

After Sunset

Look high in the north for the **Big Dipper**. As famous as the Dipper is, it's not always easily visible from our latitude in Tennessee. During the autumn, it stays hidden near the northern horizon, only to emerge in the wee hours of the morning. But in the spring, the Dipper is easy to find, high in the north after sunset, almost straight overhead.

The Big Dipper is not officially a constellation; it's what astronomers sometimes call an **asterism**. The Big Dipper is a familiar name for this pattern of stars, especially known to 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 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 represents 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.

Look for the Moon near Regulus on the night of May 15 and near Spica on May 19.

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.

Look for **Hercules** below Boötes as you face east. Four of the stars make a trapezoid shape called the **Keystone**, after the top stone in an arch. Scan with binoculars for **M-13**, a **globular star cluster**.

Look between the constellations Leo and **Gemini the Twins** to find... nothing? Even under dark skies you'll have to look closely to spot the famous but faint constellation **Cancer the Crab**, shaped like an upside-down letter Y. Near the center of the Y is **M-44**, the **Beehive Cluster**. This **open star cluster** is a great target for binoculars.

Early Morning

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 summer evening sky.

By morning, most of our spring constellations have long since set in the west. High in the east are the three bright stars that make up the **Summer Triangle**. To the south is the J-shaped **Scorpius the Scorpion**, with the red star **Antares**. Look for a full Moon very near Antares on the night of the 23rd and morning of the 24th. That bright Moon might make Antares a challenge to see. A pair of binoculars might help you spot it.

There aren't any planets to see in the evening sky, but get up early and you might catch **Mars** and **Saturn** rising in the east. As the weeks go on, both planets will gradually rise earlier. By the end of the month, Saturn will rise before 2 am, and Mars before 4 am. Look for a slim crescent moon between Mars and Saturn on the morning of May 4. A wide crescent moon appears near Saturn on the morning of May 31.

How to Use a Star Chart

Newcomers to star charts like this one may quickly notice what looks like a serious error: east and west are labelled backwards!

But it's no mistake: remember that this is a map of the sky, not of the ground. Flip it up over your head and look at it from below. The cardinal directions are correct!

If you'd rather not observe while holding a piece of paper over your head, that's understandable. Hold the chart in front of you and face south. The bottom area of the chart features stars that are in front of you. The top of the chart are stars that are behind you, and the center of the chart is straight overhead.

Want to look to the west instead? Just rotate the chart in your hands until west is at the bottom.

Our charts are made to show you the early evening night sky. What if you want to get out late at night or in the morning instead? Consider purchasing a **planisphere**, sometimes called a star wheel. Planispheres are a simple and inexpensive kind of star chart that consists of two disks that rotate on a common pivot. Rotate the disks to set the date and time you want to observe, and you'll see the right set of stars. Different planispheres are made for different latitudes of the Earth. In Tennessee, make sure to find one made for approximately 40° north latitude. You can even print out and make a planisphere at home:

skyandtelescope.org/astronomy-resources/make-a-star-wheel

You can also buy more durable planispheres online.

One tiny drawback to planispheres: they can't show you where the planets or the Moon are. These objects constantly move through the constellations over days, months and years.

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, from any location on Earth. It's a great way to learn about the night sky before you go out for a look at the real thing!

This Month in the Sudekum Planetarium

NIGHTWATCH

THE POWERHOUSES OF THE UNIVERSE
STARS TO WORLDS BEYOND
JOURNEY THROUGH THE SOLAR SYSTEM
 NARRATED BY MARK HAMILL

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