

Summer Sky Tour

On a clear, dark evening in July, August, or September you will be able to see the following...

Constellations:

Ursa Major (Big Dipper)
Ursa Minor (Little Dipper)
Draco (the Dragon)
Cepheus (the King)
Cassiopeia (the Queen)

Bootes (the Sheppard)
Corona Borealis (the Northern Crown)
Hercules (the Strong Man)
Serpens (the Serpent)
Ophiuchus (the Serpent Holder)

Lyra (the Harp)
Cygnus (the Swan)
Aquila (the Eagle)
Delphinus (the Dolphin)

Sagittarius (the Archer)
Scorpius (the Scorpion)

Bright Stars:

Polaris (the North Star)
Arcturus (Bootes)
Alpecca (Corona Borealis)
Vega (Lyra)
Deneb (Cygnus)
Altair (Aquila)
Antares (Scorpius)

Open Clusters:

None

Nebulae:

None

Galaxies:

Milky Way

How to find the constellations

The trick to locating a constellation is to start with those most familiar, and then use their pointer stars to find other constellations. It also helps to ensure that you know the four cardinal directions (North, South, East, and West).

When to observe

The story that follows will make the most sense if you observe the sky according to the following schedules:

Late June	midnight to 2 am
Early July	11 pm to 1 am
Late July	10 pm to midnight
Early August	9 pm to 11 pm
Late August	8 pm to 10 pm
Early September	7 pm to 9 pm

Let's begin...

Using the star chart below, orient yourself due North. From this vantage point we will find the constellation Ursa Major (the Big Dipper). The Big Dipper will be standing on end (the handle closest to the horizon) in the northeast sky. Using the two stars at the end of the pot, we can draw an imaginary line heading northward until we meet up with Polaris (the North Star). Polaris is the star at the very end (handle end) of Ursa Minor (the Little Dipper). Following the stars down the handle of Ursa Minor, we arrive at its bowl. Notice that the Big Dipper and the Little Dipper are always facing each other, so that in theory, something could be pouring out of the Little Dipper into the Big Dipper. The constellation snaking its way between the Little and Big Dippers is Draco (the Dragon). The head of the Dragon lies directly under the bowl of the Little Dipper.

Remembering how we found Polaris and the Little Dipper, if we continue to trace a line from the stars at the end of the Big Dipper's bowl, past Polaris, we arrive at the top of Cepheus (the King). The constellation Cepheus takes the form of a simple house (a triangle on top of a square) and the star that we just found is the top of the house.

Sitting just next to (east of) King Cepheus is his wife, Queen Cassiopeia. Most often, Cassiopeia is identified by her "W" or "M" shape (winter = "W" & summer = "M"). Tracing its way through Cassiopeia is the hazy, cloudy appearance of the Milky Way. The reason we observe the haze is because we are looking out along the plane of the galaxy and as a result, there are so many stars very close together that they all wash together into a cloudy haze. The Milky Way traces its way across the entire northern sky from the extreme northwest horizon all the way to the extreme southeastern horizon. From a dark location, the haze of the Milky Way is a fascinating sight. Legend has it that Hercules' arrow flew aimlessly through the night sky, impacting on Queen Cassiopeia's bosoms and spewing her milk across the sky; hence the "Milky Way."

Queen Cassiopeia and King Cepheus' daughter, Andromeda, sits just west of Cassiopeia. King Cepheus chained Andromeda to a rock beside the sea in an attempt to please the Cetus (the Sea Monster) who was greatly offended by Cassiopeia's suggestion that Andromeda was the finest lady in the land. Before the Cetus could devour Andromeda, however, Perseus (the Hero and son of Zeus, the king of the gods) mounted his winged horse (Pegasus) and saved Princess Andromeda's life. The two were married on the spot and lived happily ever after. On a clear, dark night, you might notice a small, fuzzy spot right close to one of Andromeda's legs. This is known as the Andromeda Galaxy, the only galaxy visible with the naked eye. The Andromeda Galaxy is a spiral galaxy some 3 million light years away that in most respects closely resembles our own Milky Way. If you were to observe the Andromeda Galaxy through a modest sized telescope, you might also notice that the large central galaxy is accompanied by two smaller companion galaxies (M32 and M110 -- both dwarf elliptical galaxies).

Filling most of the eastern sky is the great square of Pegasus (Perseus' winged horse), mentioned earlier. The constellations of Andromeda and Pegasus are in fact joined. After helping Perseus rescue Andromeda, Pegasus was promoted to Zeus' assistant, carrying his lightning bolts.



Returning to The Big Dipper we can find yet one more constellation. Using the last two stars of the handle (the stars at the back end of the handle), we can trace a line westward to Arcturus (a bright K1.5III star). Arcturus, shining bright in the western sky, sits at the bottom of Bootes (the Sheppard). The easiest way to identify Bootes is to think of Arcturus as the bottom of a large ice cream cone or kite.

The bright star lying just to the east of Bootes is Alphecca, the brightest star in the constellation Corona Borealis. Corona Borealis (the Northern Crown) is a rather small constellation in the shape of a "u."

Sitting just to the south of Corona Borealis, is Serpens (the Serpent or Snake). Serpens takes the form of a "T" with a longer tail that winds its way to the east, meeting up with the constellation Ophiuchus (the Serpent holder). Ophiuchus, a large circular shape, is marked by the bright star Rasalhague (A5III) sitting at the top of the circle.

Hercules (the Strong Man), lying above Ophiuchus and to the east of Bootes and Corona Borealis, was the great Greek hero who triumphed over many foes. As legend has it, Hercules was given the task of killing the great beast Hydra (the Water Serpent) who had horribly bad breath and could kill simply by being looked at. As Hercules battled with the Hydra, he found that as he cut off one of the beast's heads, another regenerated in its place. Hercules needed the help of Iolus, his charioteer, to burn the neck of the beast as Hercules chopped off the head, preventing it from growing back. When Hercules came to the last head, he found it was immortal, and as a result, he and Iolus trapped the head under a heavy rock preventing its escape.

Lying low in the southern sky, just barely above the horizon, sits Sagittarius (the Archer) often more easily identified as a teapot. Moving further west, we find the bright star Antares and the rest of the Scorpius (the Scorpion), another zodiac constellation. On one of his many hunting adventures, Orion (the Hunter) met a bitter end as he stepped on Scorpius and died. Feeling sorry for Orion, the gods placed him and his dogs in the sky as constellations. Scorpius was also placed in the sky, but rests at the extreme opposite side from Orion so as never to be able to harm Orion again.

Other zodiac constellations visible in the summer months include Libra, Virgo (to the west of Scorpius), Capricornus and Aquarius (to the east of Sagittarius).

Now look straight up

Lying directly overhead is Vega (A0V), the brightest star in the summer sky and the brightest star in the constellation Lyra (the Harp). Vega, typically the first star visible on a bright summer night, is also one of the three stars marking the summer triangle.

Moving straight south (down) from Vega we find the bright star Altair (A7V) and the constellation Aquila (the Eagle). Altair is the second of three stars in the summer triangle.

Returning to Vega, if we move to the northeast, we find Deneb (A2I), the last star in the summer triangle, and the constellation Cygnus (the Swan). Cygnus, also known

as the Northern Cross, takes the form of a cross or "T" shape stretching toward the center of the summer triangle.

Notice the almost perfect right angle triangle shape of the Summer Triangle.

Delphinus (the Dolphin), one of the smallest constellations in the sky, rests just east of Altair.

If you are observing from a dark location away from city lights, you might have noticed a large hazy patch stretching clear across the sky. Take another look at Cassiopeia. Can you see that the sky behind the constellation is rather hazy? Now from Cassiopeia, trace an imaginary line to the southern horizon. You should see that the haziness follows that line running through Cepheus, Cygnus, Aquila, Sagittarius, and Scorpius. This hazy patch is the Milky Way, our galactic home. The hazy appearance is the result of hundreds of millions of stars packed so closely together that the light from the individual stars becomes indistinguishable.

**This brings us to the end of our tour of the summer sky.
Thanks for joining us!**