

Midnight on June 1
 11:00 pm on June 15
 10:00 pm on July 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-4: Open star cluster
- M-6: Open star cluster
- M-7: Open star cluster
- M-8: Lagoon Nebula
- M-13: The Hercules Cluster
- M-22: Globular star cluster

The first day of summer is June 20! This is also the longest day of the year. From now until the first day of winter, the days will gradually be getting shorter.

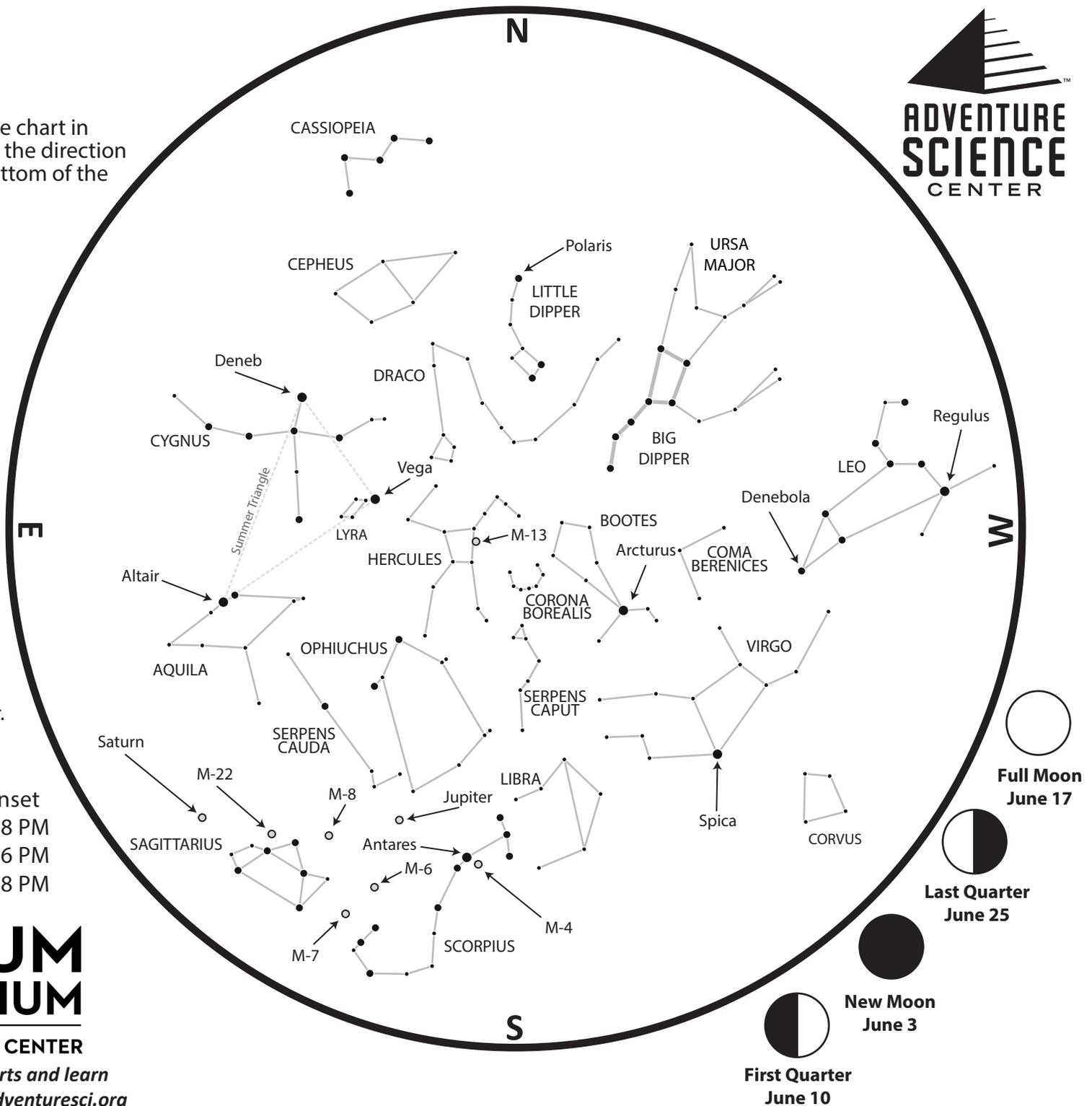
From Nashville:

	Sunrise	Sunset
June 1	5:32 AM	7:58 PM
June 15	5:29 AM	8:06 PM
July 1	5:33 AM	8:08 PM

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JUNE 2019

After Sunset

In the late spring, the **Big Dipper** is easy to find, high 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**.

Imagine poking a hole in the bottom of the Big Dipper to let the water drip out. The water falls onto the back of **Leo the Lion**. The head and mane of the lion are represented by a group of stars that looks something like a backwards question mark. Other stargazers imagine the top hook of a coat hanger, or a sickle in this group of stars. The "dot" at the bottom of the question mark is **Regulus**, the brightest star in Leo. It marks the regal heart of the lion.

Go back to the Big Dipper once more and follow its curved handle 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.

High in the east, the three bright stars that make up the **Summer Triangle** are bright and easy to find. Viewers with darker skies might find the fainter stars that make

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up the three constellations of the Triangle: **Cygnus the Swan**, **Aquila the Eagle**, and **Lyra the Harp**.

Look for giant planet **Jupiter** low in the southeast after sunset. You may need to wait an hour or two for it to rise above hills, trees, or other obstacles that may block it from view. If you have binoculars, you will be able to see up to four of Jupiter's largest moons. Observe 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 our own **Moon** near Jupiter on June 16 and 17.

Jupiter is currently near the red star Antares, the heart of **Scorpius the Scorpion**. Stay up late to see all of the hook-shaped constellation low in the south. You'll also be able to see **Saturn** rising in the southeast near **Sagittarius the Archer**. The Moon will appear extremely close to Saturn late on the 18th and morning of the 19th.

A Look Ahead

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 autumn night sky.

In the hours before dawn, the Summer Triangle is high the sky and Scorpius is setting along the southwest horizon. Autumn constellations such as **Pegasus the Flying Horse** and **Andromeda the Princess** are rising in the east. Saturn and Jupiter are visible in the southwest.

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 your observing.

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.

Evenings in late spring and early summer 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, June 7 from 9:00 to 11:00 at **Bowie Nature Park** in Fairview. Come observe the Moon, Jupiter, star clusters, and more through telescopes provided by BSAS members.

Visit the BSAS web site at 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

June 8: Second Saturday

- 4:00pm The Beatles
- 5:00pm Michael Jackson
- 6:00pm Queen
- 7:00pm Sakanaction: Goodnight Planetarium
- 8:00pm Laser Stranger Things
- 9:00pm Beyoncé



Full schedule at
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