our own solar system.

Artist's Concept of the Collision at Fomalhaut. NASA image.

The team has been granted time to use Hubble to monitor the system over the next several years to see how the dust cloud develops, and to watch for additional collisions.

Full Story: [NASA's Hubble Sees Asteroids Colliding at Nearby Star for First Time]

JWST Sees New Type of Planet Orbiting Pulsar



Artist's Concept of Exoplanet PSR J2322-2650b & Its Pulsar.

Researchers using the James Webb Space Telescope (JWST) found a surprise when looking at exoplanet PSR J2322-2650b. Its atmosphere is made of molecular carbon and helium, rather than the normal substances like water, carbon dioxide, methane, and ammonia.

Molecular carbon is molecules made entirely of carbon atoms, like C_2 and C_3. Normally, at the temperatures and pressures seen in the atmosphere of this planet, the carbon would be bound to other atoms like hydrogen and oxygen. Why it is only carbon is currently a mystery.

Interactions with its parent star, a type of stellar remnant called a pulsar, are likely the cause. Pulsars are neutron stars that are rotating, sending out pulses of energy in multiple frequencies that can pulse like the light from a lighthouse as the object rotates.

The planet is very close to its parent star, only about 1/100th the distance between the Earth and the Sun. The star itself is very small, it has the mass of the Sun in a space the size of New York City.

NASA article:
[NASA's Webb Observes Exoplanet Whose Composition Defies Explanation]

Full paper online:
[2509.04558] A carbon-rich atmosphere on a windy pulsar planet

The Crab Nebula, M1, by member Bill Hillman with a SeeStar S50. There is a pulsar inside it.

IN THE SKY THIS MONTH

Also refer to the sky map on the last page.

THE MOON

Full Moon, Jan 3rd
Last Quarter, Jan 10th
New Moon, Jan 18th
1st Quarter, Jan 26th
Full Moon, Feb 1st

THE PLANETS

January 1, 2026

Planet	Rise	Transit	Set
Mercury	7:12 am	12:09 pm	5:06 pm
Venus	5:20 am	10:25 am	3:30 pm
Mars	6:00 am	11:14 am	4:29 pm
Jupiter	10:41 am	4:00 pm	9:18 pm
Saturn	8:26 am	1:10 pm	5:54 pm
Uranus	1:14 pm	7:02 pm	12:50 am
Neptune	9:53 am	2:56 pm	7:58 pm

January 15, 2026

Planet	Rise	Transit	Set
Mercury	7:18 am	12:15 pm	5:12 pm
Venus	5:18 am	10:24 am	3:30 pm
Mars	5:35 am	10:53 am	4:12 pm
Jupiter	10:18 am	3:39 pm	8:59 pm
Saturn	8:03 am	12:49 pm	5:35 pm
Uranus	12:52 pm	6:42 pm	12:31 am
Neptune	9:31 am	2:36 pm	7:40 pm

January 30, 2026

Planet	Rise	Transit	Set
Mercury	7:22 am	12:18 pm	5:15 pm
Venus	5:16 am	10:23 am	3:31 pm
Mars	5:09 am	10:31 am	3:54 pm
Jupiter	9:55 am	3:18 pm	8:41 pm
Saturn	7:40 am	12:28 pm	5:16 pm
Uranus	12:30 pm	6:22 pm	12:13 am
Neptune	9:09 am	2:16 pm	7:22 pm

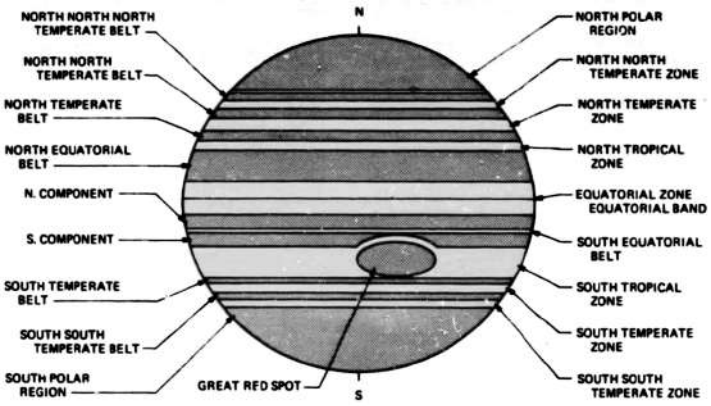
Jupiter reaches opposition this month, appearing its brightest and largest for the year on the 10th. It will look spectacular for the entire month, you don't need to get out right on the day

of opposition to get the effect, the change from day to day is slight.

Jupiter will be magnitude -2.7, the brightest it gets, and will look like a very bright star in Gemini. At 46 arcseconds wide, this will the best time to observe its belts and zones. The belts are dark colored stripes, the zones are the white areas between them.

The belts and zones are caused by circulation of Jupiter's atmosphere. Belts are areas where the atmosphere is moving down toward the surface. The ammonia there is gaseous and clear, giving us a view into deeper parts of the atmosphere with ruddy smog-like colors.

The zones are upwellings of Jupiter's air from lower levels. There, the air is cooling as it rises creating ammonia ice crystals that make the zones look white.



Jupiter's Belts & Zones. NASA image.

Low magnifications will show the largest belts and zones with the narrower belts and zones being muddled together (75-100x). At higher magnifications the finer details will come out (150-250x). Good still air and no bright moon will make it easier to see the details. Jupiter is very bright, so reducing the aperture of your scope will help tease out details.

I use two different techniques for this at the scope. The first, and simplest, I call "the hat trick." I move my hat in front of the telescope, moving it back and forth slowly to block more or less of the light coming into the scope (but not blocking it entirely.) The change in brightness changes the contrast of the surface detail, and makes features of Jupiter stand out.

You'll find an optimum amount of blockage for the observing conditions to bring out the detail.

I have also made aperture masks for my telescopes to cut down the brightness. This is especially useful for telescopes that have a central obstruction from a secondary mirror, such as a Newtonian, Schmidt-Cassegrain, or Maksutov. Because with these scopes your image is created from a bunch of overlaid donut shapes, rather than circles as in a refractor or other unobstructed instrument.

The mask is made to cover the entire end of the instrument, with a hole cut out off-center to avoid the central mirror. This turns the instrument into an unobstructed instrument, and it's called an off-axis aperture mask.

For example, with my 8" Newtonian, I use a piece of paper grocery sack with a hole about 2-½" in diameter cut into it on one side of the secondary mirror. I use a wrap of tape to hold it in place while observing.

Masks for telescopes (even reflectors) can become very elaborate for the dedicated planet observer. Feathering the edges of the mask hole, with black window screen or cutout shapes, softens the edges of the individual circular dots that make up the image of a large bright planet, and it allows softer details to be seen. This is called an apodising or antidiffraction screen because it reduces diffraction effects on the image created by the telescope.

Jupiter observing information:
https://in-the-sky.org//data/object.php?id=P5

DIY apodizing mask:
A Do-It-Yourself Apodizing Mask – Colorado Springs Astronomical Society

Mercury is in a poor position for observation as the year begins, then disappears behind the Sun, being directly behind it on the

21st. If you have a very clear view to the horizon in the east, you can see it for a few minutes at about 30 minutes before sunrise. It will be magnitude 0.6, and at about 2 degrees above the horizon.

Mercury online viewing chart:
https://in-the-sky.org//data/object.php?id=P1

Venus and **Mars** are behind the Sun, and will not be visible this month.

Venus online finder chart:
https://in-the-sky.org//data/object.php?id=P2

Observing information for Mars:
https://in-the-sky.org//data/object.php?id=P4

Saturn moves into the early morning sky this month, along with Uranus and Neptune. It is within the same field of view as Neptune in common binoculars (7x35, 7x50, etc.), ending up closer at the end of the month than the beginning. Saturn still has a narrow ring showing at the start of the month, at about a 1 degree tilt, growing to over 2 degrees at month's end. By the end of 2026 it will open up to about 8 degrees. At 17 arcsec across, Saturn presents a large bright disk. Surface details are easier to see thanks to the rings being nearly edge-on. See the entry on Jupiter for suggestions on seeing the most detail.

Saturn Moon and Ring finder tool:
https://theskylive.com/saturn-rings-and-moons

Saturn finder chart:
https://in-the-sky.org//data/object.php?id=P6

Uranus is visible in the evening sky in Taurus south of the Pleiades (The Seven Sisters). At mag 5.6, it's too dim to see by eye in our skies, but it can be seen in binoculars or a telescope. At 3.8 arcsec in size, it is small, and will appear as a green or blue colored fuzzy "star".

Uranus finder chart:
https://in-the-sky.org//data/object.php?id=P7

Neptune lies near Saturn. Look for a bluish or greenish non-stellar object when using binoculars or a telescope. Colors may be muted by sky conditions, but even with small apertures it should stand out as clearly not a star, and show a disk once over 100x magnification. It is at mag. 7.7 now, bright enough to stand out in binoculars.

Neptune finder chart:
https://in-the-sky.org//data/object.php?id=P8

Image of Triangulum Galaxy, M33, by member John Harper, using SeeStar S50 over two nights.

Club Calendar

Special events by The Villages Astronomy Club
Events not hosted by The Villages Astronomy Club
Notable dates with no event planned.

January 2026
2 Exec Meeting, Fishhawk Rec Ctr. 11am.
5 Space Academy 6:30, Truman Rec Ctr., Observing Workshop, 6pm
17 Fruitland Park Observing, 5pm, 300 Shiloh St. Fruitland Park
20 General Meeting, TBA
21 EAA Meeting, Homestead Astronomy Park, 5:30pm
31 Scout Merit Badge Counseling

February 2026
2 Space Academy 6:30pm, Observing Workshop 6:30pm, Truman Rec. Ctr. 2705 Canal St.
6 Exec Meeting
7 Starry Starry Night, Saturn, Jupiter, Winter Constellations, observing 6:30-8:30
17 General Meeting, Toni Graybill, *"The High Energy Physics of Our Sun"*
18 EAA Mtg, Homestead Astronomy Park, 6:30pm, New Moon
21 Fruitland Park Observing, 5pm, 300 Shiloh St. Fruitland Park
27-28 The Villages Outdoor Expo, 10a-3pm

March 2026
2 Space Academy 6:30pm, Observing Workshop 7pm, Truman Rec. Ctr. 2705 Canal St.
6 Exec Meeting, 11am Fishhawk Rec Center, 2318 Buttonwood Ln
8 DST BEGINS
17 General Meeting, Linda Meng, *Vera Rubin*
18 EAA Mtg, Homestead Astronomy Park, 7:30pm
21 Fruitland Park Observing, 5pm, **300 Shiloh St. Fruitland Park**
21 Dade Battlefield Star Party, 8-10pm.
28 Astronomy Day Homestead.

Club Calendar on the web:
https://vlgastroclub.org/calendar/

Telescope Tips

GERMAN EQUATORIAL MOUNTS come with counterweights that are usually more than necessary for the equipment that comes with them. You can reduce the weight of the overall instrument by purchasing lighter weights. If your weight isn't near the end of the rod that it sits on (it will usually be about halfway with the provided equipment), then you can order a smaller weight and make it easier to move that equatorial mount around. Keep the original weight around in case you ever add a camera or anything else that increases the load on the mount.

The Great Hercules Cluster, M-13, by Mark Graybill, Stellarvue SV-110ED/Nikon D5600.

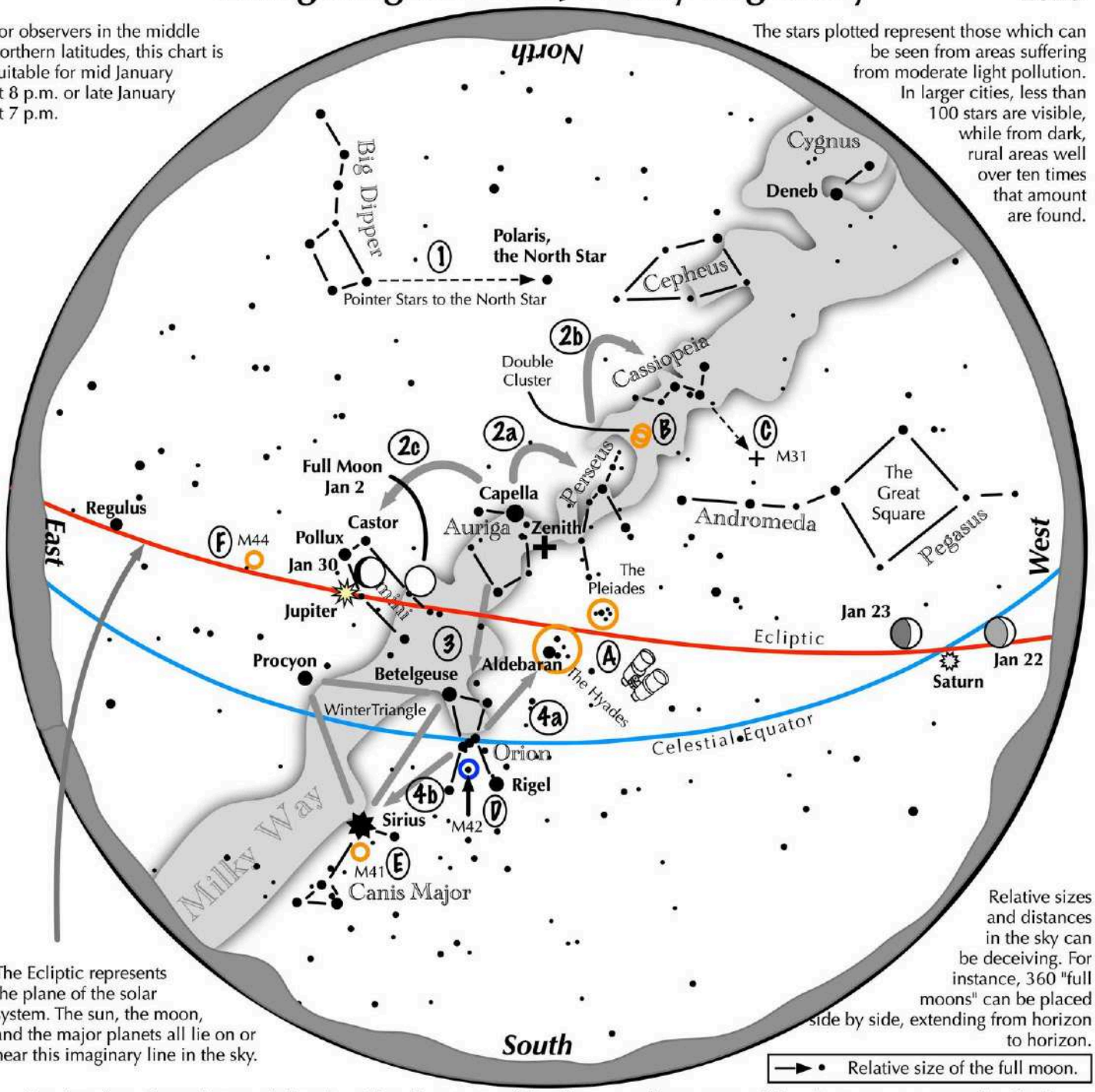
See star charts & special observing notes on following pages:

Navigating the mid January Night Sky

2026

For observers in the middle northern latitudes, this chart is suitable for mid January at 8 p.m. or late January at 7 p.m.

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



The Ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons" can be placed side by side, extending from horizon to horizon.

Relative size of the full moon.

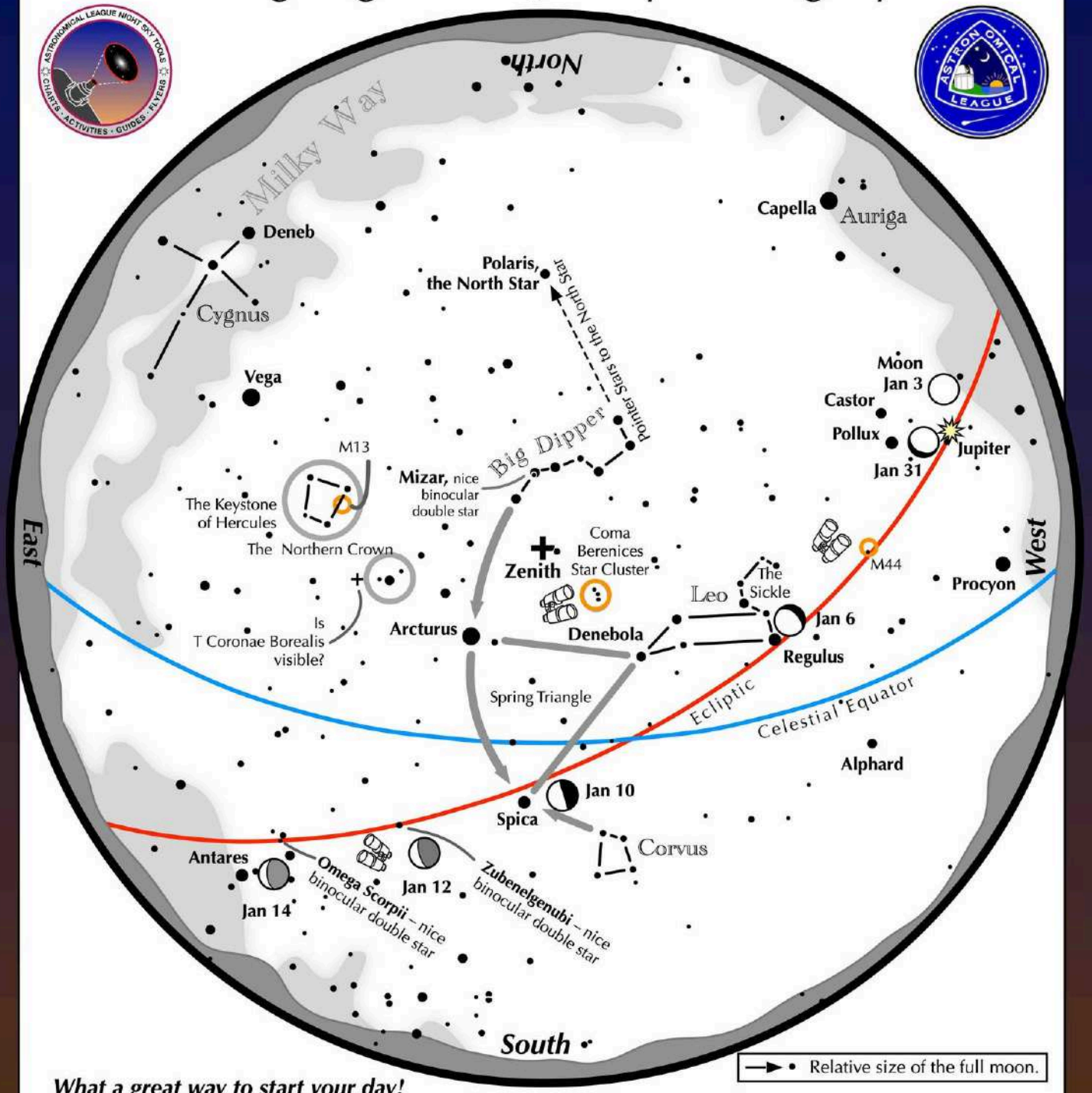
Navigating the winter night sky: Simply start with what you know or with what you can easily find.

1. Above the northeast horizon rises the Big Dipper. Draw a line from its two end bowl stars upwards to the North Star.
2. Face south. Overhead twinkles the bright star Capella in Auriga. Jump northwestward along the Milky Way first to Perseus, then to the "W" of Cassiopeia. Next Jump southeastward from Capella to the twin stars Castor and Pollux of Gemini.
3. Directly south of Capella stands the constellation of Orion with its three Belt Stars, its bright red star Betelgeuse, and its bright blue-white star, Rigel.
4. Use Orion's three Belt stars to point to the red star Aldebaran, then to the Hyades, and the Pleiades star clusters. Travel southeast from the Belt stars to the brightest star in the night sky, Sirius.

Binocular Highlights

A: Examine the stars of the Pleiades and Hyades, two naked eye star clusters. **B:** Between the "W" of Cassiopeia and Perseus lies the Double Cluster. **C:** The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval. **D:** M42 in Orion is a star forming nebula. **E:** Look south of Sirius for the star cluster M41. **F:** M44, a star cluster barely visible to the naked eye, lies to the southeast of Pollux.

Navigating the mid January Morning Sky 2026



What a great way to start your day!

For observers in the middle northern latitudes, this chart is suitable for mid January at 5:30 a.m.

Late sunrises in January provide opportunities for early morning skywatching.

- Bright Jupiter shines in the west-northwest and moves below Pollux in Gemini.
- The third quarter moon floats near Spica on January 10.
- The waning crescent moon glows near Antares on January 14.
- Continue watching for a sudden and rapid brightening of T Coronae Borealis. When will it explode?
- A great time for viewing the Big Dipper, Leo, and Hercules. And it is time for galaxy viewing!