

10:00 pm on August 1  
 9:00 pm on August 15  
 8:00 pm on September 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-6: The Butterfly Cluster
- M-7: Open star cluster
- M-8: The Lagoon Nebula
- M-13: Globular star cluster
- M-15: Globular star cluster
- M-22: Globular star cluster
- M-27: Dumbbell Nebula
- M-31: The Andromeda Galaxy

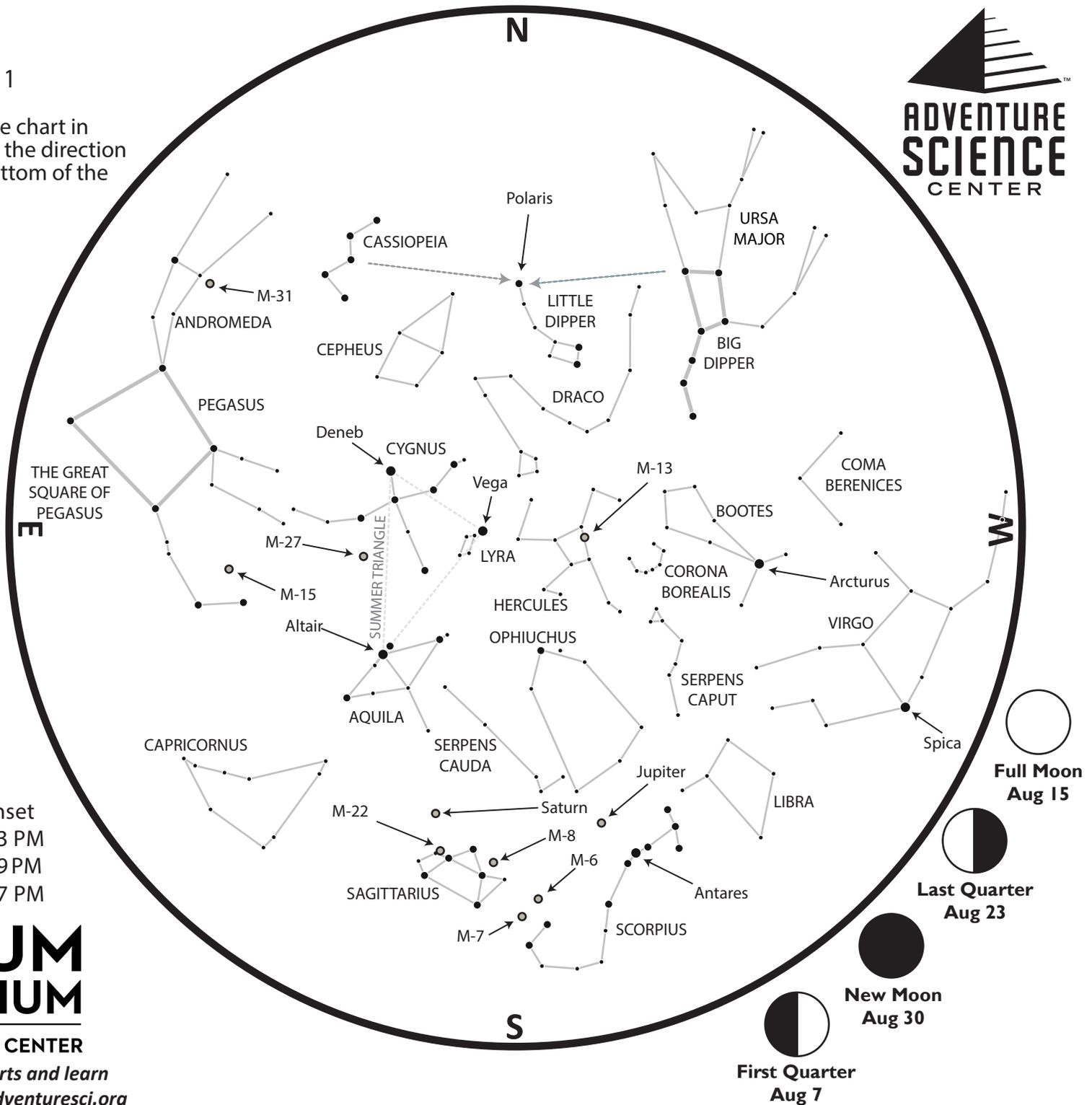
**From Nashville:**

	Sunrise	Sunset
Aug 1	5:54 AM	7:53 PM
Aug 15	6:05 AM	7:39 PM
Sept 1	6:18 AM	7:17 PM

## SUDEKUM PLANETARIUM

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# AUGUST 2019

## After Sunset

In the summer, the **Big Dipper** is easy to find in the northwest after sunset. Connect the dots to imagine a big spoon or ladle high above.

The Big Dipper is not officially a constellation; it's what astronomers sometimes call an **asterism**. It's a familiar name for this pattern of stars, especially used by observers in the United States, but it's not one of the 88 constellations recognized by astronomers worldwide. **Ursa Major the Great Bear** is the official constellation here, but you'll need dark skies to see its fainter stars.

Use the two stars at the end of the Dipper's bowl to lead you to **Polaris**, also known as the **North Star**. 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 also officially known as **Ursa Minor the Little Bear**.

Follow the curved handle of the Big Dipper to trace an 'arc' to **Arcturus**, the orange colored star in **Boötes the Herdsman**. Then speed on to **Spica**, the single bright star in **Virgo the Maiden**. Neither of these constellations has any other bright stars. Even under dark skies away from city lights, it's hard to imagine these mythological figures just by connecting the dots.

In the southwest is the bright planet **Jupiter**. If you have binoculars, you may be able to see the giant planet's four largest moons. Watch Jupiter's moons over several nights to watch them orbit around their parent planet. If you have trouble steadying your binoculars on Jupiter, try leaning them up against the side of a building or another steady surface.

A small telescope not only shows the moons of Jupiter, but also its cloud bands. Jupiter has stripes! Look for the Moon next to Jupiter on August 9th.

Jupiter is currently near the red star Antares, the heart of **Scorpius the Scorpion**, a hook shaped constellation low in the south.

You'll also be able to see **Saturn** in the south near **Sagittarius the Archer**. The Moon will appear very close to Saturn on August 11.

Look high up for the three stars that make up the Summer Triangle. Each of these stars is part of its own constellation. The constellations **Cygnus the Swan**, **Aquila the Eagle**, and **Lyra the Harp** are more easily seen under dark skies.

## A Look Ahead

As 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 autumn night sky.

In the hours before dawn, the Summer Triangle is high the west. Scorpius and Jupiter have set. Meanwhile, autumn constellations such as **Pegasus the Flying Horse** and **Andromeda the Princess** are high in the east.

Trying to find Polaris? You'll have a challenge on your hands if you look first for the Big Dipper — it and the rest of Ursa Major are now hiding near or below the northern horizon. Instead, locate W-shaped **Cassiopeia the Queen**, high in the sky. The central peak of the W forms an arrow that points you in the direction of Polaris.

Desktop planetarium software like the free, open-source Stellarium ([stellarium.org](http://stellarium.org)) can show you more precisely where night sky objects will be on any date and time, and help you plan your observing.

## Perseid Meteor Shower

The annual **Perseid Meteor Shower** peaks between the mornings of August 11-13. The Perseids typically put on a good show, but this year a bright, nearly full Moon will wash out all but the brightest shooting stars. Still, if it's clear, head away from the city lights and take some time to meteor-watch.

Find a comfortable spot of open sky. Relax, face east, and watch a wide area of the sky. Bring some friends! Be patient. Under ideal conditions, there may only be one meteor per minute on average - and with the Moon this year, these won't be ideal conditions. Meteor showers are usually best after midnight, but on the 12th, the Moon doesn't set until about 3am.

Some Perseid meteors can appear a week or two before or after the peak. Consider trying some late evenings or mornings earlier in the month, when the Moon sets earlier.

Meteors from the Perseid shower consist of debris left behind by Comet Swift-Tuttle. Every year, Earth passes through this trail of tiny particles. These particles burn up as they fall through our atmosphere, resulting in the distinctive swift streaks of light we call meteors.

## 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.

Summer evenings are great for spotting the **Milky Way** coursing from Sagittarius and Scorpius, 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.

As you look towards Scorpius and Sagittarius, you are looking in the direction of the dense center of the Milky Way Galaxy. Scan with binoculars or a telescope in this area to find many faint star clusters and nebulae throughout this part of the sky.

Look high overhead for the constellation **Hercules** and the globular cluster known as the **Hercules Cluster**, or **M-13**. Using binoculars, you may be able to spot a round-shaped glow. If that blurry glow doesn't seem impressive, just remember that it's a collection of around 300,000 stars, at a distance of over 22,000 light years, at an age of over 11 billion years old.

Don't have a telescope? Don't know where to find dark skies? The next free public star party hosted by the Barnard-Seyfert Astronomical Society is scheduled for Friday, August 9 from 9:00 to 11:00 at **Bowie Nature Park** in Fairview. Come observe the Moon, Jupiter, Saturn, star clusters, and more through telescopes provided by BSAS members.

Visit the BSAS web site at [bsasnashville.com](http://bsasnashville.com) for details. If the weather is bad, the star party will be canceled. Make sure to check their web site for updates before making the trip to a star party, especially if the weather is iffy. On the BSAS web site you'll also find driving directions and a list of future events.

## This Month in the Sudekum Planetarium

### August 10: Second Saturday

- 4:00pm Laser Pride
- 5:00pm Laser Stranger Things
- 6:00pm Remote Sense
- 7:00pm The Beatles
- 8:00pm Led Zeppelin



Full schedule at [adventuresci.org/schedule](http://adventuresci.org/schedule)

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