

10:00 pm on October 1  
 9:00 pm on October 15  
 8:00 pm on November 1

**To use this chart:** hold the chart in front of you and turn it so the direction you are facing is at the bottom of the chart.

- **Bright Stars**
- **Medium Bright Stars**
- **Faint Stars**

**Scan dark skies with binoculars:**

- M-13: Globular star cluster
- M-31: The Andromeda Galaxy
- M-45: Pleiades open star cluster
- M-57: The Ring Nebula
- Double Cluster in Perseus

**Jupiter** rises after 10pm early in the month, and after 8pm as November begins.

As autumn continues, sunrises occur later and sunsets occur earlier. The days will get shorter all the way until the first day of winter on December 21!

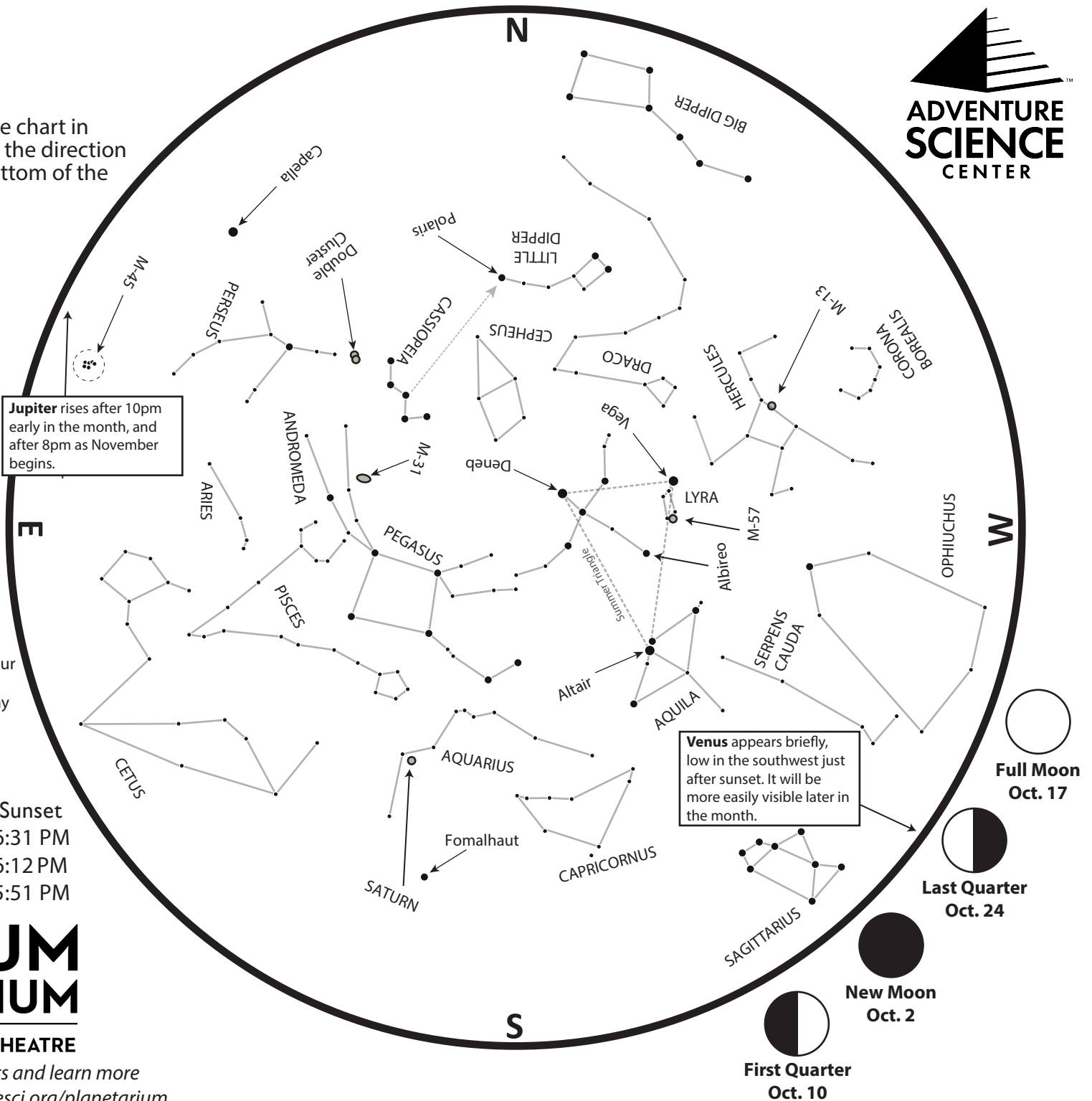
From Nashville:

	Sunrise	Sunset
Oct 1	6:42 AM	6:31 PM
Oct 15	6:54 AM	6:12 PM
Nov 1	7:10 AM	5:51 PM

## SUDEKUM PLANETARIUM

JUDITH PAYNE TURNER THEATRE

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# OCTOBER 2024

## After Sunset

For much of the year, we use the stars of the **Big Dipper** to help us find **Polaris**, the **North Star**. However, the Big Dipper is harder to find in the autumn. It appears very low to the northern horizon in the early evening. Some of its stars even set below the horizon from our latitude.

Another group of stars can help us find our way. Look for a group of five stars known as **Cassiopeia the Queen**. Whenever the Big Dipper is low to the horizon, Cassiopeia will be high enough to find. The central peak of this constellation's W-shape also points you in the direction of Polaris.

Polaris is not a particularly bright star, but it does remain fixed in the sky throughout the night and throughout the year. When you face the North Star, you're facing due north. Polaris is at the end of the handle of the **Little Dipper**. This group of stars is officially known as **Ursa Minor the Little Bear**.

Next, turn your gaze high overhead for the three bright stars that make up the **Summer Triangle**. These may be the first stars you see as the sky begins to darken. Each of these stars is part of its own constellation. **Cygnus the Swan**, **Aquila the Eagle**, and **Lyra the Harp** are more easily seen under dark skies.

Look to the southeast for **Saturn**. A small telescope will reveal Saturn's beautiful rings. You might even see its largest moon **Titan**. Watch for the Moon near Saturn on the evening of October 14.

Stay out a little late for **Jupiter**. You can find it rising low in the northeast after 10 pm early in the month, and after 9 pm as November begins. Allow some extra time for Jupiter to rise over trees or buildings that may block your view. Watch for the Moon near Jupiter on October 20.

Jupiter is currently situated right between the horns of **Taurus the Bull**, a great constellation associated with the winter sky. Look for the bright red star **Aldebaran** marking the bull's eye.

Whenever Jupiter is visible it's always a great target for backyard telescopes. You'll not only see the four largest moons of Jupiter, but also the giant planet's cloud bands. Jupiter has stripes!

You may be even able to see the four **Galilean moons** of Jupiter with just a good pair of binoculars. If you have

trouble pointing your binoculars at Jupiter, try leaning them up against the side of a building or another steady surface. Whatever you use to get that close-up view, watch the moons over several nights as they orbit around their parent planet. If you see fewer than four moons, it might mean that some of them are behind or in front of Jupiter.

Stay out even later for a glimpse of **Mars**, visible in the northeast starting an hour or two after midnight. Look for the Moon near Mars on the evenings of October 23 and 24.

By the time Mars is up you'll also see the greatest constellation of the winter sky, **Orion the Hunter**. Orion's shoulder is marked with a brilliant red star called **Betelgeuse**.

If you see a red point of light in the sky and you're not sure whether it's Mars or a red star, look to see if it's twinkling. Stars twinkle, and planets generally do not. Is that red dot shining steadily? That's Mars.

Mars will continually brighten and appear in our sky earlier and earlier through January, when Earth will pass Mars in its orbit.

## From Dark Skies

Bright outdoor lighting can make it hard to see all but the brightest stars. On a clear night, find a dark spot far away from city lights, give your eyes time to adjust to the dark, and look for even more celestial sights. You can begin by looking for the fainter stars of this season's constellations. **Pegasus the Flying Horse**, **Andromeda the Princess**, and the three constellations of the Summer Triangle all become easier to explore.

Look closely for the star that marks the head of Cygnus the Swan, an unremarkable-looking white star called **Albireo**. A small telescope reveals that there are really two stars there, appearing very close to each other. Not only that, but the two stars are different colors, one blue and one yellow!

Early autumn evenings are great for spotting the **Milky Way** coursing from the southwestern horizon through the Summer Triangle and on towards Cassiopeia in the northeast. This hazy band of light is the bulk of our disc-shaped galaxy, as we see it from within.

Near Andromeda, look for **M-31**, the **Andromeda Galaxy**. This massive spiral galaxy is the most distant object visible to the unaided eye, but to find it it requires crisp, dark skies and a little patience. Binoculars or a small telescope can improve the view, but don't expect to see more than a faint, fuzzy, oval blob. If you don't feel impressed, just remind yourself you're looking at the collected light of possibly one trillion stars, all at a distance of 2 million light years away. Now that's impressive!

## Early Morning

As the Earth orbits the Sun throughout the year, the constellations rise and set just a little bit earlier every day. You won't see much difference from night to night, but you will over the course of weeks

or months. What we see in today's pre-dawn sky is a preview of the early evening sky in later months. Go out before dawn this month for a look ahead at the early winter night sky.

Remember how the Big Dipper was too low to easily find in the early evening? Now it's high in the northeast. Can you find Cassiopeia?

In the hours before dawn, Saturn has set, Jupiter is high in the west, and Mars is nearly directly overhead. Meanwhile, Pegasus and Andromeda are beginning to set in the west. Winter constellations Orion the Hunter and Taurus the Bull are high in the south. Rising in the east is **Leo the Lion**, a reminder that spring is on the way.

Before you set your alarm for the wee hours of the morning, consider planning out your observing. Desktop planetarium software like the free, open-source Stellarium (stellarium.org) can show you more precisely where night sky objects will be on any date and time, and help you plan ahead.

## How Dark is Your Sky?

City lights make it difficult to experience the night sky at its best. Near downtown Nashville, you might only be able to see a handful of stars, plus planets and the Moon if they're up.

Does excess light streaming into your window make it hard for you to sleep? Light pollution can similarly disrupt wildlife. Light pointing up into the sky also represents a needless use of energy. If you can see the bottoms of clouds at night, that's because artificial lights are shining on them. Lights that just point downward still do the job we need them to do, but without all those side effects.

**Globe at Night** is a monthly citizen science project to map the effects of light pollution worldwide. Visit [globeatnight.org](http://globeatnight.org) for instructions on how to judge how dark your local sky is. In short, you'll count the stars you can see in a particular constellation and report your results online. On clear nights October 24 - November 2, volunteers will count the visible stars in the constellations Pegasus and **Perseus**. You may be surprised how much of the night sky you're missing!

*This Month in the Sudekum Planetarium*

# NIGHTWATCH

**MARS STARS**  
THE ULTIMATE VOYAGE

THE POWERHOUSES OF THE UNIVERSE

NARRATED BY MARK HAMIL

**SUDEKUM  
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AT ADVENTURE SCIENCE CENTER