

OBSERVER



April Issue Exclusive - A Beginner's Guide to Stargazing

Added:

+ April Star Chart
+ 2 Constellation Profiles
+ Celestial Events

Stargazing Tips
to Spot any Star



Constellation
Profiles



Best Time to
Stargaze





HIDDEN GEMS OF THE NIGHT SKY

Learn how to spot any constellation with the naked eye and find what's written in the stars...

Long before the creation of the modern-day calendar, humans used **constellations** to **remember the stars' positions** as a way to tell time recognizing that certain constellations appeared during different times of the year. Farmers, especially, found these patterns useful because they knew when to harvest crops and when to plant them based on which constellations they saw for that season. Navigators, on the other hand, could always figure their latitude just by looking at how high the North Star, Polaris, appeared in the sky. While remembering constellations had its practical uses, people from all cultures enjoyed observing constellations and **naming them** based on mythological deities, animals, and objects. From there on, they would use constellations to **tell stories** about them with each culture offering a **unique interpretation** for each constellation. Today, astronomers have used constellations to **divide the night sky** which allows them to **classify each star** according to the constellation it belongs to. As you can see, people **don't need equipment** to see constellations when in fact, they can stargaze just like their ancestors, and it's **not that difficult to get started**. With that said, here is a comprehensive beginner's guide on stargazing and navigating the night sky for constellations.

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Design Manager



Constellations by Season

NORTHERN HEMISPHERE:

There are 30 different visible constellations that appear seasonally, 5 of which, that appear year-round (or are circumpolar). Each star revolves around Polaris, the North Star.

Greatest celestial sites: **Polaris**, **Andromeda Galaxy**, **Aurora Borealis**, Mizar and Alcor (stars), Cat's Eye Nebula, Whirlpool Galaxy, "W" of Cassiopeia, M81 and M82 (galaxy pair), Owl Cluster

- **Circumpolar:** **Ursa Major**, **Ursa Minor**, **Draco**, **Cepheus**, **Cassiopeia**
- **Winter:** **Canis Major**, **Cetus**, **Eridanus**, **Gemini**, **Orion**, **Perseus**, **Taurus**
- **Spring:** **Boötes**, **Cancer**, **Crater**, **Hydra**, **Leo**, **Virgo**
- **Summer:** **Aquila**, **Cygnus**, **Hercules**, **Lyra**, **Ophiuchus**, **Sagittarius**, **Scorpius**
- **Fall:** **Andromeda**, **Aquarius**, **Capricornus**, **Pegasus**, **Pisces**

SOUTHERN HEMISPHERE:

Constellations appear to be upside down, and nowhere will you find Polaris or any star of its equivalent. Also, the North's circumpolar constellations, such as Ursa Major's Big Dipper, Cassiopeia, Draco, and Cepheus become seasonal.

Greatest celestial sites: **Southern Cross**, **Alpha Centauri** and **Proxima Centauri** (stars), Small and Large Magellanic Clouds (dwarf galaxies), Eta Carinae Nebula, Jewel Box (star cluster)

- **Circumpolar:** **Carina**, **Centaurus**, **Southern Cross**
- **Winter:** **Apus**, **Ara**, **Circinus**, **Corona Australis**, **Corona Borealis**, **Delphinus**, **Equuleus**, **Indus**, **Libra**, **Microscopium**, **Norma**, **Pavo**, **Sagitta**, **Scutum**, **Serpens**, **Vulpecula**, **Telescopium**, **Triangulum Australe**
- **Spring:** **Crux**, **Grus**, **Lacerta**, **Octans**, **Phoenix**, **Piscis Austrinus**, **Sculptor**, **Triangulum**, **Tucana**, **Aries**
- **Summer:** **Auriga**, **Caelum**, **Camelopardalis**, **Canis Major**, **Canis Minor**, **Columba**, **Dorado**, **Fornax**, **Horologium**, **Hydrus**, **Lepus**, **Mensa**, **Monoceros**, **Pictor**, **Puppis**, **Reticulum**, **Vela**, **Volans**
- **Fall:** **Antlia**, **Canes Venatici**, **Chamaeleon**, **Coma Berenices**, **Corvus**, **Leo Minor**, **Lupus**, **Lynx**, **Musca**, **Pyxis**, **Sextans**

Bold = well-known and common

Before you go on a stargazing adventure, it's crucial that you know when the stars are most visible at night. Keep these factors in mind to make your stargazing trip the most worthwhile.

- ★ **Moonlight** Natural moonlight washes out the light from most stars making only the brightest ones visible. Any time during the **full moon is the worst time** to go stargazing, but the **best time to go is the days before, during and soon after each new moon**. During this time, you will be able to see thousands of stars with the naked eye compared to a few hundred at other times, making the Milky Way Galaxy a hundred times more clear. In fact, you'll have better vantage points to see fainter objects like nebulae, star clusters, or galaxies during a new moon period if you use a telescope.
- ★ **Light Pollution** Light pollution stretches roughly about 150 km (or 93 miles) in every direction. **When leaving a town or city, the skies start to get noticeably clearer** so if you really want the best stargazing spots, it's recommended that you **drive at least an hour away from a city** in a direction that takes you away from major light sources.
- ★ **Season** In the **summertime**, the days get longer and the nights get shorter which significantly affects stargazing opportunities because of the time it takes for the skies to get dark after sunset. This leaves a **very short window of time in-between to view dark skies**. **Autumn, Winter, and Spring are known to offer the best times to stargaze** with many astronomers calling it the "observing season". Most stargazing events will be held during these times as the nights get longer with one hour gained while many non-commercial observatories stay closed during the summertime due to the longer evening daylight hours.



Now that you know the best times to stargaze, it's time to learn some handy tips to navigate the night sky like a real astronomer. Once you have these basic skills down, you'll start spotting constellations in no time.

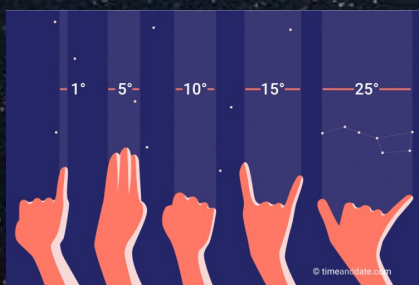
Tip #1: Look for landmarks. If you know even one shape in the sky, you can figure out the rest of the stars' positions just by identifying one star. Fortunately, the Big Dipper is seen year-round pointing to **Polaris**, the North Star. Unlike the rest of the sky, Polaris will always be in its **exact position pointing north**.

Tip #2: Get a star chart. With a star chart, you'll be able to find any constellation and its stars just by **correctly orienting the map** so that it **faces the direction of the sky you are looking in**. For example, if you hold the chart so that south is at the bottom, it shows the sky approximately as you would see it looking south. When using a star chart, make sure you choose one that is appropriate to the season or time of year you are observing. Once the map is properly oriented, begin to look for the star patterns and observe the relative brightness of each star in that pattern. You can make your own printable star chart here: <https://in-the-sky.org/skymap2.php>

Tip #3: Judge distances. Astronomers measure the distance between two celestial objects based on the angle they make with an observational point on Earth (you) which is their apparent distance seen from Earth. You can find the apparent distance of any nearby star from an object just by roughly **estimating the angle with your hand** outstretched arm-length. If you hold your palm out with your digits touching each other, the angle from tip of thumb to tip of little finger is about 20° for most people. Your fist at arm's length covers 10° of the sky while one finger will cover 1° . Use apparent distances to accurately pinpoint specific stars relative to one object such as Polaris and the Big Dipper's pointer star, Dubhe. Knowing apparent angle measures will allow you to easily star hop and navigate the sky much faster.

Tip #4: Try a starhop. For beginners, the best way to navigate the sky is by **starting with simple targets** and slowly progressing towards more difficult ones. Once you find the North Star, you should be able to **spot the circumpolar constellations** that revolve around it if you continue in Polaris' general direction. As you start to get the hang of stargazing, you'll start recognizing familiar star patterns which will help you locate even dimmer objects like galaxies, star clusters, and even nebulae.

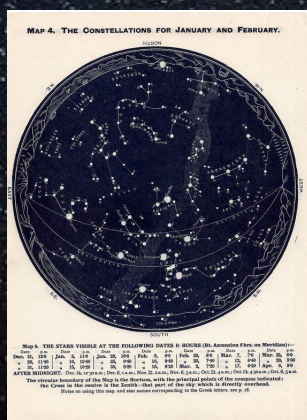
Tip #5: Get out there! With just the **naked eye** on a clear night, you can see roughly **5,000 stars or more** each night. That's enough stars to keep you **searching for a lifetime**. In certain places of the world, you'll be able to see the **Milky Way galaxy** as one would looking through a telescope and so much more, including meteor showers, the Northern Lights, a comet, or other distant galaxies twinkling before your eyes. There's an entire universe out there waiting to be explored so why not go on a stargazing journey?



Hand Technique

The North Star (Polaris) and Dubhe, one of the northern pointers of the Big Dipper, are 3 fists apart. This means that the angular distance or angular separation between the two stars is 30°

Image from timeanddate.com



Star Chart

Image from Etsy sold by Figure10

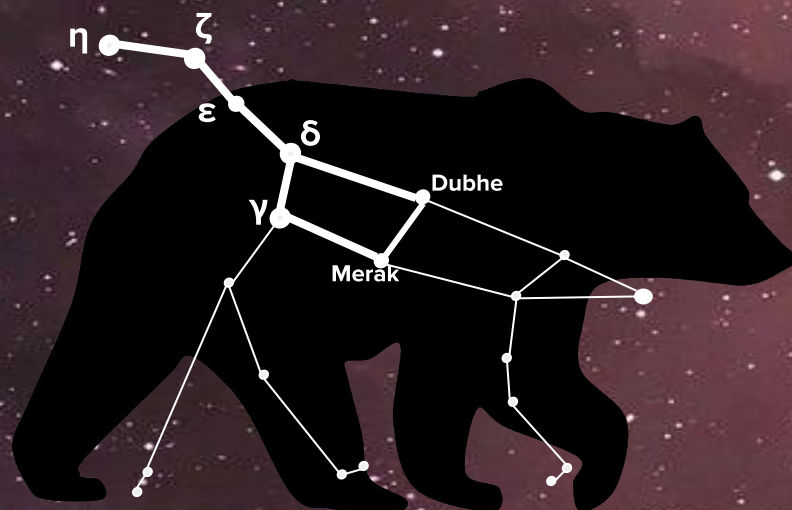
Visit your local observatory!

The **AU Stull Observatory** is open for public viewing **every Friday** from 9 - 11 pm in September, October, November, February, March, and April. In May, June, and July, it is open on **Thursday** from 10 pm to midnight.

Learn more about the Stull Observatory here:

http://helios.alfred.edu/Site/Astronomy_Alfred_University_Stull_Observatory.html

Image from clipart-library.com



Ursa Major, the Great Bear

Meaning: *Ursa maior* = Latin for "greater she-bear"

Notable Stars: Dubhe (α Ursae Majoris), Merak (β Ursae Majoris), Phecda (γ Ursae Majoris), Megrez (δ Ursae Majoris), Alioth (ϵ Ursae Majoris), Mizar (ζ Ursae Majoris), Alkaid (η Ursae Majoris)

Deep Sky Objects: Big Dipper Asterism, Bode's Galaxy, Cigar Galaxy, Owl Nebula, Pinwheel Galaxy, Messier 108 and 109 (galaxy)

Ancient Greeks associated the Mother Bear with the beautiful nymph Callisto who had a love affair with Zeus and together, bore a son named Arcas. Angered by her husband's philandering, Hera turned Callisto into a bear where she would wander around the forest for the next 15 years hiding from hunters. One day, Callisto came face to face with her son, but Arcas, frightened, drew his spear to attack the bear. Seeing the scene unfold from Olympus, Zeus sent a whirlwind that carried both Arcas and Callisto into the heavens, where he turned Arcas into Ursa Minor and Callisto into Ursa Major. Infuriated, Hera persuaded her foster parents to not let the two bathe in the northern waters. This, according to legend, is why Ursa Major and Ursa Minor never set below the horizon in the mid-northern latitudes.

Best known for containing the Big Dipper, Ursa Major is always above the horizon in the northern latitudes. The best time to see it is in spring when it's high above the northeastern latitudes where you will easily see the dipper's seven bright stars which will all point to Polaris, the North Star.

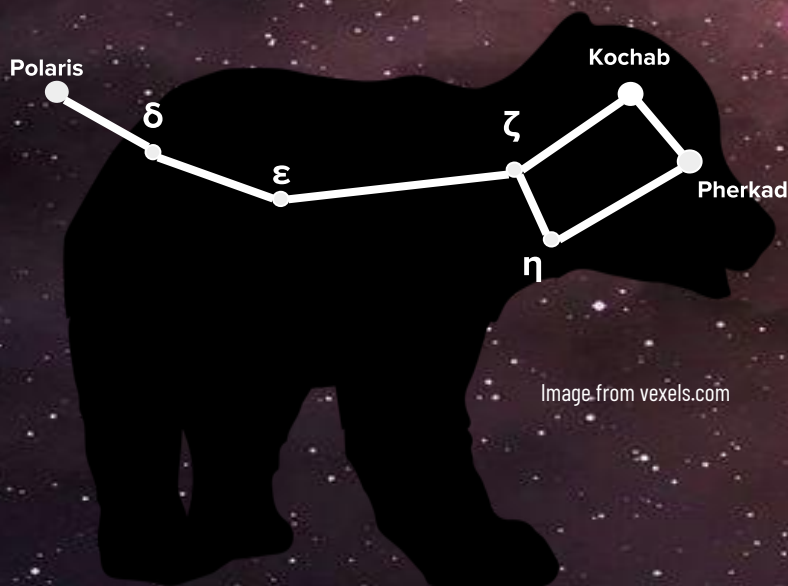


Image from vexels.com

Ursa Minor, the Little Bear

Meaning: *Ursa minor* = Latin for "lesser bear"

Notable Stars: Polaris (α Ursae Minoris), Kochab (β Ursae Minoris), Pherkad (γ Ursae Minoris), Yildun (δ Ursae Minoris), Anwar al Farkadain (η Ursae Minoris), Ahfa al Farkadain (ζ Ursae Minoris)

Deep Sky Objects: Little Dipper Asterism, Ursa Minor Dwarf Galaxy

In one myth, Ursa Minor represents the nymph, Ida, who took care of Zeus on Crete when he was small, together with Adrasteia, the nymph represented by the larger constellation, Ursa Major. In another myth, Ursa Minor is typically associated with Arcas, son of Zeus and the son of Callisto. Callisto had sworn a vow of chastity to Artemis but had failed to keep the promise after her love affair with Zeus.

Like Ursa Major, Ursa Minor is easy to recognize because it is home to the North Star, Polaris, which is contained in the Little Dipper at the end of the dipper's handle. To find Polaris, first find the Big Dipper and from there, you will see two stars by its cusp which will lead you directly to the North Star. The distance to Polaris on the sky is about five times the angle between the two stars at the end of the cup of the Big Dipper.

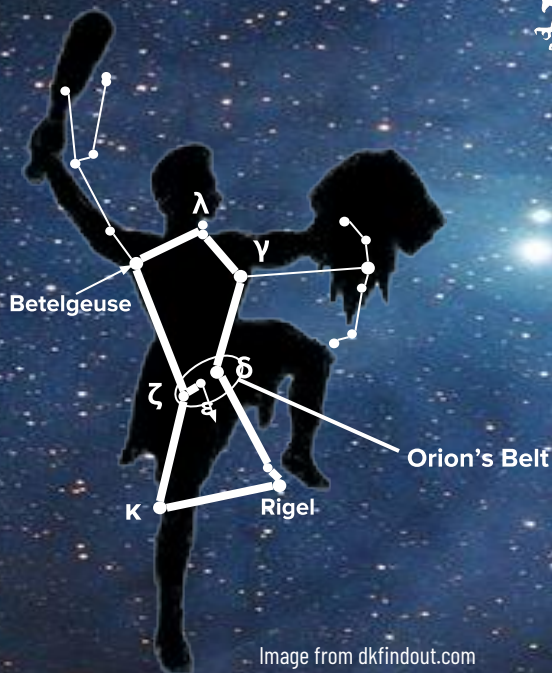


Image from dkfindout.com

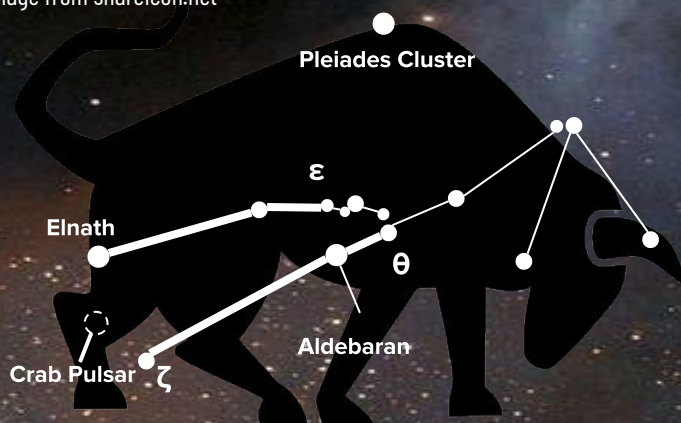
Orion, the Hunter

Meaning: *Orion* = Greek masculine name that translates to "Rising in the sky; Radiant dawn"

Notable Stars: Rigel (β Orionis), Betelgeuse (α Orionis), Bellatrix (γ Orionis), Alnilam (ϵ Orionis), Alnitak (ζ Orionis), Saiph (κ Orionis), Mintaka (δ Orionis), Meissa (λ Orionis)

Deep Sky Objects: Orion's Belt, Orion Complex, Orion Nebula, The Trapezium, De Mairan's Nebula, Barnard's Loop, Horsehead Nebula

Image from shareicon.net



Taurus, the Bull

Meaning: *Taurus* = Latin for "bull, bullock, steer"

Notable stars: Aldebaran (α Tauri), Elnath (β Tauri), Tianguan (ζ Tauri), Alcyone (η Tauri), Chamukuy (θ Tauri), Ain (ϵ Tauri), Crab Pulsar

Deep Sky Objects: Crab Nebula, Pleiades Cluster, Hyades Cluster

Sumerians associated Orion with their legendary hero, Gilgamesh, fighting a heavenly bull represented by Taurus. They called Orion *Uru An-Na* or "light of heaven" and named the Taurus constellation *Gud An-Na* which means "bull of heaven".

In Homer's *Odyssey*, the hunter Orion bore a handsome face, had exceptional strength and height, and was armed with an unbreakable bronze club. In another myth, Orion pursued the love of his life, Pleiades, who were the seven sisters, daughters of Atlas and Pleione. After seven years chasing them, Zeus intervenes and places all of them in the sky. The Pleiades are a famous star cluster consisting of the seven stars (represented as sisters) in the constellation Taurus. To this day, Orion is still chasing after them.

If you are in the northern hemisphere, look southwest for three bright stars close together in an almost straight-line. These three stars (Mintaka, Alnilam, and Alnitak) are the Orion's Belt cluster, while the two bright stars to the north are his shoulders, and the two to the south are his feet.

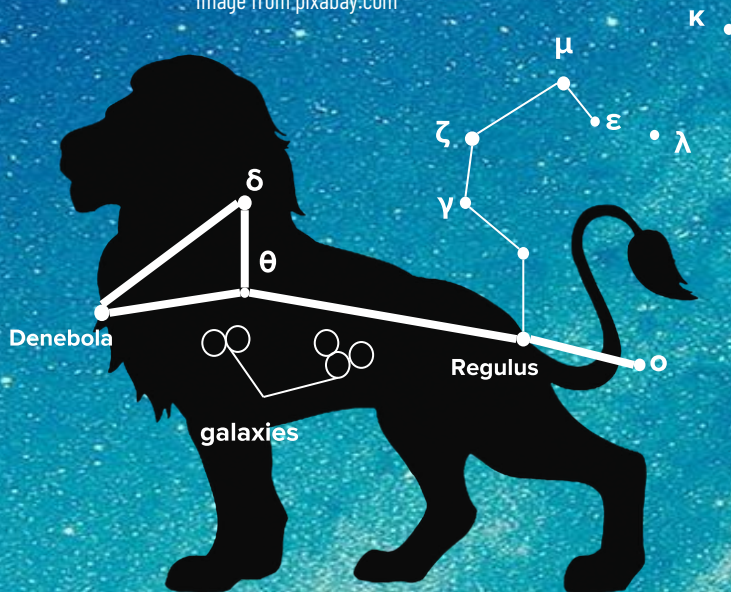
Ancient depictions of the Taurus constellation go way back to 15,000 BC in a Lascaux cave painting where many cultures have recognized the bull and the seven sisters (or the Pleiades cluster), which indicates a common origin for the names.

In one myth, Zeus took on the appearance of a bull in order to seduce and abduct Europa, the beautiful daughter of a Phoenician king. Being the most handsome bull, Zeus attracted Europa's attention and carried her all the way to the island of Crete. Together, they had three sons, including Minos who grew up to be Crete's king, home of the Knossos palace and the bull games held every year. Zeus later commemorated the bull by placing it among the stars along with the seven boys and girls that have been sacrificed to the Minotaur bull god.

The easiest way to see Taurus is by tracing the sun's pathway in the early evening during winter. Once you've oriented yourself towards the sun's yearly path, then let the Orion's Belt from the Orion constellation guide your eye to the Pleiades and Hyades star clusters. There, you will find the bright stars of Taurus including its biggest stars, Aldebaran and Elnath.



Image from pixabay.com

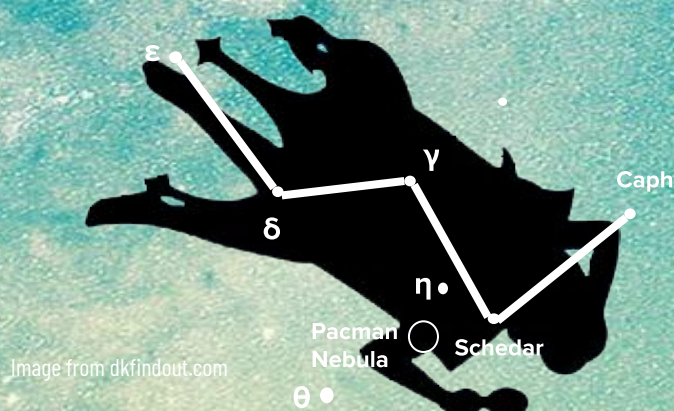


Leo, the Lion

Meaning: Leo = Latin for lion

Notable stars: Regulus (α Leonis), Denebola (β Leonis), Algieba (γ Leonis), Zosma (δ Leonis), Chort (θ Leonis), Al Minliar Al Asad (κ Leonis), Ras Elased Australis (ϵ Leonis), Ras Elased Borealis (μ Leonis), Adhafera (ζ Leonis), Al Terf (λ Leo), Subra (σ Leonis)

Deep Sky Objects: Leo Ring (cloud), Messier 95 and 96 (galaxy), NGC 3384 and 3842 (galaxy), Hamburger Galaxy



Cassiopeia, the Queen

Meaning: *Kassiopeia* = Greek name of a vain and arrogant queen whom Poseidon punished

Notable stars: Tsih (γ Cassiopeiae), Schedar (α Cassiopeiae), Caph (β Cassiopeiae), Ruchbah (δ Cassiopeiae), Segin (ϵ Cassiopeiae), Achird (η Cassiopeiae), Marfak (θ Cassiopeiae)

Deep Sky Objects: Cassiopeia A (supernova), Pacman Nebula, White Rose Cluster

Ancient civilizations such as the Mesopotamians could identify the Leo constellation as early as 4000 BC. The Persians knew the constellations as *Shir* or *Ser*. Babylonians called it *Urgula* ("the great lion"); and the Syrians knew it as *Aryo*. To the Babylonians, Leo's brightest star, Regulus, was known as the King Star, or "the star that stands at the Lion's breast."

The Greeks associated Leo with the Nemean lion, the beast slain by Heracles during the first of his 12 labors. As the king of beasts, the Nemean lion decimated thousands of local inhabitants while its skin could not be pierced by any weapons. Because he could not use his arrows, Heracles wrestled with the lion and eventually choked it to death. Heracles then skinned the lion chopping off its claws for a pelt which he wore as a cloak complete with the lion's head. The cloak offered Hercules protection that made him look very fearsome. Both Eratosthenes and Hyginus wrote that the lion was placed among the constellations afterwards.

You can find Leo anytime by starhopping from the Big Dipper asterism using the two pointer stars from the edge of the dipper's bowl. An imaginary line from these stars points to Polaris and Leo in the opposite direction. Remember, you are looking for a distinctive pattern of stars shaped like a backwards question mark.

Married to King Cepheus of Ethiopia (who is represented by the constellation Cepheus), the vain queen Cassiopeia believed herself to be more beautiful than the Nereids, the 50 sea nymphs fathered by Titan Nereus. Enraged by her comments, the Nereids pleaded to Poseidon to punish Cassiopeia for her conceitedness. The sea god answered their wishes by sending Cetus (represented by Cetus, the Whale constellation) to ravage Cepheus' kingdom. Out of desperation, Cepheus sacrificed their daughter Andromeda to the sea monster in order to appease Poseidon. At the very last minute, the demigod Perseus rescued Andromeda from being consumed and the two ran off from the king and queen. When they married, a battle broke out between him and one of Andromeda's former suitors named Phineas. Desperately outnumbered, Perseus used Medusa's head, the monster he recently killed, to turn his opponents into stone and in the process, accidentally killed Cassiopeia and Cepheus. As punishment, Poseidon placed the two in the sky where she was condemned to circle the celestial pole forever while she spent half the year upside down for her vanity.

Cassiopeia can be found high in the northeastern skies not far from Polaris, the North Star. Along with the Big Dipper, Cassiopeia will spin around Polaris directly opposite from one another. Draw an imaginary line from the Big Dipper handle right past Polaris and you should come across Cassiopeia which looks like a compact M or W, depending on the time of year.

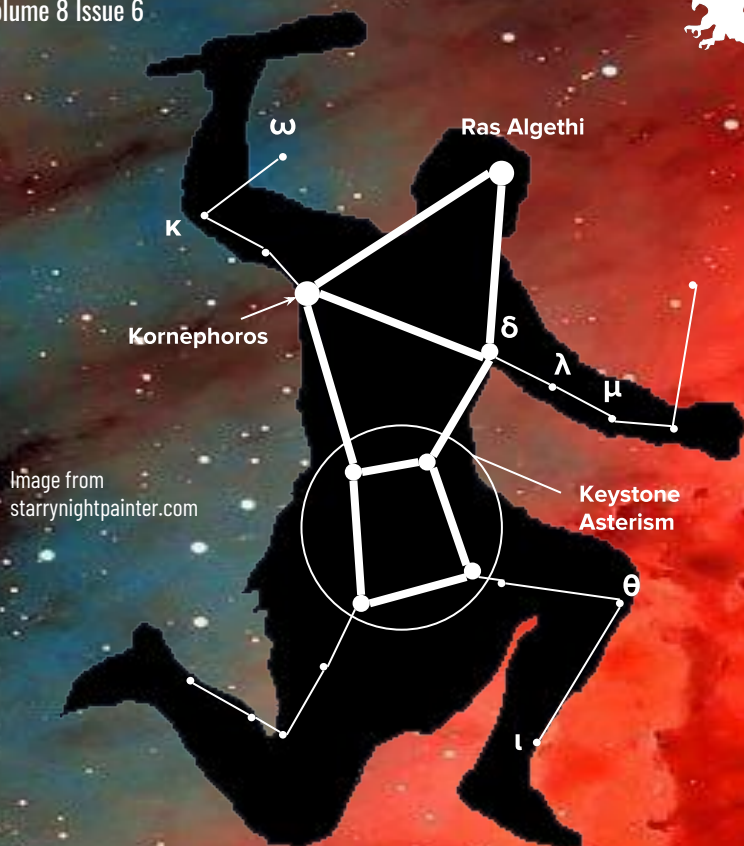


Image from
starrynightpainter.com

Hercules, the Hero

Meaning: *Hēraklēs* = Greek masculine name that translates to “Hera’s Glory”

Notable stars: Kornēphoros (β *Herculis*), Sarin (δ *Herculis*), Ras Algethi (α *Herculis*), Maasym (λ *Herculis*), Rukbalgethi Genubi (θ *Herculis*), Marfak Al Jathih Al Aisr (μ *Herculis*), Caïam (ω *Herculis*), Marsic (κ *Herculis*), Fekhiz al Jathih al Aisr (ι *Herculis*)

Deep Sky Objects: Keystone Asterism, Great Globular Cluster, Hercules Cluster, Abell 39 (nebula), Hercules A (galaxy)

The Hercules constellation is a lopsided boxy pattern of stars located in the skies of the northern hemisphere. In the evening skies, it can be seen directly overhead in the midnight of June and is visible from early March to late September. First, find the two bright stars, Vega and Arcturus, which lie in the Lyra constellation and Boötes constellation respectively. In the middle of the constellations, you should be able to spot Hercules’ Keystone asterism which looks like a boxy torso with two running legs stretched out from the widest part of the Keystone and two arms raised high over the narrow end.

In Greek mythology, Heracles (or Hercules in the Roman equivalent) was the son of Zeus and Alcmena, a mortal woman. After having suckled on Hera’s milk, Heracles gained extraordinary powers that made him no mortal. Enraged at her husband’s infidelity, Hera cast a spell on Heracles that made him slaughter Zeus’ children involuntarily. Once he regained his senses after realizing what he had done, Heracles visited the Oracle at Delphi to atone for his deed. The Oracle sent him to serve Eurystheus, king of Mycenae, for a period of 12 years. It was then that he got the name Heracles, which means “the glory of Hera” changing his given name at birth, Alcides. King Eurystheus then gave Heracles a series of tasks, known as the Labors of Heracles, which included slaying the Nemean lion and destroying the multi-headed beast called Hydra (represented by the Hydra constellation). As he fought with the beast, Hera sent a crab to distract him. Heracles killed the crab, and Hera placed it in the sky as the constellation Cancer. One of his last tasks involved stealing golden apples from Hera’s garden which were heavily guarded by the Hesperides, daughters of the titan Atlas, and by the dragon Ladon. After slaying the dragon, Hera placed Ladon in the sky where the constellation Draco is currently present. The final labor was the most difficult one. Heracles was sent to the gates of the Underworld to fetch Cerberus, a dog that had three heads and was tasked with guarding the entrance making sure those who had crossed the river Styx did not try to escape. After completing the twelve labors, Heracles married Deianeira, daughter of King Oeneus. Heracles later perished after having been poisoned and burned to death by an arrow dipped in Hydra’s poison. The fire burned the part of him that was mortal, and the immortal part joined Zeus and the other gods on Mount Olympus. Zeus placed Heracles in the sky as the constellation now known by its Roman name, Hercules.



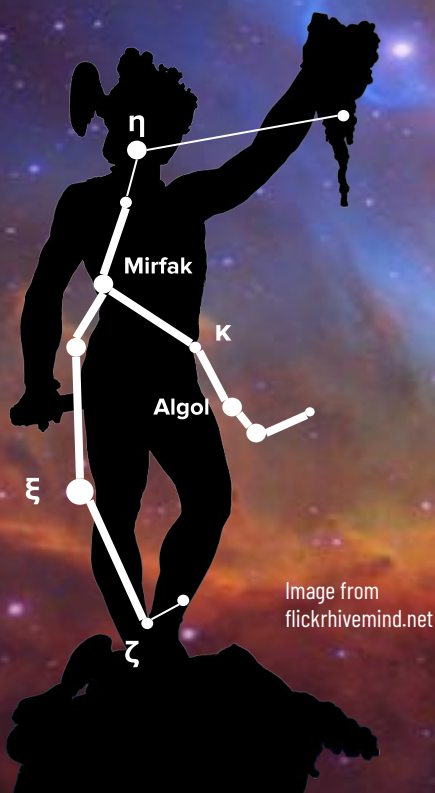
Corvus, the Raven

Meaning: *Corvus* = Latin for raven or crow

Notable Stars: Gienah (γ Corvi), Kraz (β Corvi),

Algorab (δ Corvi), Minkar (ϵ Corvi), Alchiba (α Corvi)

Deep Sky Objects: **Antennae Galaxies**, NGC 4027 (galaxy), NGC 461 (galaxy)



Perseus, the Demigod

Meaning: *Perséas* = Greek masculine name that translates to "Destroyer of cities"

Notable Stars: Mirfak (α Persei), **Algol** (β Persei), Menkhib (ζ Persei), Gorgonea Tertia (ρ Persei), Atik (θ Persei), Menkib (ξ Persei), Miram (η Persei), Misam (κ Persei)

Deep Sky Objects: **Perseid Meteor Shower**, Little Dumbbell Nebula, Alpha Persei Cluster, Perseus Molecular Cloud, California Nebula

One of Apollo's sacred birds was, in fact, a white raven that had watched over one of his lovers named Coronis who was pregnant at the time. Coronis lost interest in Apollo over time and began to fall in love with a mortal man named Isychs. Angered by her infidelity, Apollo flung a curse indirectly at his own bird that scorched its feathers black. As legend goes, that is why all ravens are black. Seeking vengeance on his former lover, Apollo sent his sister Artemis to burn Coronis alive. Before Coronis died, the centaur named Chiron saved her unborn baby named Asclepius (represented by the constellation Ophiuchus) by cutting him out of the womb and would eventually raise him up.

The little squarish Corvus constellation can be found in the south after sunset during March and April. It's not far from the bright star Spica which belongs to the constellation Virgo. To find Spica, first locate the Big Dipper's furthest tip of the handle (or Alkaid). Draw a diagonal line from Alkaid all the way to the bright star Arcturus which is located in the constellation Boötes. Spica will be slightly out of line from Arcturus if you draw a straight line across from it. From there on, you will find a small boxy star pattern belonging to Corvus.

Perseus was the son of Zeus and Danaë, daughter of King Acrisius. Before Perseus was born, King Acrisius threw his mortal mother Danaë in a dungeon after having found out that his own grandson would take his life. Seeing her locked away, Zeus took pity on the woman and fell in love with her. He took the form of golden rain and made Danaë pregnant. Hearing about the pregnancy, Acrisius cast out Perseus and the mother to a remote island called Seriphos. A fisherman named Dictys found the lost pair and took them home where he would raise Danaë's son. Their troubles would not end there, however. Dictys' brother, King Polydectes, threatened to keep Danaë for himself if Perseus could not bring him the head of the Gorgon Medusa, an ugly creature that had hair of vipers and could turn anyone to stone with a single glance. With help from his Olympian allies, Perseus had the armor and the weaponry to take Medusa down. Using an invisible helmet, Perseus snuck up behind Medusa while she slept and decapitated her while using his shield as a reflection to avert her gaze. At home in Seriphos, Polydectes greeted Perseus with hostility, and with that, Perseus used the Gorgon's head to turn the King into stone. Perseus granted Dictys the new king of Seriphos, and afterwards, lived a happy life with his new wife, Andromeda. In the sky, you can find Perseus and Andromeda right next to each other with her parents Cepheus and Cassiopeia nearby. The star Algol in Perseus represents Medusa's head.

To find Perseus, first locate the Big Dipper and draw a line from the two stars at the edge of the dipper's bowl to get to Polaris. Continue a line past Polaris for about two-thirds of the distance and you should be able to recognize Cassiopeia's W cluster. Starting from the constellation farthest from Polaris, locate Cassiopeia's third star in the W. If you draw a line from this star and the second star in the pattern and extend it about three times the distance, you should find Perseus' brightest star Mirfak ahead. You can also verify you did this right by locating the easy-to-spot Pleiades cluster in Taurus which aligns perfectly with Perseus.



Image from Wikimedia Commons

2019 Calendar of Celestial Events

Be sure to mark your calendars for these rare occurrences:

Planets | Meteor Showers

April 16 -25

Lyrid Meteor Showers: In a perfectly dark sky, you can observe around 10 meteors per hour in certain places. The peak of this shower falls in the morning of April 23 with the waning gibbous washing out the paths of the shower. Observe each path and you can trace each Lyrid meteor back to Lyra's brightest star, Vega.

April 16 -25

Mercury At Greatest Western Elongation: One of the few rare occurrences in which Mercury will reach its greatest separation from the sun which makes viewing the planet very easy.

May 6

η -Aquadrid Meteor Shower: Unlike the Lyrids, the moon phase will not interfere with the viewing period, so you will see plenty of comets passing by wherever you are. Its maximum rate of activity is on May 6, but you can still view some of the shooting stars up to May 20.

May 22

Conjunction Of Moon w/ Saturn: For a few hours from midnight to 4pm, Saturn will lie adjacent to the moon's position.

June 10

Jupiter at Opposition: Jupiter will be well placed for observation, in the constellation Ophiuchus. It will be visible for much of the night, reaching its highest point in the sky at around midnight local time.

July 2

New Moon: The moon will not be visible tonight which makes an excellent opportunity to look for faint objects and other stars in the galaxy.

July 21

α -Cygnid Meteor Shower: The Cygnids will reach its peak activity July 21 and some shooting stars associated with them might be available late July to August. Expect about 4 meteors per hour on a dark night.

July 28/29

δ -Aquadrid Meteor Shower: The Aquarid Meteor Shower will be at its peak July 28/29 producing an average of 20 meteors per hour. The waning crescent moon shouldn't be too much of a problem when the skies are dark enough. Best viewing will be after midnight.

August 12/13

Perseid Meteor Shower: The Perseids have some of the best meteor showers producing meteors about 70 to 100 kmh. At its peak, you can spot 80 meteors per hour depending on your location and sky. The full moon, however, might make viewing the meteors difficult so be sure to get to a dim area.

August 15

Venus At Greatest Brightness: Venus will reach its greatest brightness making the planet very conspicuous in the night sky for viewing after the Sun and Moon.

November 11

Mercury Transits Earth: On November 11, Mercury will pass in front of the Sun, casting a small black silhouette in front of the solar disk from 2:04 AM until 8:04 AM. This will be the first transit of the planet since May 2016 and the last since November 2032.

November 18

Pleiades Star Cluster: On any November night, you can find the Pleiades star cluster shining overhead by midnight. Locate the seven stars by the bright pointer star Aldebaran on any night with the naked eye.

December 13

Geminid Meteor Shower: The Geminid meteor shower will reach its maximum activity rate December 13 with 100 meteors per hour in a perfectly dark sky. The waning gibbous moon, however, will severely limit observation.



This Star Chart shows how the sky looks at:

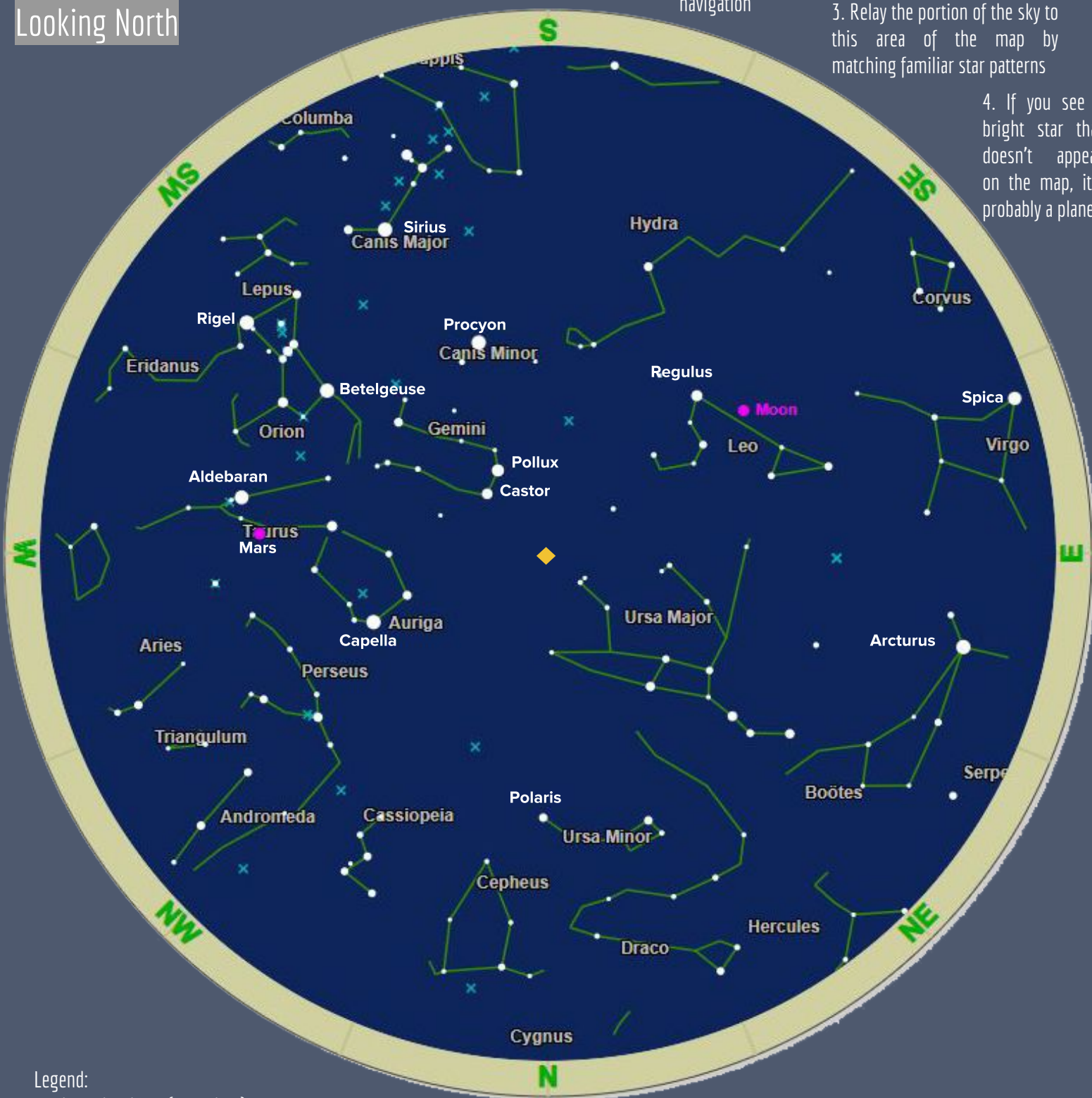
April 15 at 8:00 PM

Western NY

Looking North

How to Use:

1. Whichever direction the chart points at the bottom is the direction of the sky you're looking in
2. The bigger the star on this chart, the brighter the star appears at night. Look for these stars first for easier navigation
3. Relay the portion of the sky to this area of the map by matching familiar star patterns
4. If you see a bright star that doesn't appear on the map, it's probably a planet



Legend:

x = deep sky object (i.e. galaxy)

◆ = zenith, the point directly overhead

Edge of star chart = horizon

This star chart was generated by in-the-sky.org

Make your own star chart here: <https://in-the-sky.org/skymap2.php>



Other Spotted Stars

| Works Cited page | Thanks for reading! Be sure to share this article with others!

Anderberg, Jeremy. "15 Constellations Every Man Should Know (And How to Find Them)." *The Art of Manliness*, 5 June 2018, www.artofmanliness.com/articles/15-constellations-every-man-should-know/.

Bakich E., Michael. "The Deep Sky." *Astronomy.com*, Astronomy Magazine, 10 Mar. 2010, www.astronomy.com/observing/tour-the-deep-sky/2010/03/the-deep-sky.

"A Beginner's Guide to Astronomy." *Sky & Telescope*, www.skyandtelescope.com/astronomy-resources/stargazing-basics/learn-the-sky/.

Carter, Jamie. "A Beginner's Guide to the Southern Hemisphere Sky." *Sky & Telescope*, F+W Media, Inc., 2 Mar. 2018, www.skyandtelescope.com/observing/beginners-guide-to-the-southern-hemisphere-sky/.

"Constellation Guide: Orion Constellation." *Constellation Guide*, www.constellation-guide.com/constellation-list/orion-constellation/.

"Constellation List." *Constellation Guide*, WordPress, 2019, www.constellation-guide.com/constellation-list/.

Ford, Dominic. "Calendar of Astronomical Events 2019." *In*, Mythic Beasts, 13 Apr. 2019, in-the-sky.com/news/cal.php.

Kierstead, Jeanette. "How to Identify Constellations in the Night Sky." *Backyard Design And Decor*, Backyard Design and Decor, 14 July 2018, thebackyardgnome.com/how-to-identify-constellations-in-the-night-sky/.

Knorovsky, Katie. "4 Easy Tips for Better Stargazing." *How to Stargaze: Four Tips for the Night Sky*, National Geographic Travel, 10 May 2018, www.nationalgeographic.com/travel/lists/activities/tips-for-better-stargazing-astronomy-viewing/.

"List of Stars in Ursa Minor." *Wikipedia*, Wikimedia Foundation, 30 Nov. 2018, en.wikipedia.org/wiki/List_of_stars_in_Ursa_Minor.

"When to Go Stargazing - Tips for the Best Times to Stargaze." *Go Stargazing*, go.stargazing.co.uk/when-to-go-stargazing/.