Seasonal Highlights

Listed below are some highlights for each season. Items marked with * in the *Target* column are considered exceptional targets and should not be missed. Selection was based on ease of locating and/or viewing pleasure. Of course, this is a subjective list and what equipment you have will have great impact on your viewing experience. Each seasonal list is ordered according to what constellation is best positioned within the season from earliest to latest.

Spring (March – May)

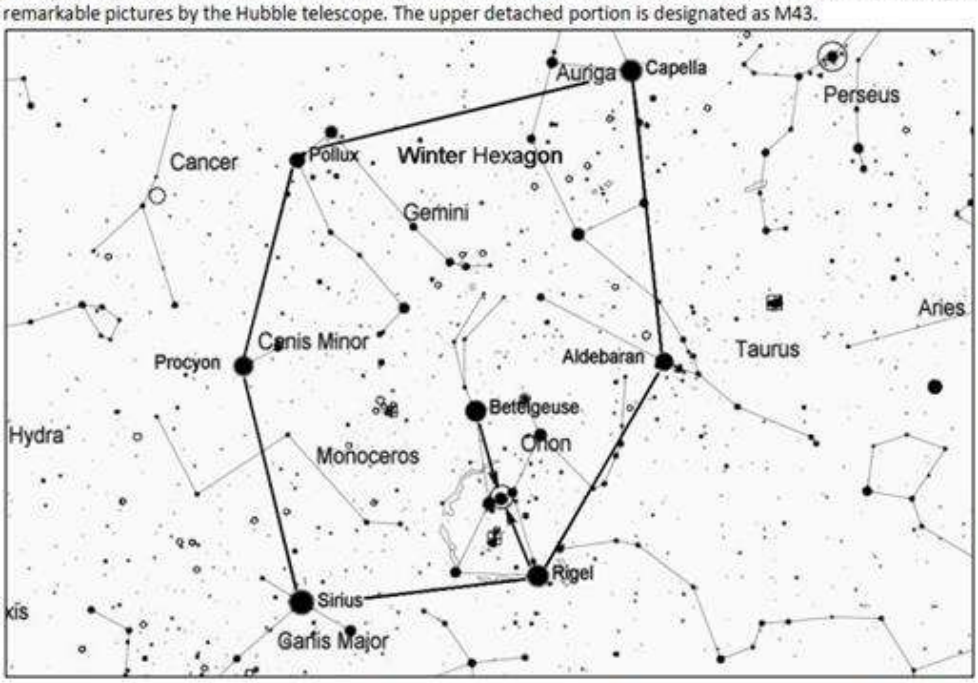
Const	Target (Type)	Size / Sep	Comments
Leo	Leo Trio (G)	45’	M-65, M-66, NGC-3628 group of galaxies in close proximity
Hya	NGC-3242 (PN)	25”	Ghost of Jupiter. A planetary nebula roughly the size of Jupiter.
UMa	*Mizar & Alcor (MS)	709”, 14’	A splendid binocular pair and easily located; a telescope triple; Mizar is a double with 14’ separation between stars.
UMa	*M-81, 82 (G)	45’	Bode’s Galaxy & Cigar Galaxy, a pair of galaxies in close proximity.
UMa	M-101 (G)	29x27’	Pinwheel galaxy. Face-on galaxy nearly the size of the full moon. Large aperture is required to see any details on this object.
Com	Mel 111	7.5°	Coma Star Cluster. About 40 stars in a 4.5° area.
CVn	*M-003 (GC)	18’	A bright globular cluster with a very dense center.
CVn	M-094 (G)	11x9’	A bright face-on spiral galaxy. Large scopes show some detail in its spiral arms.
CVn	M-051 (G)	11x7’	Whirlpool Galaxy. Two interacting galaxies
Vir	M-104 (G)	9x4’	Sombrero Galaxy. Visible in small telescope with dark dust band.

Summer (June – August)

Const	Target (Type)	Size / Sep	Comments
Sco	M-006 (OC)	25’	Butterfly Cluster. Shape does resemble a butterfly
Sco	M004 (GC)	26’	Small globular with row of bright stars going through the middle.
Sgr	*M-008 (EN, OC)	90x40’	Lagoon Nebula. Large open cluster in nebula.
Oph	IC-4665 (OC)	40’	A large and sprawling open cluster, good for binoculars.
Her	*M-013 (GC)	20’	Hercules Cluster: Best globular cluster in the Northern Hemisphere.
Sct	M-011 (OC)	23’	Wild Duck Cluster. A rich very dense open cluster.
Lyr	*M-057 (PN)	1x1’	The Ring Nebula. Bright PN visible even in small telescopes.
Sgr	M-017 (EN, OC)	11’	Swan Nebula. Cluster of bright stars in faint nebulosity.
Sgr	M-022 (GC)	32’	One of the largest, brightest, and most impressive globular clusters in the sky.
Sgr	M-024 (Star Cloud)	2x1°	Sagittarius Star Cloud. Great binocular target.
Cyg	*Albireo (DS)	35”	The most celebrated double in the northern hemisphere.
Vul	M-027 (PN)	8x6’	Dumbbell Nebula. A large PN with hour-glass shape.
Vul	Collinder 399	60’	Coathanger Cluster. A great binocular target.

Messier 42 and 43, the Orion Nebula

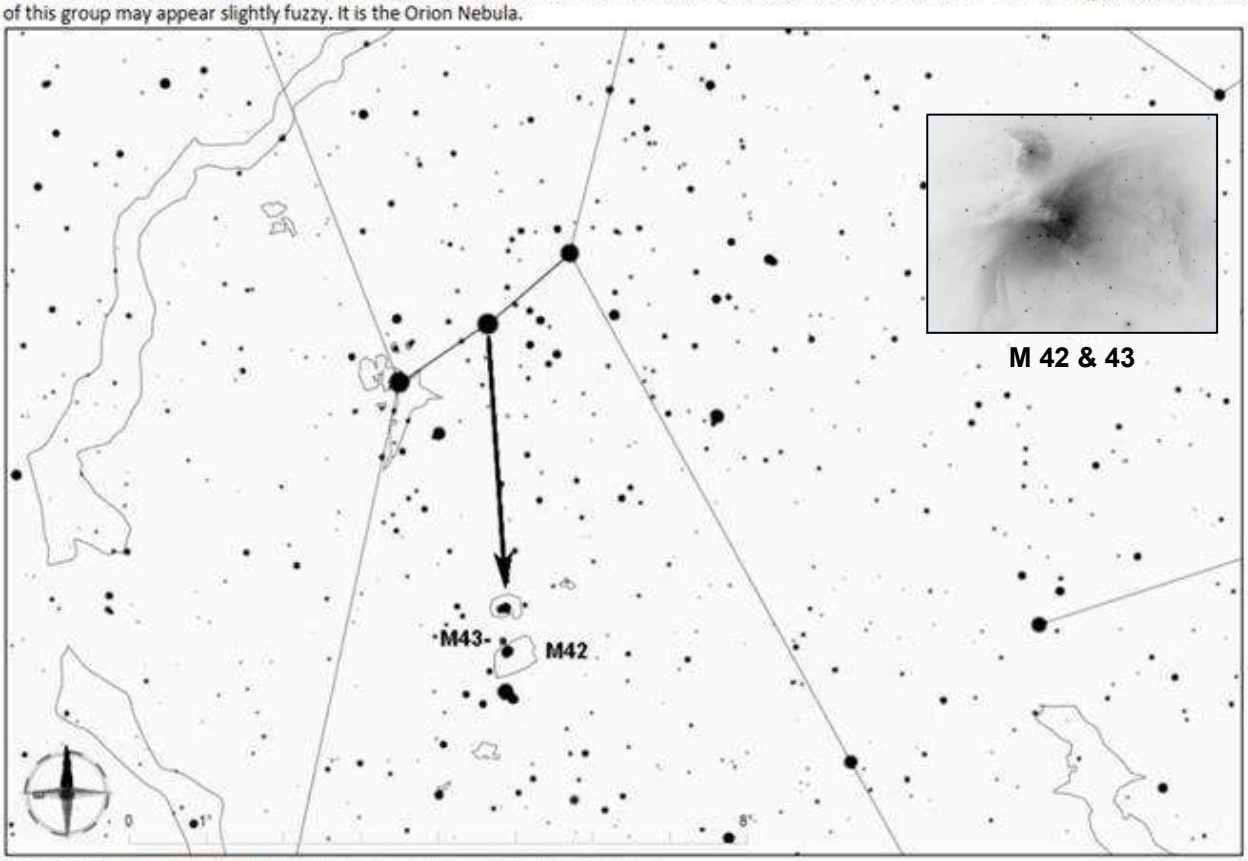
The Orion Nebula is one of the easiest nebulas to find, and it is visible to the naked eye as part of Orion's sword. It is a wonderful sight in binoculars or any telescope. The human eye has different color sensitivity to dim light than a camera. Most photographs show mostly reds and pinks, but through a large telescope the nebula is a lime green, with touches of pink. Many new stars are currently forming in this nebula, as seen in some remarkable pictures by the Hubble telescope. The upper detached portion is designated as M43.



If you don't know how to find the constellation Orion, first find the Winter Hexagon, which is composed of six of the brightest stars in the sky--Sirius, Procyon, Pollux, Capella, Aldebaran, and Rigel. On mid-winter evenings, these stars form a large oval stretching from low in the south to nearly overhead. As spring begins, the Winter Hexagon sinks toward the west. The constellation Orion and its bright red star Betelgeuse are inside the Hexagon.

Between Betelgeuse and Rigel is a row of three bright stars that form the belt of Orion.

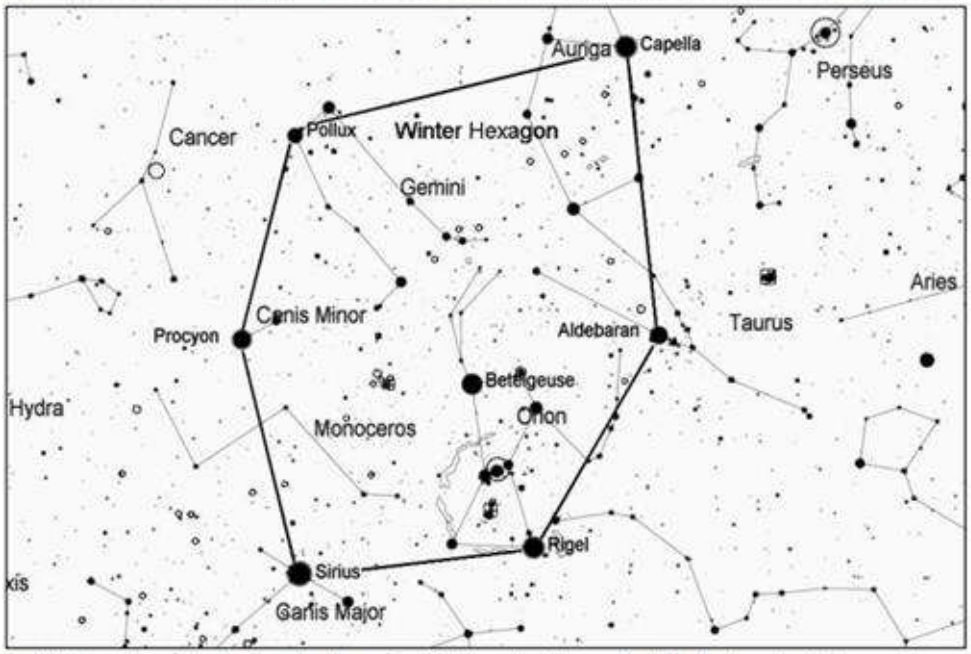
Look below the center star of Orion's belt and you should see a row of three dimmer stars, oriented north-south. To the naked eye, the central star of this group may appear slightly fuzzy. It is the Orion Nebula.



Star hop from www.skyledge.net by Jim Mazur. Star charts created with *Cartes du Ciel*.

Messier 36, 37, and 38, and NGC 1907, Open Clusters in Auriga

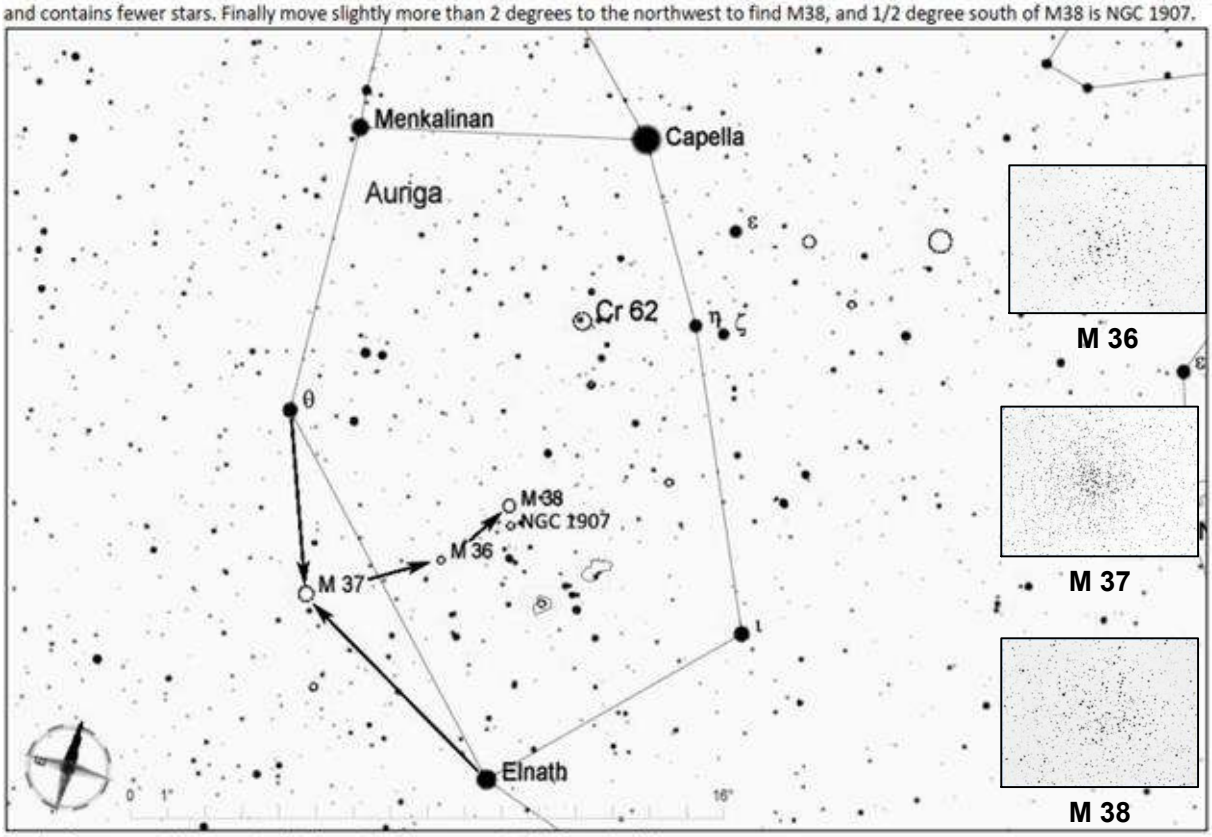
These attractive clusters present interesting variations in size and appearance. Messier 36 is about 12 arcminutes across. Messier 37 is about twice as large and is more densely packed with stars. Messier 38 is about as large as M37, but its stars are more widely spaced. NGC 1907 is about 6 arcminutes across, densely packed. All of these can be observed in succession by sweeping from one to the next, as described below.



Find the Winter Hexagon, which is composed of six of the brightest stars in the sky--Sirius, Procyon, Pollux, Capella, Aldebaran, and Rigel. On mid-winter evenings, these stars form a large oval stretching from low in the south to nearly overhead. As spring begins, the Winter Hexagon sinks toward the west. The constellation Orion and its bright red star Betelgeuse are inside the Hexagon.

For this star hop, find Capella, the most northerly of the six stars in the Hexagon, and the brightest star in the constellation Auriga.

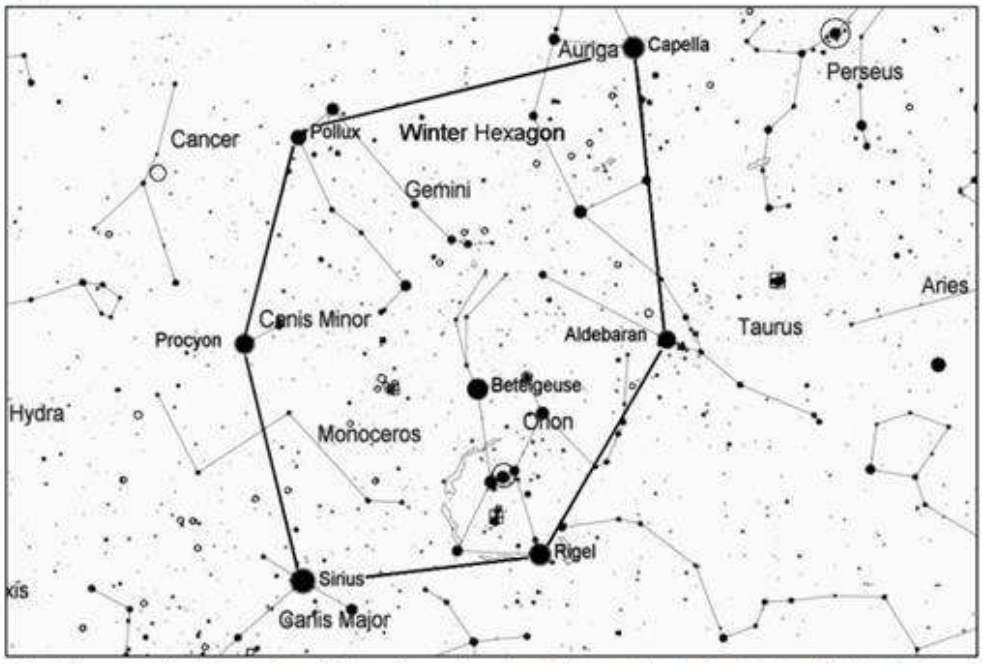
The brightest stars of Auriga form the shape of a slightly crooked house. Look for the two stars that are on the opposite side of this house from Capella (θ and Elnath). Use these two stars to form the base of a long, thin triangle, with the third point just outside the house, as shown below. This is the location of M37, the largest and brightest of these three clusters. Move 4 degrees to the west-northwest to reach M36, which is smaller and contains fewer stars. Finally move slightly more than 2 degrees to the northwest to find M38, and 1/2 degree south of M38 is NGC 1907.



Star hop from www.skyledge.net by Jim Mazur. Star charts created with *Cartes du Ciel*.

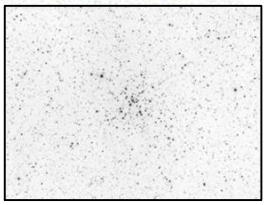
Messier 41, Open Cluster in Canis Major

At magnitude 4.5, Messier 41 is not too hard to spot with the naked eye as a hazy spot below brilliant Sirius. Through binoculars or a telescope, M41 is one of the more impressive open clusters in the winter sky. See if you can detect the color variations among its stars. This cluster is about 25 light years across and about 2300 light years away.



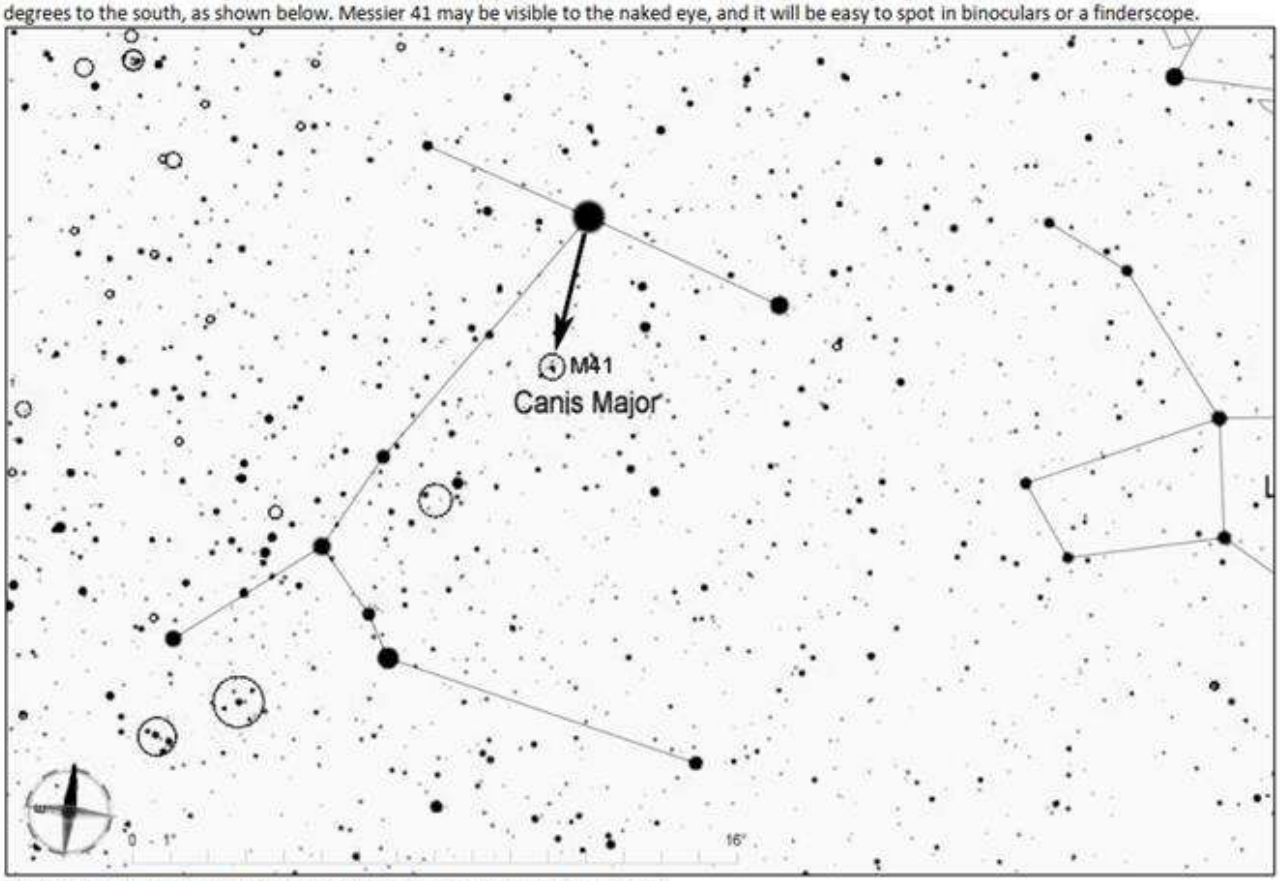
Find the Winter Hexagon, which is composed of six of the brightest stars in the sky--Sirius, Procyon, Pollux, Capella, Aldebaran, and Rigel. On mid-winter evenings, these stars form a large oval stretching from low in the south to nearly overhead. As spring begins, the Winter Hexagon sinks toward the west. The constellation Orion and its bright red star Betelgeuse are inside the Hexagon.

For this star hop, find Sirius, the brightest star in the sky.



M 41

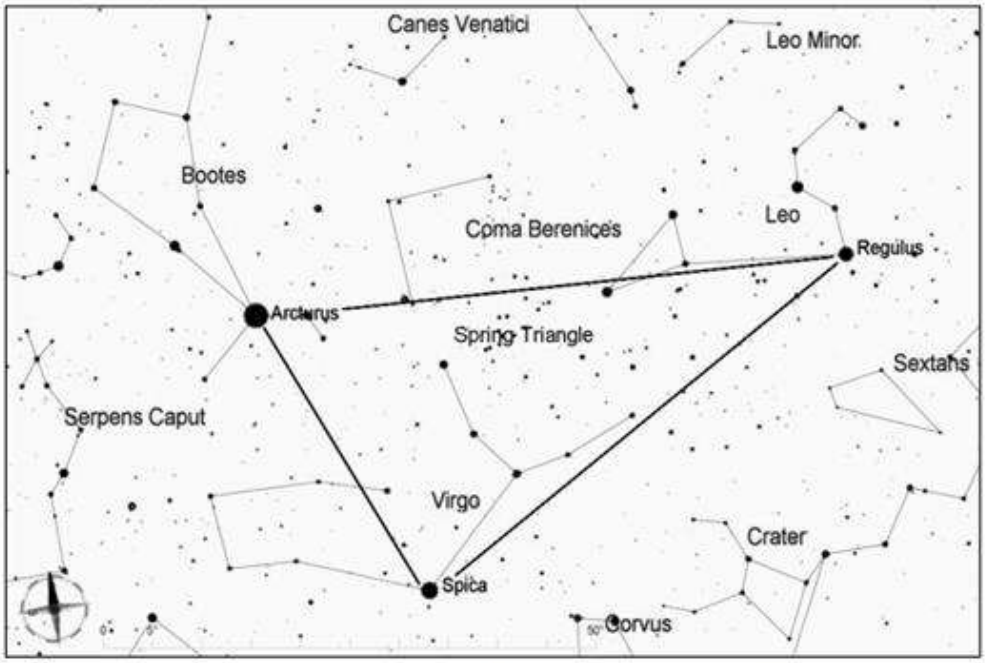
Sirius is known as the "dog star," and it forms the neck region of the constellation Canis Major, the big dog. From Sirius, look toward a point 4 degrees to the south, as shown below. Messier 41 may be visible to the naked eye, and it will be easy to spot in binoculars or a finderscope.



Star hop from www.skyledge.net by Jim Mazur. Star charts created with *Cartes du Ciel*.

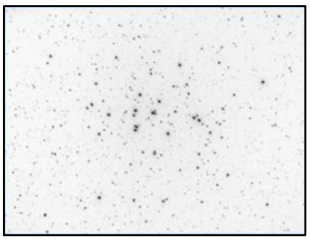
Messier 44, the Beehive Cluster

The Beehive is one of the nearest open clusters, about 610 light years away. It is visible to the naked eye as a large hazy patch in the center of the dim constellation Cancer, about twice the diameter of the full Moon. Because of its large size, it is best viewed through binoculars or a small telescope at low power.



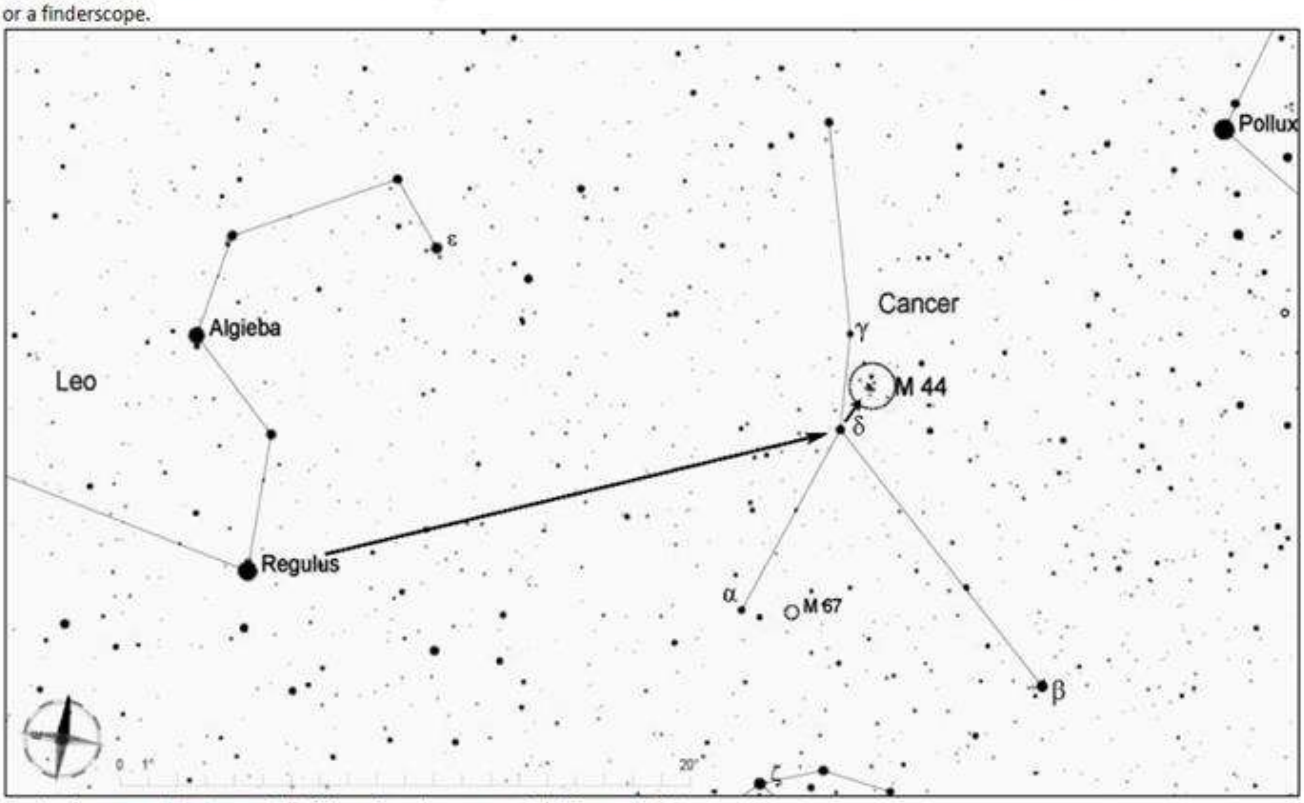
Start by finding the Spring Triangle, which consists of three widely-separated first magnitude stars--Arcturus, Spica, and Regulus. The Spring Triangle is high in the southeast sky in early spring, and in the southwest sky by mid-Summer. (To get oriented, you can use the handle of the Big Dipper and "follow the arc to Arcturus").

For this star hop, begin at Regulus in the constellation Leo, the lion.



M 44

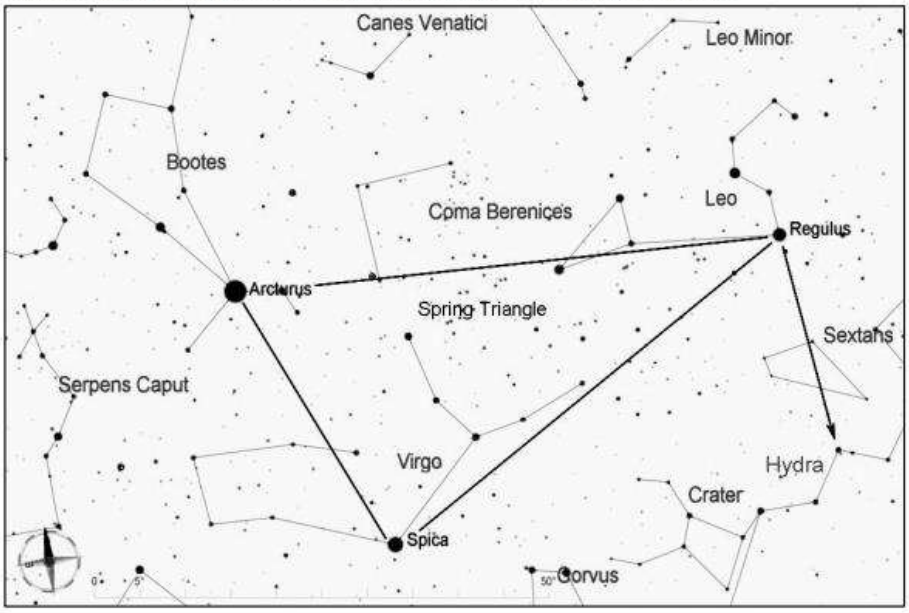
The dim constellation Cancer, the crab, has no stars brighter than magnitude 3.5. As shown below, the constellation is locasted about half way between Regulus and first-magnitude Pollux in Gemini. From Regulus, look about 15 degrees to the northwest to find δ Cancri, a magnitude 4 star in the center of Cancer. The Beehive is about a degree to the north of δ Cancri. If you can't see it with the naked eye, it will be obvious in binoculars or a finderscope.



Star hop from www.skyledge.net by Jim Mazur. Star charts created with *Cartes du Ciel*.

NGC 3242 (Caldwell 59), the Ghost of Jupiter in Hydra

The Ghost of Jupiter is a planetary nebula, the remnant of an old star. It has a disk roughly the apparent size of Jupiter, but it is pale and bluish in color. At magnitude 7.3, it will be visible in any telescope. Use high magnification to see its oval shape. Larger scopes will show the star in its center and some detail in the surface of the disk. This nebula is about 3600 light years away.



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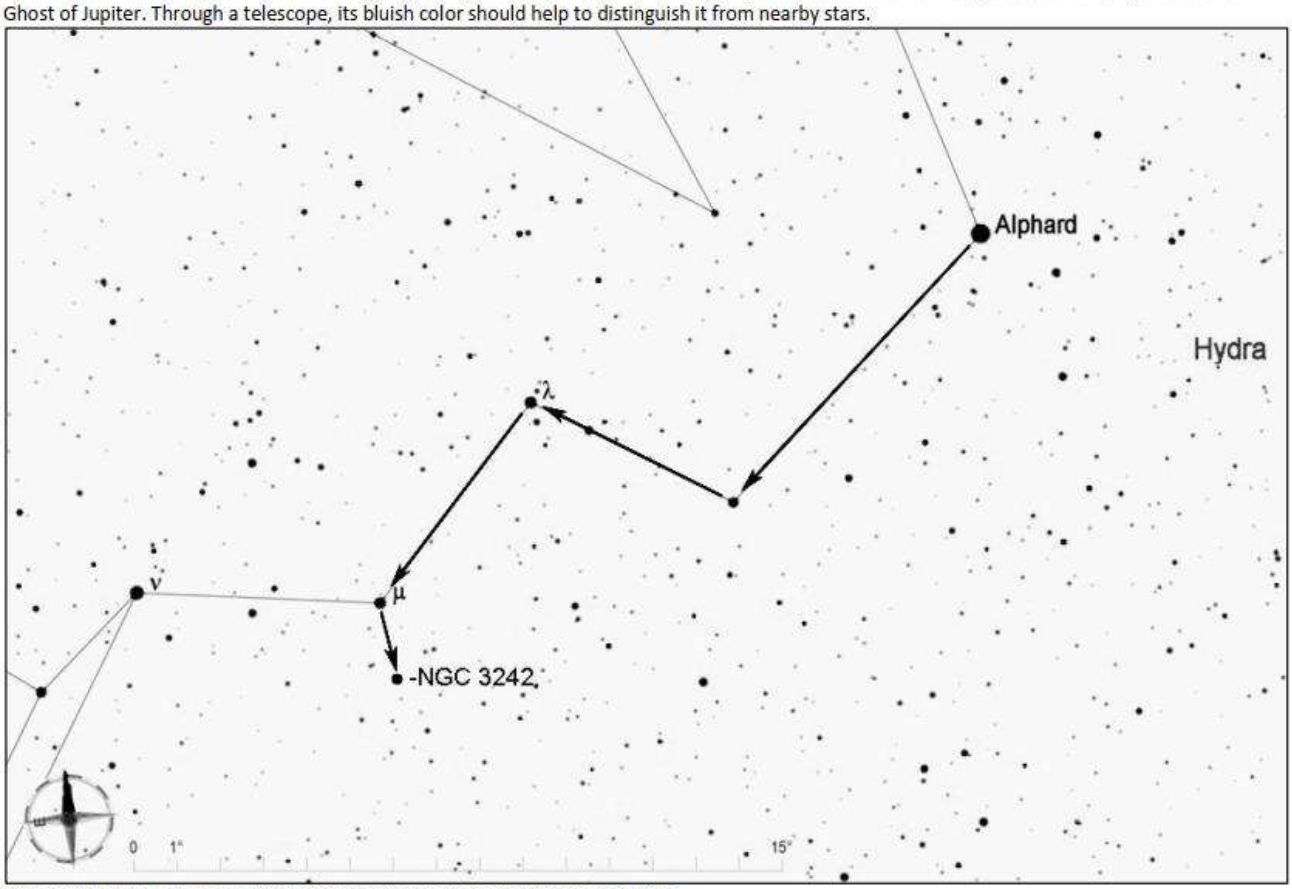
For this star hop, begin at Regulus in the constellation Leo. Look about 30 degrees south of Regulus for the zig-zag constellation of Hydra.

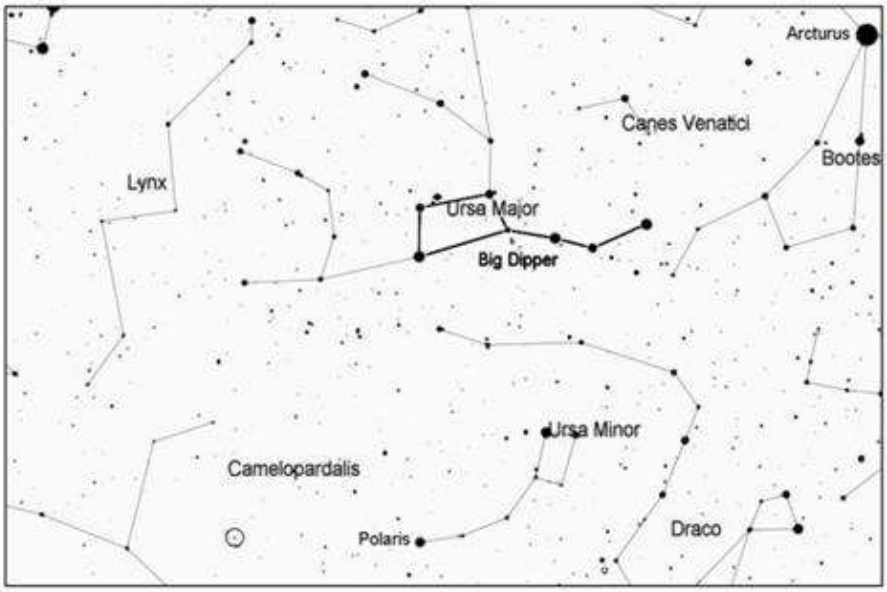
The brighest star in Hydra, the water snake, is 2nd magnitude Alphard, easily visible to the naked eye. From Alphard, look east and follow a zig-zag line of stars that form part of the slithering body of Hydra to reach μ (mu) Hydrae, magnitude 3.8. Less than 2 degress south of μ Hydrae is the Ghost of Jupiter. Through a telescope, its bluish color should help to distinguish it from nearby stars.



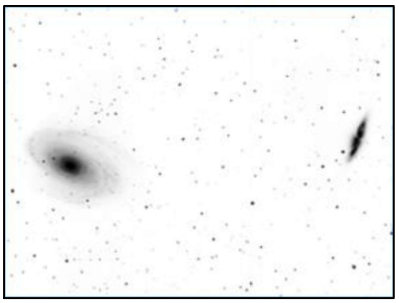
Star hop from www.skyledge.net by Jim Mazur. Star charts created with *Cartes du Ciel*.

Messier 81 and 82, Galaxies in Ursa Major

Visible for much of the year, this is probably the most-frequently viewed pair of galaxies in the sky. Through a telescope, M81 is a fuzzy oval and M82 has a long rectangular shape that gives it the nickname the Cigar Galaxy. These galaxies are at the enormous distance of 12 million light years away, yet they are among the closest galaxies to us. Using high magnification can help show some of the intricate structure of M82.

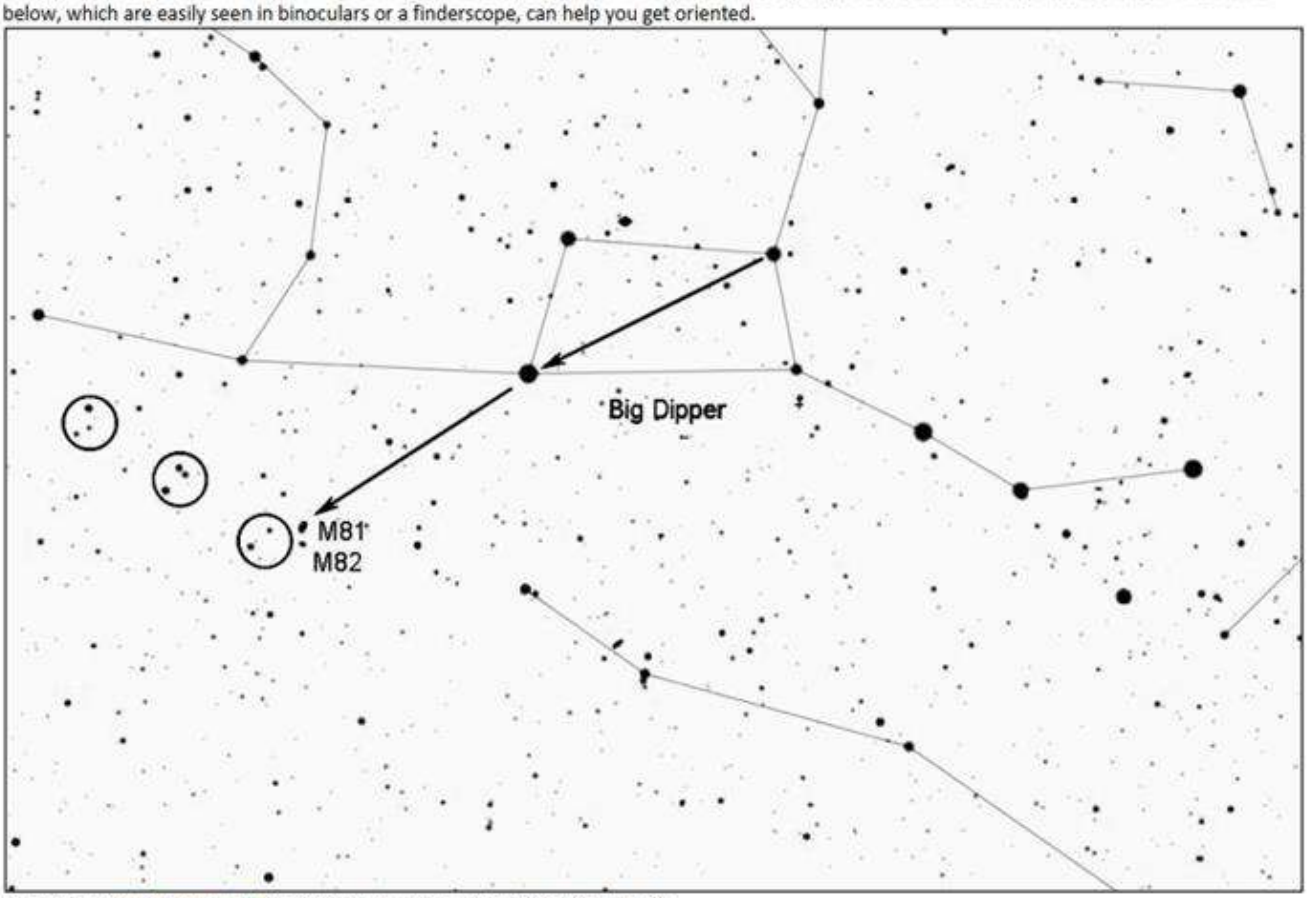


Start by finding the Big Dipper, one of the most recognizable star patterns in the sky. It is part of the constellation Ursa Major, the big bear. It is shown here upside down, high in the sky above Polaris, which is where it can be found during the evenings in spring and summer. For other seasons and times of night, rotate the chart as needed to match what you see in the northern sky.



M 81 & M 82

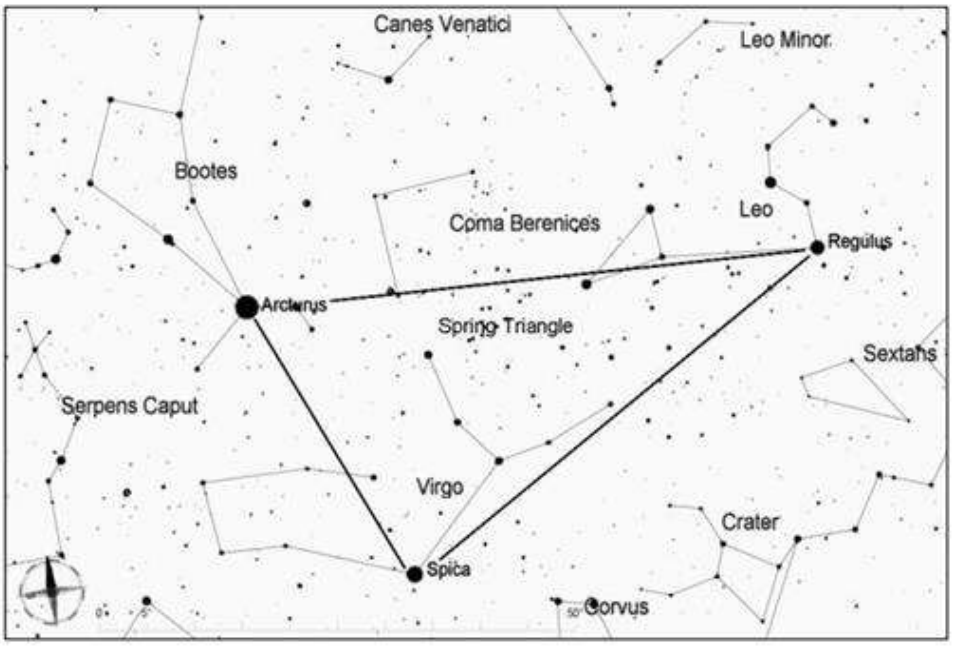
Visualize a diagonal line across the bowl of the Big Dipper, and extend this line a slighty longer distance outside the bowl, as shown below. This will bring you to the general vicinity of M81 and M82. It is easy to get lost in this part of the sky. If you do, the three star patterns circled in the chart below, which are easily seen in binoculars or a finderscope, can help you get oriented.



Star hop from www.skyledge.net by Jim Mazur. Star charts created with *Cartes du Ciel*.

Messier 65, 66, and NGC 3628, the Leo Trio

These three galaxies will all fit in a 1-degree field of view of a low-power eyepiece, and they are bright enough to be seen with even small telescopes. Messier 65 and 66 appear oval with brighter centers. NGC 3628 is larger but dimmer and more challenging to see. It has a very elongated shape, and with large telescopes its dust lane can be spotted. This group of galaxies is about 35 to 40 million light years away.



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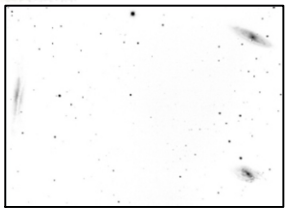
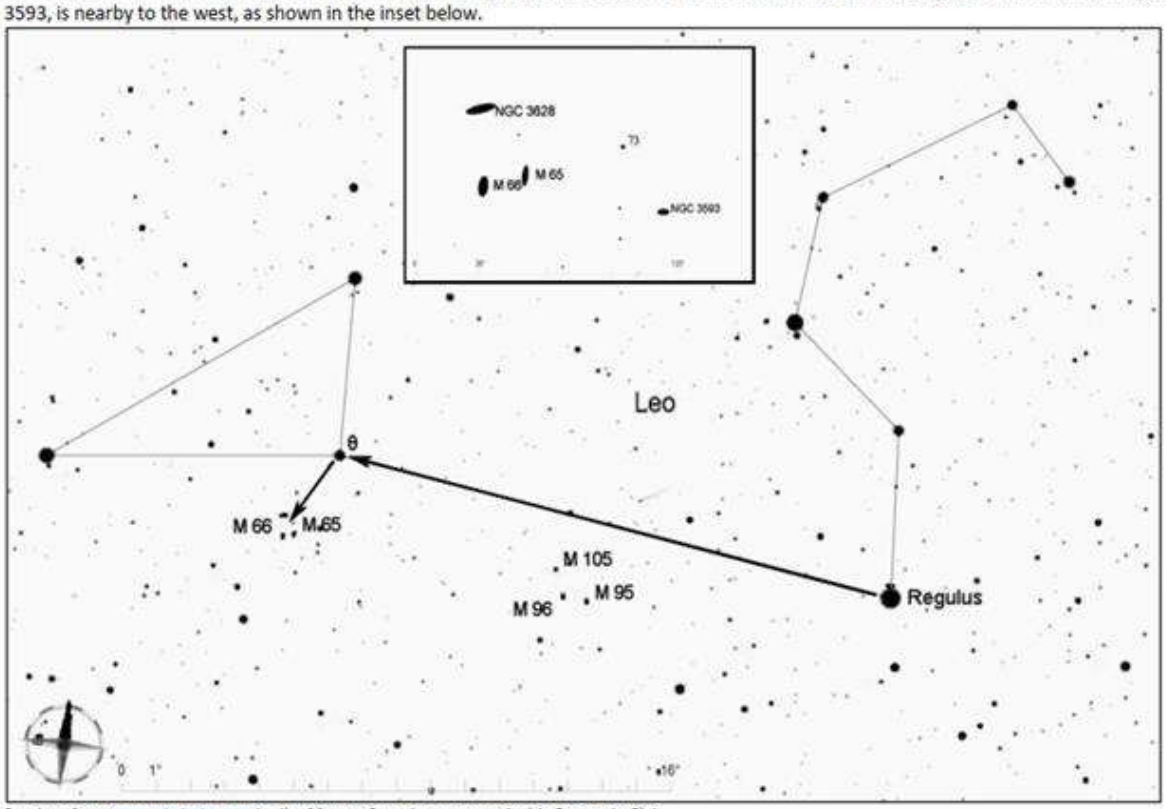
For this star hop, begin at Regulus in the constellation Leo, the lion.



M 67, 66 & NGC 3628

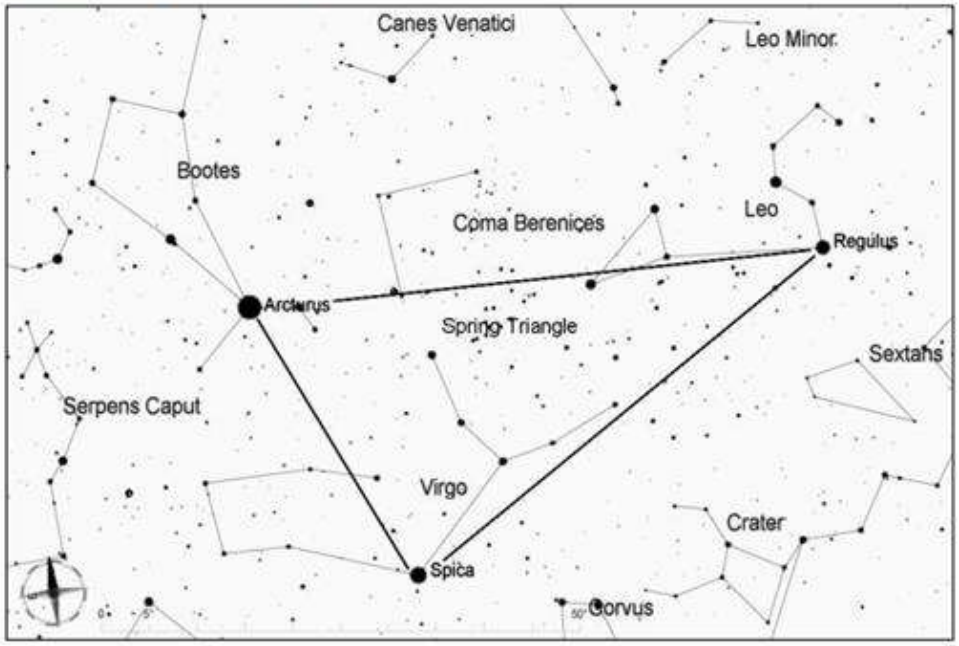
The constellation Leo looks like a lion in profile, with its head to the west and its tail to the east. After finding Regulus, look for θ Leonis, one the the three stars that form the back end of the lion. Then move your score about 2.5 degrees to the southeast to arrive at the region of Leo Trio. You can use low power to view them all at once, then switch to higher power to look for more details in the individual galaxies. Another spiral galaxy, NGC 3593, is nearby to the west, as shown in the inset below.



Star hop from www.skyledge.net by Jim Mazur. Star charts created with *Cartes du Ciel*.

Messier 104, the Sombrero Galaxy

As it crosses through the southern sky each spring, the Sombrero Galaxy is a popular target for galaxy observers. It can be seen with telescopes large and small. Its bright nucleus and sharply pointed arms are fairly easy to see. The lower half of the galaxy, below the broad dust lane, is dimmer and requires a reasonably dark sky to see well.



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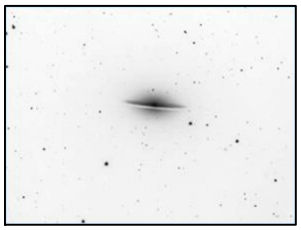
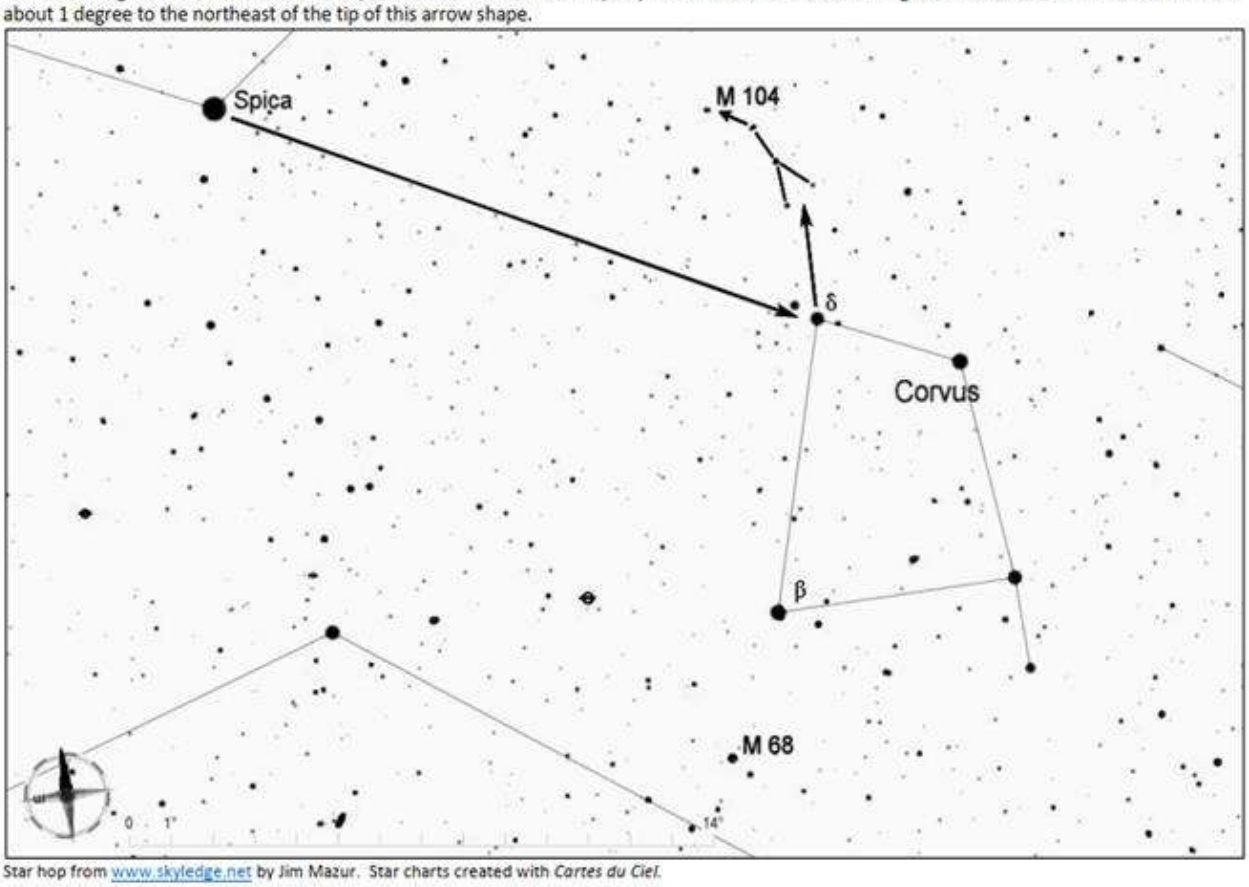
For this star hop, begin at Spica in the constellation Virgo.



M 104

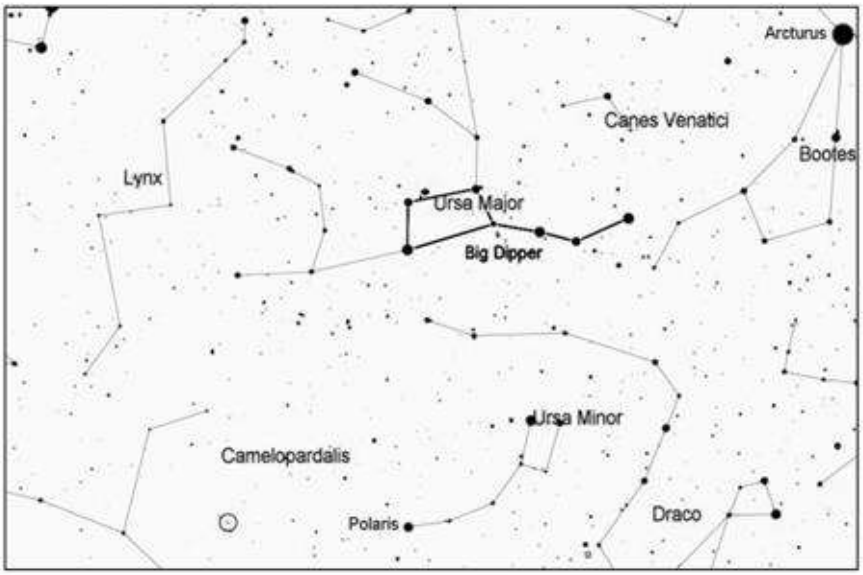
Look about 20 degrees to the southwest of Spica to find the distinctive four-sided shape of Corvus, the crow. Using binoculars or a finderscope, look a few degrees north of δ Corvus and you should see an arrow-shaped pattern of four 5th and 6th magnitude stars, as shown below. M104 is about 1 degree to the northeast of the tip of this arrow shape.



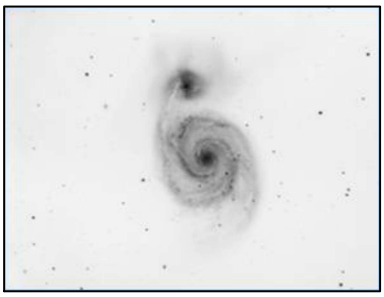
Star hop from www.skyledge.net by Jim Mazur. Star charts created with *Cartes du Ciel*.

Messier 51, the Whirlpool Galaxy

The Whirlpool Galaxy is one of the brightest examples of a face-on spiral galaxy visible in our skies. It is about 23 million light years away. The irregular companion galaxy that appears to be connected to one of the spiral arms is NGC 5195. The companion is actually slightly farther away. The two bright nuclei of these galaxies can be seen in small telescopes, and larger scopes will show nice detail in the Whirlpool's spiral arms.

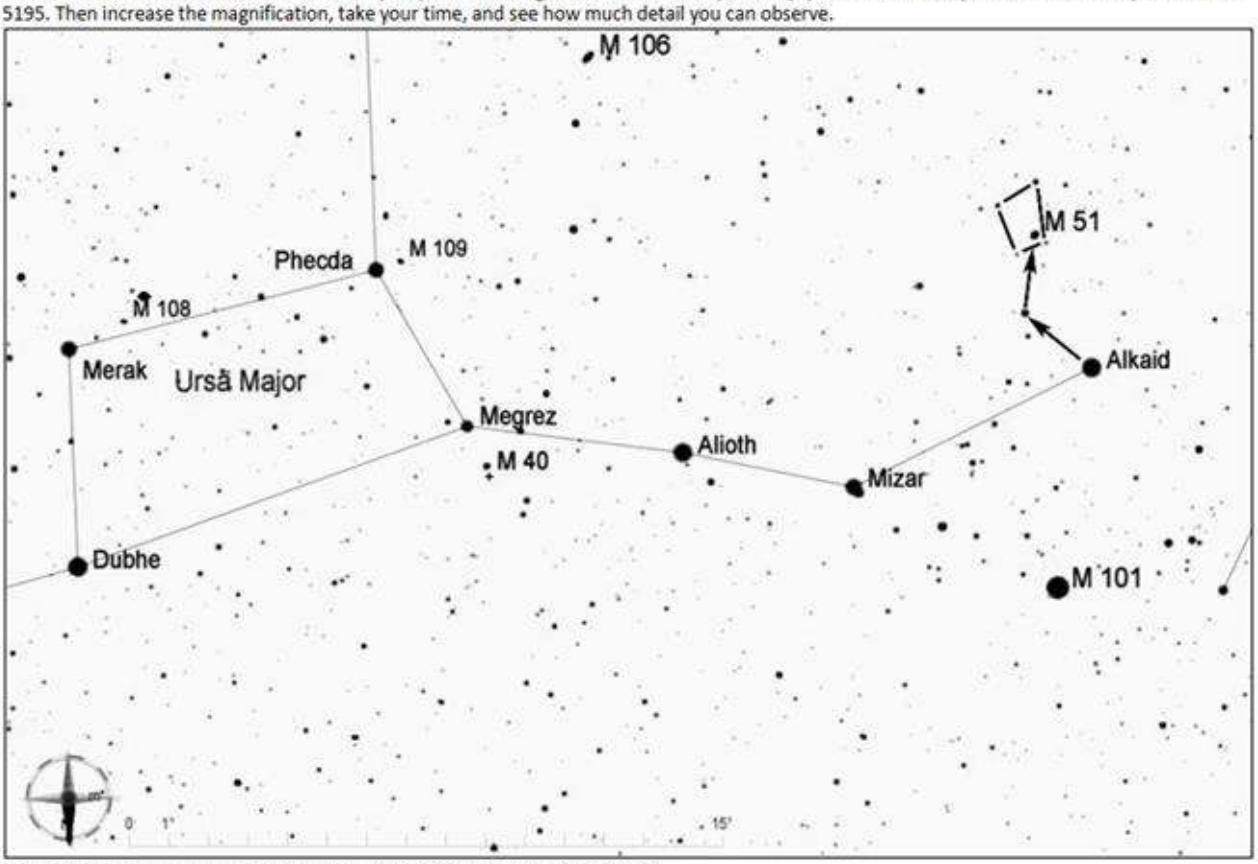


Start by finding the Big Dipper, one of the most recognizable star patterns in the sky. It is part of the constellation Ursa Major, the big bear. It is shown here upside down, high in the sky above Polaris, which is where it can be found during the evenings in spring and summer. For other seasons and times of night, rotate the chart as needed to match what you see in the northern sky.



M 51

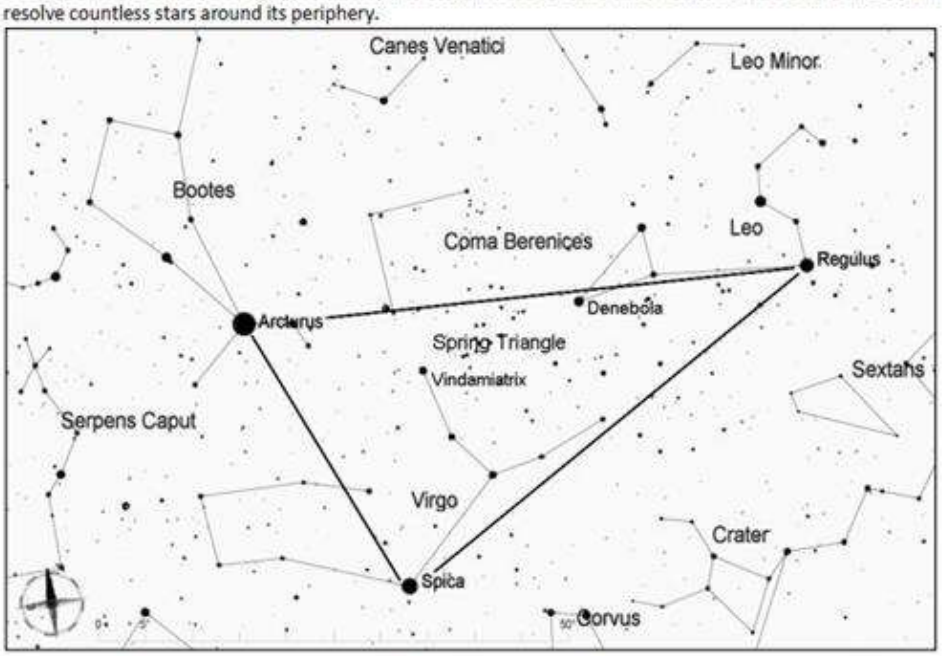
Note that north is to the bottom in this chart. Find Alkaid, the star at the end of the Big Dipper's handle. Using binoculars or a finderscope, look 2 degrees to the southeast (below the curve of the Dipper's handle) and you will see a star of magnitude 4.6, the brightest star in the vicinity. Then go another 2 degrees to the south, and you will be at the location of M51. Note in the chart below that M51 is located inside a keystone-shaped asterism of 4 dim stars. I find these stars very helpful in locating M51. Look in a low-power eyepiece for two fuzzy nuclei of the Whirlpool and NGC 5195. Then increase the magnification, take your time, and see how much detail you can observe.



Star hop from www.skyledge.net by Jim Mazur. Star charts created with *Cortes du Ciel*.

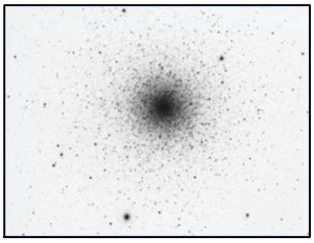
Messier 3, Globular Cluster in Canes Venatici

At magnitude 6.3, Messier 3 is one of the brightest globular clusters in the sky, and one of the most impressive to observe with an amateur telescope. It is about 33,000 light years away and contains about half a million stars. It has a very dense center. Medium to large telescopes will resolve countless stars around its periphery.



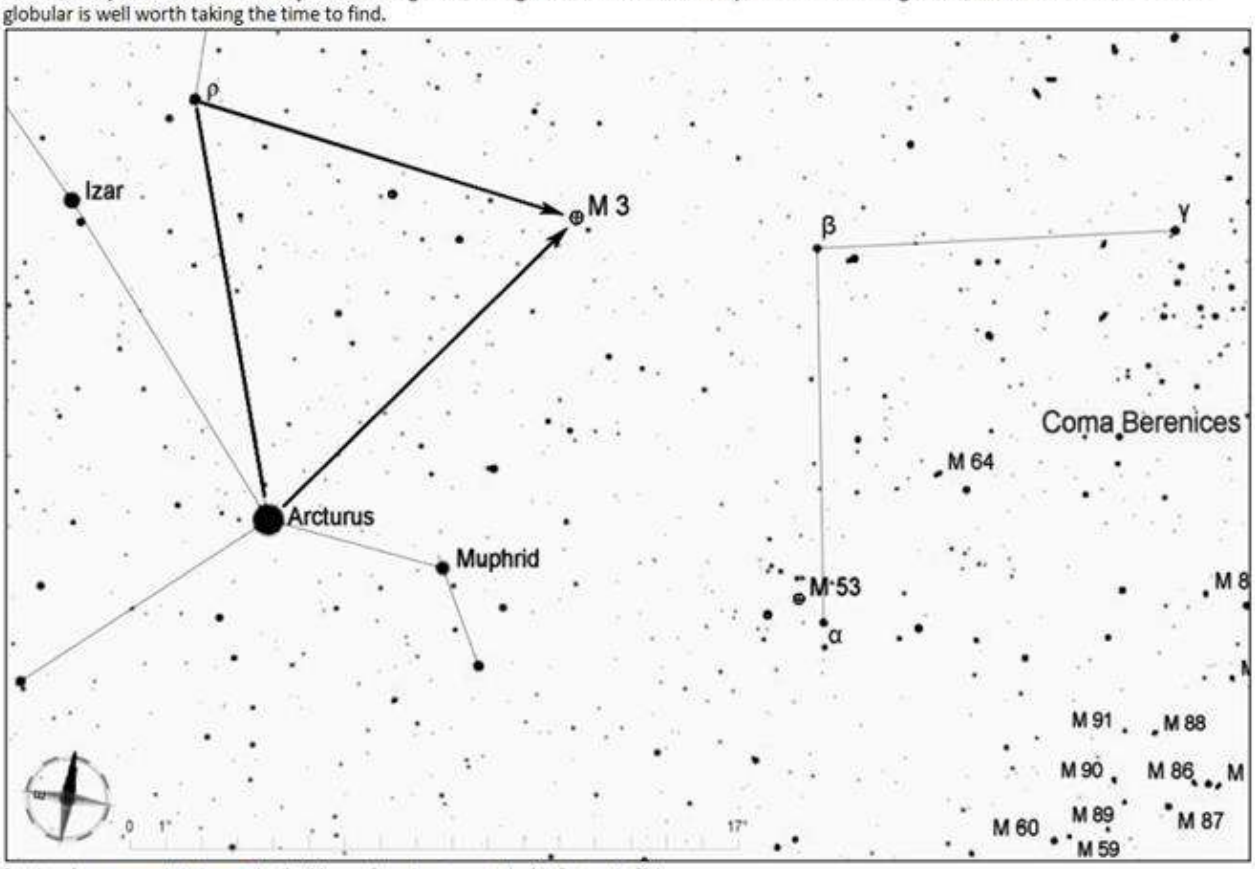
Start by finding the Spring Triangle, which consists of three widely-separated first magnitude stars--Arcturus, Spica, and Regulus. The Spring Triangle is high in the southeast sky in early spring, and in the southwest sky by mid-Summer. (To get oriented, you can use the handle of the Big Dipper and "follow the arc to Arcturus").

For this star hop, begin from brilliant Arcturus (magnitude 0).



M 3

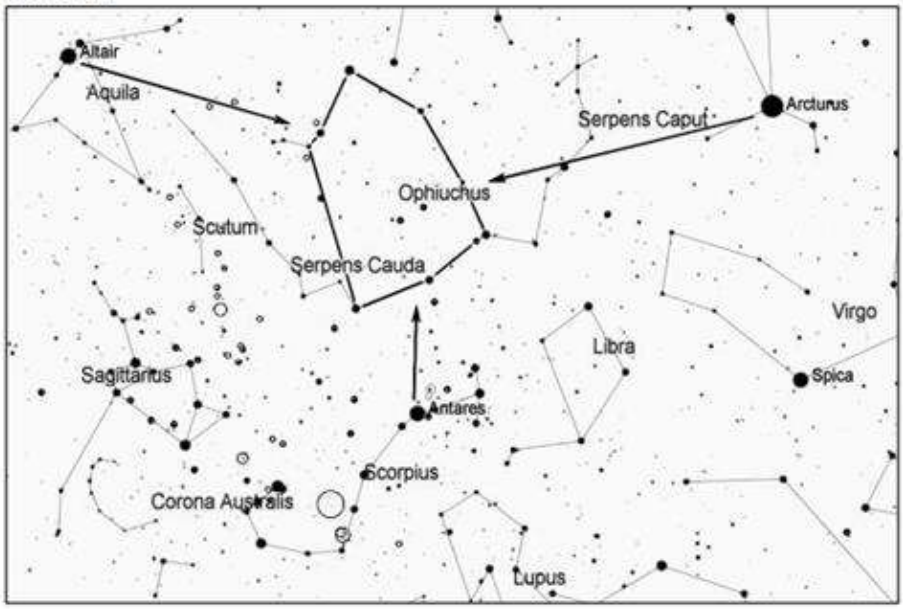
M3 can be tricky to locate by star-hopping because there are no bright stars nearby. One way to find it, as shown in the chart below, is to visualize an equilateral triangle with Arcturus, ρ (rho) Bootes, and M3 as the three corners. Point your binoculars or finderscope in the direction of this third corner, and you should see two objects close together, a magnitude 6 star and a "fuzzy star" of similar brightness, which is M3. This beautiful globular is well worth taking the time to find.



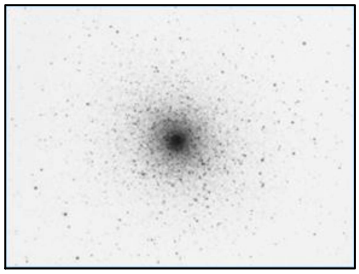
Star hop from www.skyledge.net by Jim Mazur. Star charts created with *Cartes du Ciel*.

Messier 5, Globular Cluster in Serpens

Messier 5 is a superb object, one of the brightest globular clusters in the sky. The stars around the edges of this dense cluster can be resolved in even small telescopes, and its central core is very dense and bright. The view through telescopes with apertures of 10 inches or more is truly spectacular.

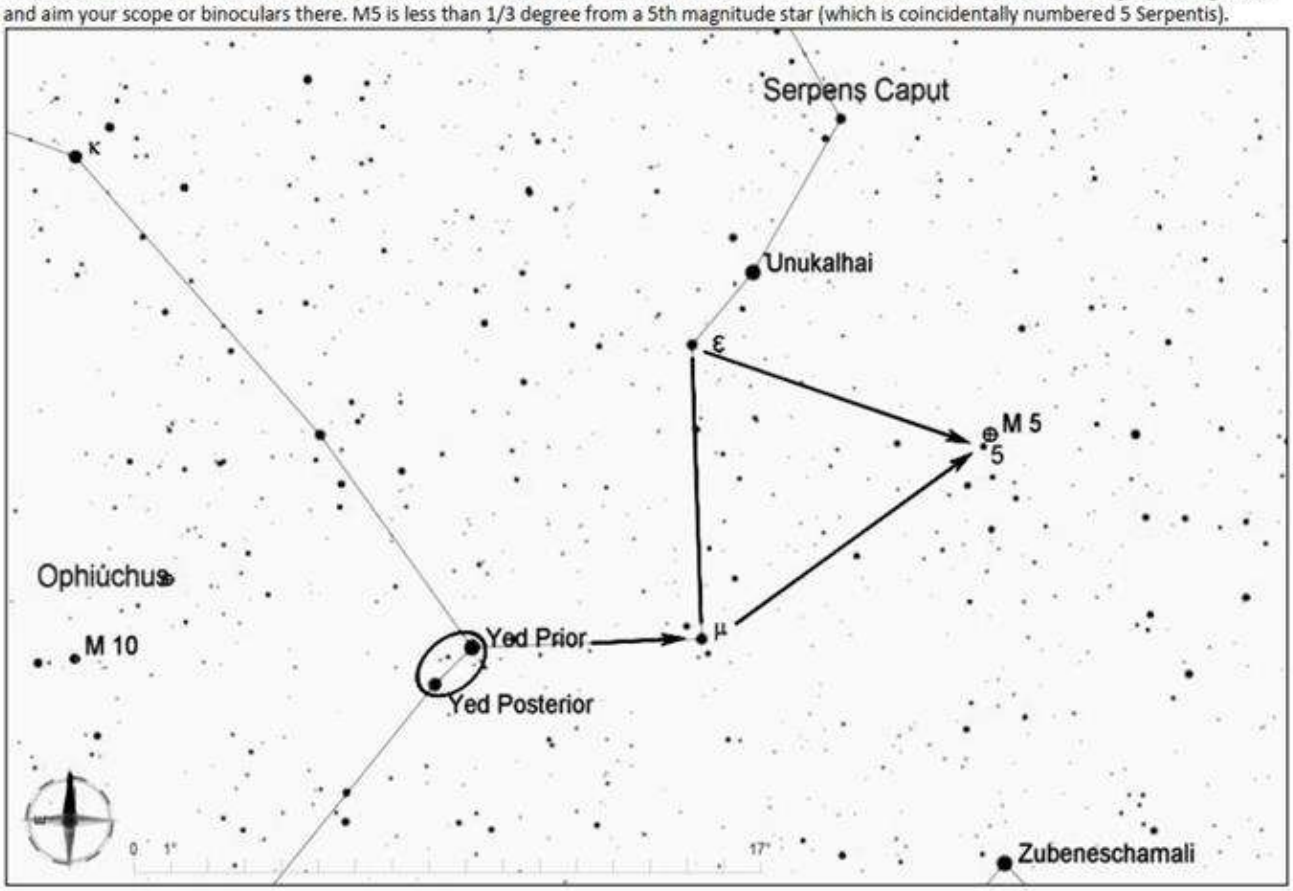


Start by finding the constellation Ophiuchus, the serpent bearer, a large oval shape that is west of Arcturus (part of the Spring Triangle), east of Altair (part of the Summer Triangle), and north of Antares. The oval is about 25 degrees from top to bottom, and its main stars are second and third magnitude, so they should be easy to see with the naked eye even with moderate light pollution.



M 5

Find the pair of stars Yed Posterior and Yed Prior on the west side of Ophiuchus, circled in the chart below. From this pair, look about 7 degrees west for μ (mu) Serpentis, and then 7 degrees north for ε (epsilon) Serpentis. Use these two stars to visualize an equilateral triangle pointing west, and aim your scope or binoculars there. M5 is less than 1/3 degree from a 5th magnitude star (which is coincidentally numbered 5 Serpentis).



Star hop from www.skyledge.net by Jim Mazur. Star charts created with *Cartes du Ciel*.