

The Night Sky

The Stars

The stars follow a very regular pattern, appearing to move from east to west, when viewed from the Earth. This pattern repeats itself over the course of a night and over the year.

Southern Horizon

As you look to the south in the evening after sunset, the constellations that dominate the night sky depend on the season.

Spring

High in the sky is **Leo** the Lion with bright star **Regulus** followed by **Corvus** the Crow and **Virgo** the Maiden. Farther to the east is the **Boötes** the Herdsman and **Corona Borealis** the Northern Crown.

Find the bright stars **Arcturus** (Boötes) and **Spica** (Virgo) by following the handle of the Big Dipper -> "Arc to Arcturus and Speed on to Spica".

Summer

In early summer, low in the horizon, look for **Scorpius** the Scorpion, with the orange star **Antares**, and **Sagittarius** the Archer. Note the "teapot" shape of Sagittarius. Higher in the sky and to the east is the Summer Triangle of **Altair** (Aquila the Eagle), **Vega** (Lyra the Harp) and **Deneb** (tail of **Cygnus** the Swan). Find the yellow/blue "double star" **Albireo** the head of the Swan.

Fall

During the fall find the **Great Square of Pegasus** and **Pegasus** the upside down flying horse. Off to the east of Pegasus is **Andromeda** and the faint Andromeda Galaxy (M31).

Winter

Center to the cool and clear Winter sky is **Orion** the Hunter with his bright belt (**Alnitak**, **Alnilam** and **Mintaka**). Don't miss red **Betelgeuse** his right shoulder, and bluish/white **Rigel** his left foot. In the center of his sword is the **Great Orion Nebula** (M42).

Up from Orion's belt is the V-shaped head of **Taurus** the Bull with the reddish **Aldebaran** the Bull's right eye. On the Bull's back is the open star cluster the **Pleiades** (M45 / The Seven Sisters / Subaru).

Down from Orion's belt is the bright "Dog Star" **Sirius** in **Canis Major** the Greater (Large) Dog.

Above the Large Dog, is the **Canis Minor** the Lesser (Small) Dog along with **Pollux** and **Castor** the heads of the **Gemini** twins.

High in the sky is the Charioteer **Auriga** with the bright star **Cappella**.

Northern Horizon

As you look to the North, the stars appear to rotate around the "fixed" star **Polaris** (The North Star) found at the tip of the handle of the **Little Dipper** part of **Ursa Minor** the Lesser (Small) Bear.

High in the Spring sky is the **Big Dipper** the tail and back of **Ursa Major** the Greater (Large) Bear. Find the double stars **Mizar** and **Alcor** in the handle. Between the dippers is the tail of **Draco** the Dragon.

High in the Fall sky is the W or M shaped Queen **Cassiopeia**. Near is the faint King **Cepheus**.

The Moon

The Moon moves from west to east as it travels through its 27 days orbit and goes through a complete series of phases every 29½ days.

- A **new moon** is high at noon when the far side of the moon is completely illuminated by the Sun.
- The moon is **waxing** as the light appears after a new moon (waxing crescent...waxing gibbous).
- A **full moon** is high at midnight when the near side is fully illuminated by the Sun.
- The moon is **waning** as the light disappears after a full moon (waning gibbous...waning crescent).
- A **1st quarter moon** rises mid-day and a **3rd quarter moon** rises near midnight. Both occur when half of the near side and half of the far side are illuminated.

The Planets

The planets, "wanderers" in Greek, move from west to east against the background of the stars.

- **Mercury** alternates between the evening and morning skies.
- **Venus** looks like a very bright "star" either in the morning or evening sky.
- **Mars** moves around the sky.
- **Jupiter** slowly moves from constellation to constellation around once a year.
- **Saturn** is relatively stationary from year to year moving very slowly to the east.

Astronomy Resources

Links to star charts and other information about the night sky are found on the **FAS Astronomy Resources page** (<https://www.fas37.org/wp/resources/>)

Star charts for the current month are available from the two major astronomy magazines:

- **Astronomy Magazine** (www.astronomy.com)
- **Sky & Telescope Magazine** (www.skyandtelescope.com)

The IAU has charts for each constellation at <http://www.iau.org/public/constellations/>.

Stellarium Web provides a free online planetarium application at <https://stellarium-web.org/>.

The local Astronomy Club, **The Forsyth Astronomical Society**, is found at www.fas37.org.

Astronomy Apps

There are many apps available for smart phones and tablets. Most offer an augmented reality view of the night sky. Here are a few.

App	Published by
Sky Week	Sky & Telescope Media
Planets	Q Continuum
Sky Guide	Fifth Star Labs
Star Chart	Escape Velocity Limited
SkySafari 6	Simulation Curriculum Corp
Pocket Universe	John Kennedy
Star Walk 2	Vito Technology
Stellarium Mobile Sky Map	Noctua Software Limited
Sky Map	Sky Map Dev
Mobile Observatory	Wolfgang Zima
Red Shift	Red Shift

Name		Look for in the south	Brightest Stars (# Northern Sky)	Season
Leo	The Lion	A sickle, backward question mark or coat hanger in front with a bright star at its base followed by a triangle.	Regulus (#14)	Spring
Corvus	The Crow	A kite or square below Leo.	-	Spring
Virgo	The Maiden	A bunch of stars between Corvus and Leo with one bright star.	Spica (#11)	Spring
Boötes	The Herdsman	A faint kite, balloon or ice cream cone with a bright star at its base.	Arcturus (#2)	Spring
Scorpius	The Scorpion	A scorpion, or a fish hook, low in the horizon with a bright red star as its heart.	Antares (#9)	Summer
Sagittarius	The Archer	A teapot low in the horizon facing toward Scorpius.	-	Summer
Hercules	The Hero	Upside down kneeling figure. The Keystone (square) at the center.	-	Summer
Lyra	The Harp	A small faint parallelogram and small triangle with a very bright star - or a pan with a bright star at the end of the handle. <i>Part of the summer triangle.</i>	Vega (#3)	Summer
Aquila	The Eagle	<i>Part of the summer triangle.</i>	Altair (#8)	Summer
Cygnus	The Swan	A cross or swan with wings crossing its body. A bright star at its tail. <i>Part of the summer triangle.</i>	Deneb (#13)	Summer
Sagitta	The Arrow	Small arrow just inside the summer triangle.	-	Summer
Delphinus	The Dolphin	Small dolphin just below the summer triangle.	-	Summer
Pegasus	The Flying Horse	Upside down flying horse. The great square of Pegasus.	-	Fall
Andromeda	The Princess	Two rows of stars from the corner of Pegasus. Look for a faint smudge which is the Andromeda Galaxy (M31).	-	Fall
Perseus	The Hero	An upside down Y with a "pointy hat" at the top - Between Andromeda and Auriga.	-	Fall
Taurus	The Bull	A sideways V with a bright star representing the eye of the bull. Look for the Pleiades (M45 / the Seven Sisters / Subaru) on the back of the Bull.	Aldebaran (#10)	Winter
Auriga	The Charioteer	A Pentagon or Trapezoid.	Capella (#4)	Winter
Orion	The Hunter	Brightest constellation of the year - two stars for his shoulders - three stars for his belt - sword (with the Orion Nebula / M42) - two stars for his feet.	Betelgeuse (#7) Rigel (#5)	Winter
Canis Major	The Greater Dog	Follow the belt of Orion down to the brightest star ("dog star") in the night sky.	Sirius (#1)	Winter
Canis Minor	The Lesser Dog	A "hot dog" with a bright star at one end .	Procyon (#6)	Winter
Gemini	The Twins	Two bright stars and two rows of stars going down toward Orion and Taurus.	Pollux (#12) Castor	Winter
Cancer	The Crab	A faint upside down Y between Gemini and Leo.	-	Winter
Name		Look for in the north	Bright Star	Season
Ursa Major	The Greater Bear	The Big Dipper - Three stars for the handle and four stars for the bowl.	-	Spring
Ursa Minor	The Lesser Bear	The Little Dipper - Follow the pointer stars in the Big Dipper to the North Star.	Polaris	All Year
Draco	The Dragon	Long winding constellation. Tail between the two dippers. Head near Hercules.	-	All Year
Cassiopeia	The Queen	A large "W" or "M".	-	Fall
Cepheus	The King	A faint child's drawing of a house.	-	Fall

See the IAU web page on constellations for more information - <http://www.iau.org/public/constellations/>