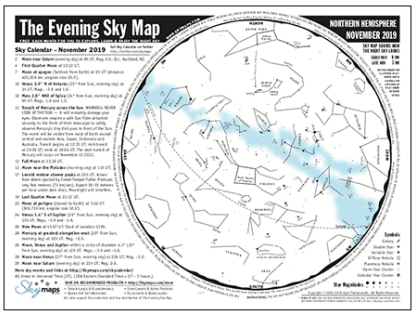
Central Coast Astronomy Virtual Star Party

June 12th 7pm Pacific

Welcome to our Virtual Star Gazing session! We'll be focusing on objects you can see with binoculars or a small telescope, so after our session, you can simply walk outside, look up, and understand what you're looking at.

CCAS President Aurora Lipper and astronomer Kent Wallace will bring you a virtual "tour of the night sky" where you can discover, learn, and ask questions as we go along! All you need is an internet connection. You can use an iPad, laptop, computer or cell phone. When 7pm on Saturday night rolls around, click the link on our website to join our class. *CentralCoastAstronomy.org/stargaze*



Before our session starts:

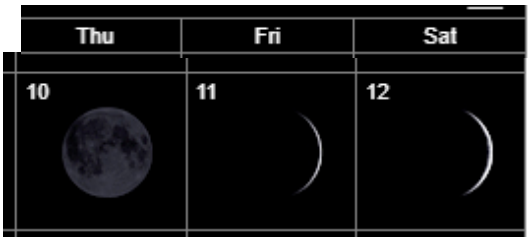
Step 1: Download your free map of the night sky:
SkyMaps.com

They have it available for Northern and Southern hemispheres.

Step 2: Print out this document and use it to take notes during our time on Saturday. This document highlights the objects we will focus on in our session together.

Celestial Objects:

Moon: The moon 2 days after new, which is excellent for star gazing!



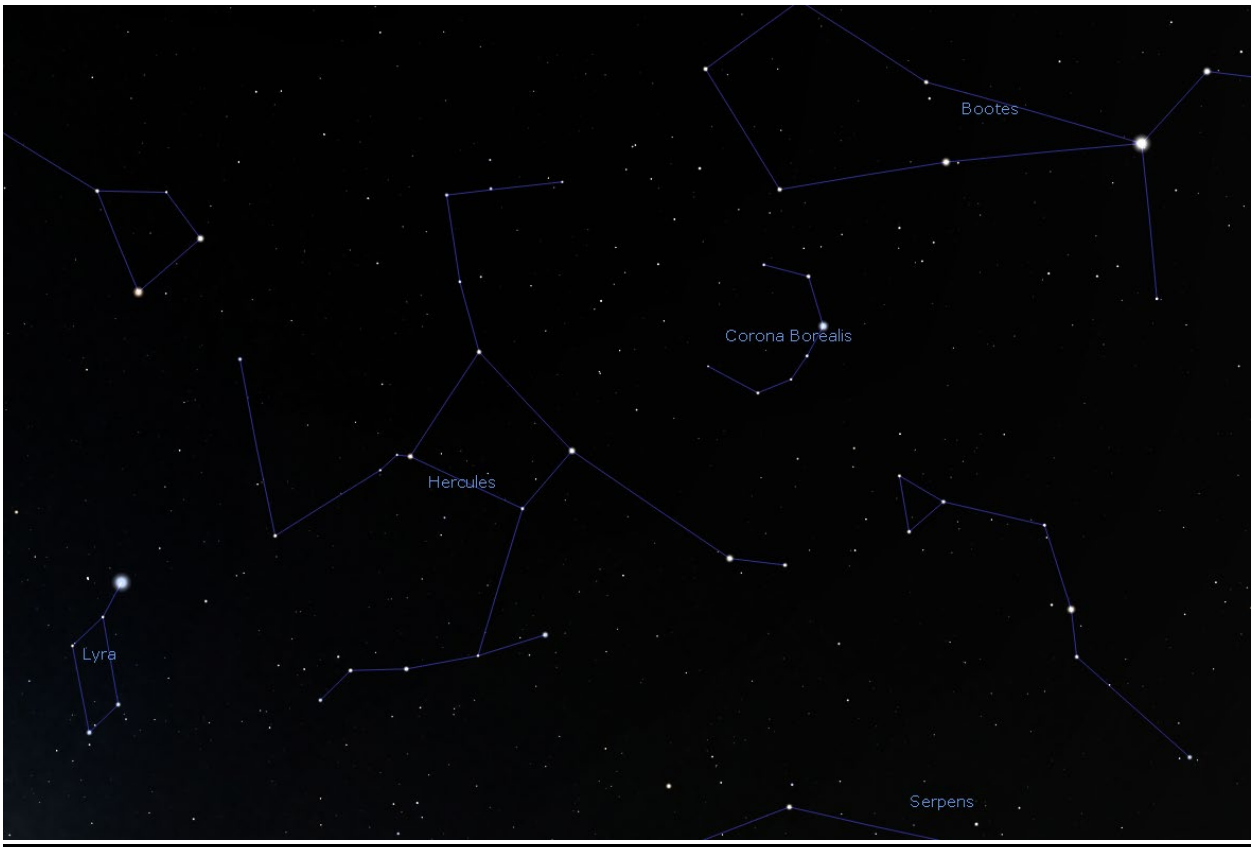
Summer solstice begins at 8:32PM PDT on June 20th.

Mars will be in M44, the Beehive Cluster, on June 23rd.
Look to the west just after sunset.

**Image credit: all astrophotography images are courtesy of NASA & ESO unless otherwise noted. All planetarium images are courtesy of Stellarium.*

Main Focus for the Session:

1. Corona Borealis (Northern Crown)
2. Hercules
3. Serpens Caput (Head)
4. Lyra (The Lyre)

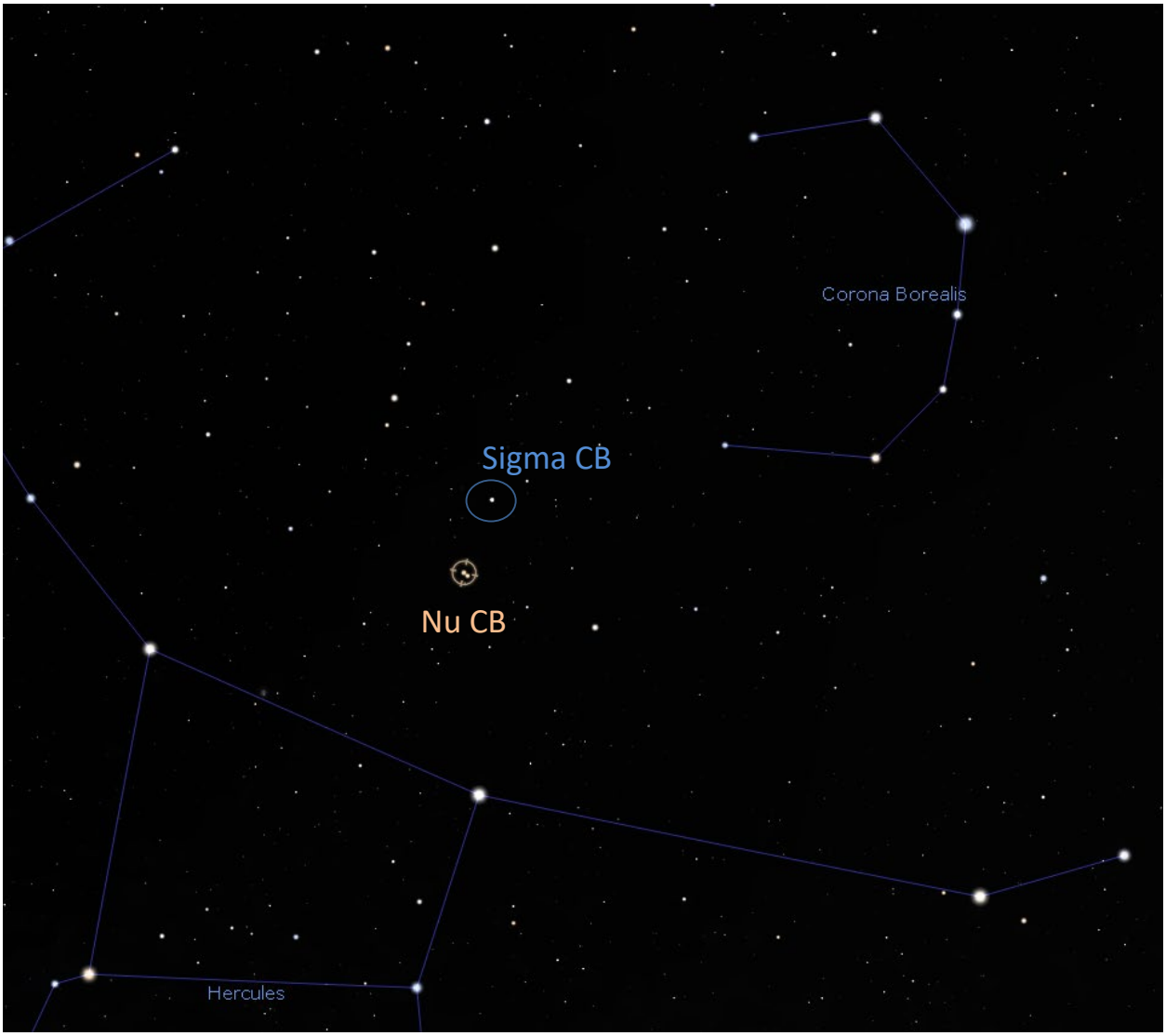


Corona Borealis (Northern Crown)

Corona Borealis, the “Northern Crown”, is an ancient Greek constellation.

Nu Coronae Borealis 1&2, wide double star. A visual magnitude 5.4 star and a visual magnitude 5.6 star separated by 361” or ~ 6’. Both stars are yellow-orange in color. This is a good binocular double on the eastern side of Corona Borealis, near the border with Hercules.

Sigma Coronae Borealis, binary star. A visual magnitude 5.6 star and a visual magnitude 6.5 star separated by 7.26” with an orbital period of 726 years. This pair is about 74 light years from us. William Herschel discovered this double on August 7, 1780. This binary is about 1.5 degrees west of Nu 1&2. Both stars appear yellow-white and can be resolved in a good small telescope. The fainter component is about the same brightness as our sun.



Hercules

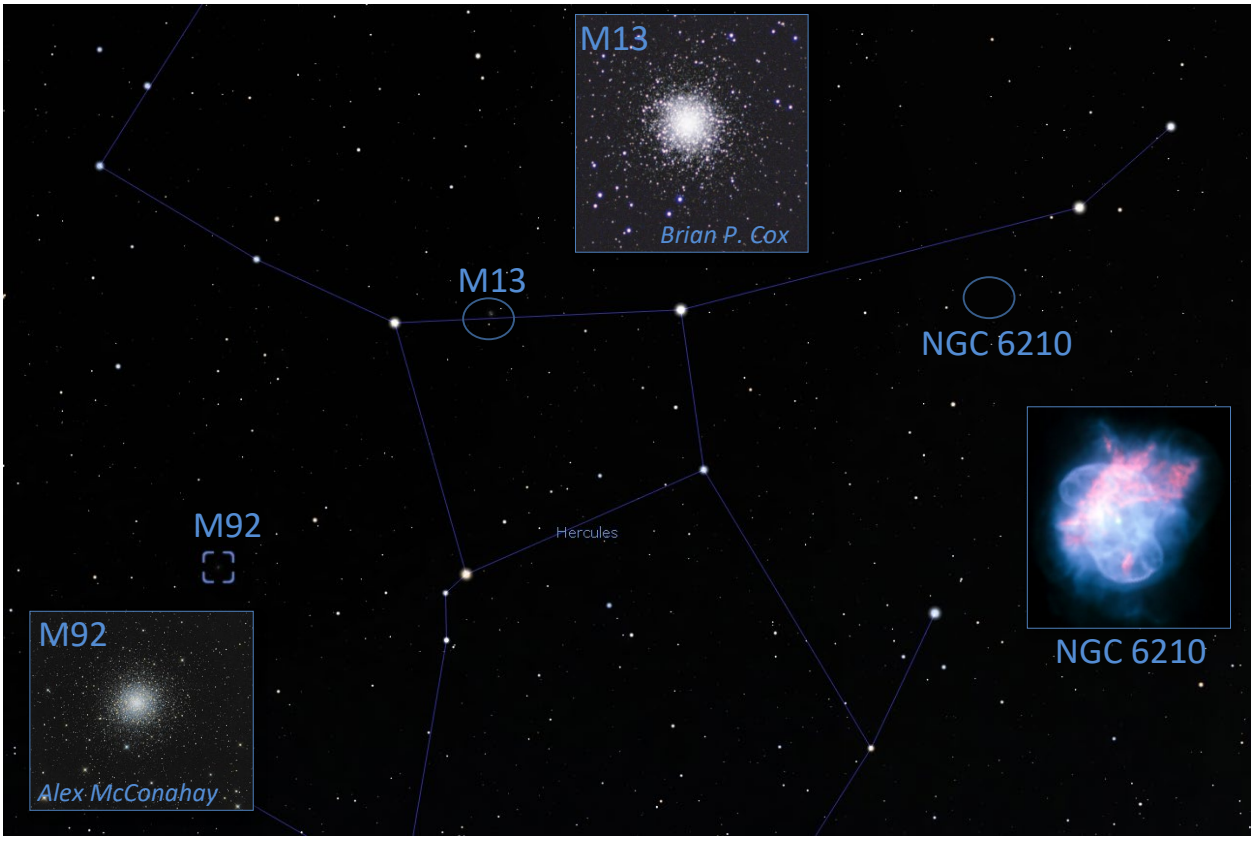
Hercules is an ancient Greek constellation

Keystone, asterism. This is a wedge-shaped grouping of four stars, Eta, Zeta, Epsilon and Pi Herculis. The Keystone is aligned roughly north-south with the top of the keystone to the north, made up of Eta and Pi. The bottom of the keystone is to the south and made up of Zeta and Epsilon.

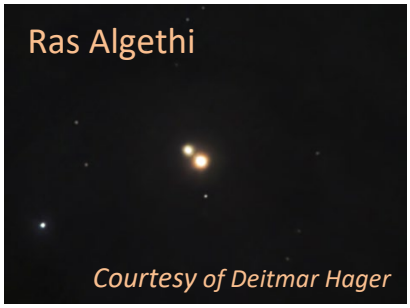
M 13, globular cluster, called the Great Hercules Cluster. This globular cluster has a visual magnitude of 5.7, probably contains around a million stars, is 26,000 light years distant and is about 160 light years across. M 13 was discovered by Edmond Halley in 1714. It is visible to the naked eye under good conditions. 7x50 binoculars show a fuzzy patch flanked by two seventh magnitude stars. M 13 is located 2.5 degrees south of Eta and a bit west. An 8" telescope shows a beautiful cluster of stars.

M 92, globular cluster. This globular cluster has a visual magnitude of 6.5, is about 27,000 light years distant, contains around 700,000 stars and is about 110 light years across. Johann Bode discovered M 92 on December 27, 1777. This globular cluster appears as a bright fuzzy patch in 7x50 binoculars. M 92 is north of the top of the Keystone and a bit east.

NGC 6210, planetary nebula, Turtle Nebula. This planetary nebula has a visual magnitude of 8.8 and a size of 20"x13". It was discovered by Georg Wilhelm von Struve in 1825. NGC 6210 can be blinked through an 8x50 finder scope using an O-III filter. At 62.5X in an 8" SCT, a nice green, very small disk can be seen. NGC 6210 is south of the Keystone.



Ras Algethi, Alpha Herculis, variable star + binary. Ras Algethi is derived from the Arabic, meaning “The Head of the Kneeler”. The brighter component is a red giant with a variable brightness between a visual magnitude of 2.7 and 4.0. William Herschel discovered its variability in 1795. The companion has a visual magnitude of 5.6, a separation of 4.6” and an orbital period of 3600 years. Neville Maskelyne discovered this double in 1777. This binary is about 400 light years distant from us. Ras Algethi has a wonderful color contrast with a brighter orange star and a fainter blue star.

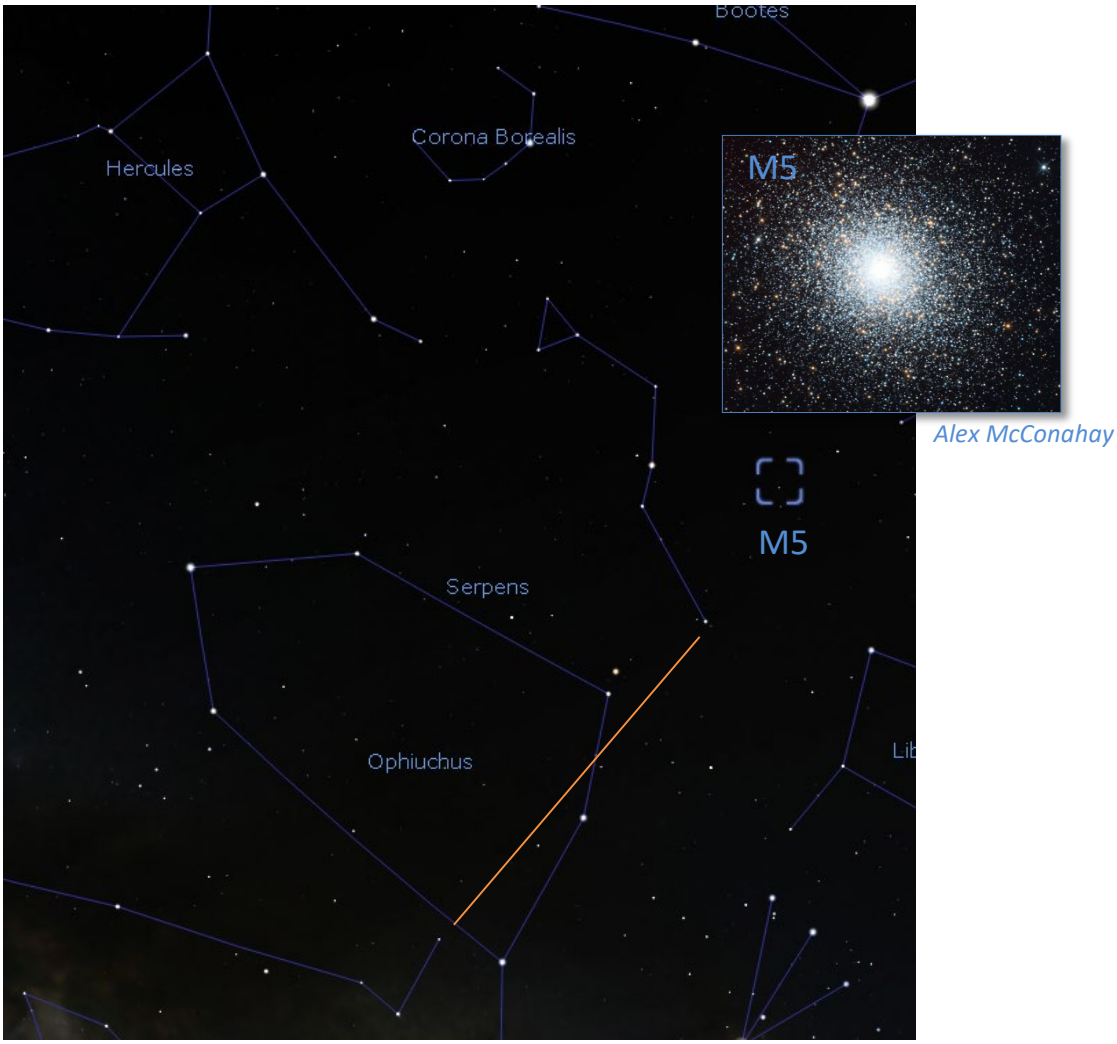


Serpens Caput (Head)

Serpens Caput, the head of the serpent, ancient Greek constellation. It is the only constellation split into two parts. Serpens Cauda, the tail of the serpent, is the other part.

M 5, globular cluster. This globular cluster has a visual magnitude of 5.7, is about 26,600 light years distant, 150 light years across and probably contains around 1.3 million stars. It was discovered by Gottfried Kirch on May 5, 1702. In 7x50 binoculars, M 5 appears as a bright fuzzy patch about 20' north-northwest of the fifth magnitude double star 5 Serpentis. It is a fantastic object in my 20" scope with a condensed core. It reminds me of 47 Tucana but only one quarter of its apparent size.

5 Serpentis, double star. This is a visual magnitude 5.1 star and a visual magnitude 10.1 star separated by 11.4". The brighter star appears yellow while the fainter star appears white. At low powers will show this double and M 5 in the same field.



Alex McConahay

Lyra (the Lyre)

Lyra, the Lyre, is an ancient Greek constellation.

Vega, star, Alpha Lyrae. This is the fifth brightest star in the sky with a visual magnitude of 0.03 and a distance of 25.3 light years. Vega is a main sequence A0 type star of 1.5 solar masses and 54 times brighter than our sun. It will be our north pole star in 12,000 years.

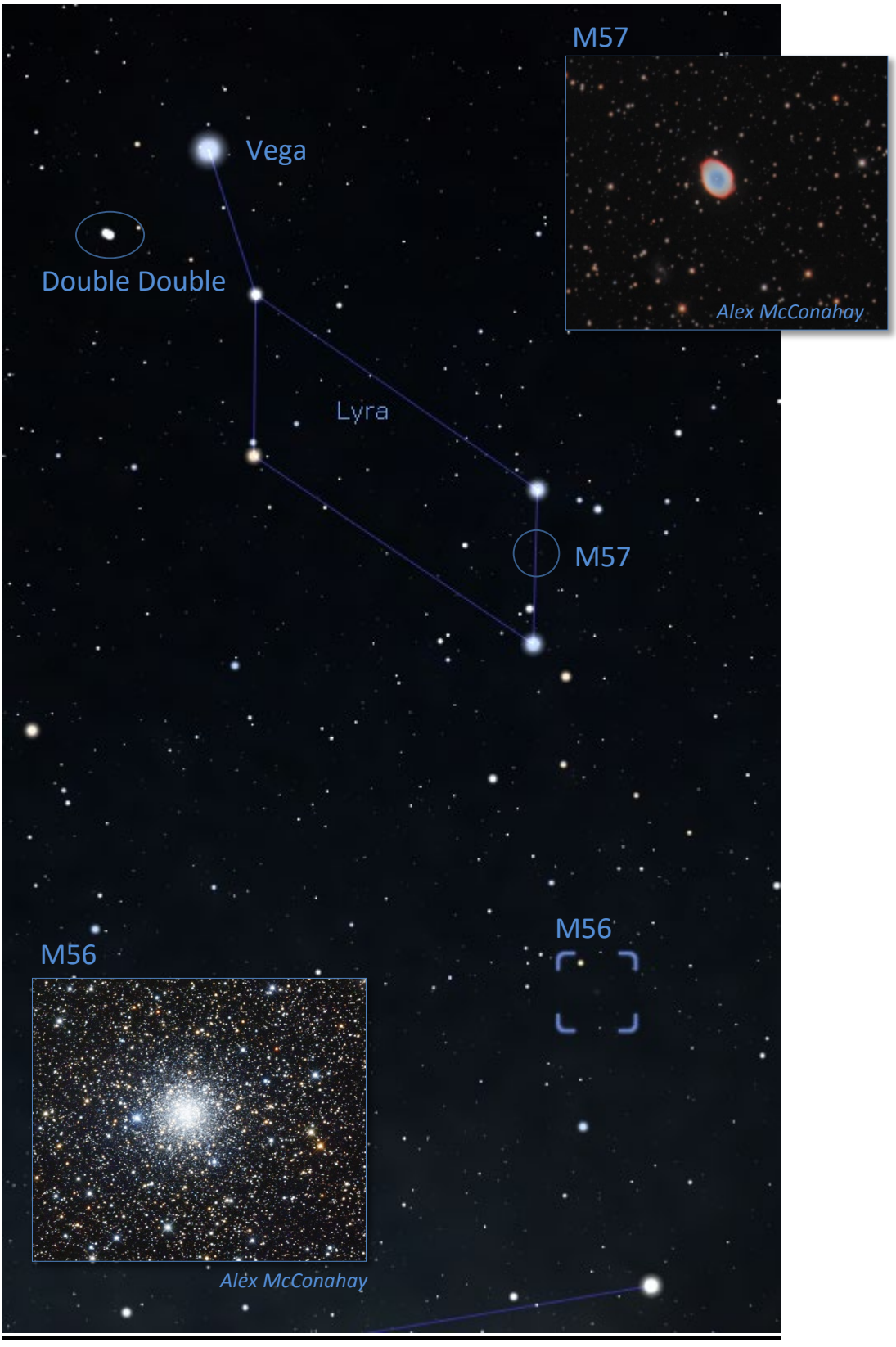
Epsilon Lyrae 1&2, two binary pairs, the famous Double Double. Under normal conditions, most people will see a single fourth magnitude star about 1.7 degrees east-northeast of Vega. If you have good eyes and good conditions, you might be able split this star into two stars, Epsilon 1&2, aligned roughly north-south.

Epsilon 1 will be the northern component and Epsilon 2 will be the southern component. 7x50 binoculars will definitely split Epsilon 1&2 which are about 208" apart. Under good conditions, a 3" telescope will split Epsilon 1&2 into separate binary stars, hence the nickname "Double Double".

Epsilon 1 will split into a visual magnitude 5.0 yellow star and a visual magnitude 6.1 blue star with a separation of 2.3". These two stars have an orbital period of 1725 years. Epsilon 2 will split into a visual magnitude 5.3 yellow star and a visual magnitude 5.4 yellow star with a separation of 2.4". These two stars have an orbital period of 724 years.

M 57, planetary nebula, The Ring Nebula. This planetary nebula has a visual magnitude of 8.8, a size of 86"x63" and a distance of 2,300 light years. M 57 is easily found between the two naked eye stars Beta Lyrae and Gamma Lyrae. Originally it was thought that Darquier discovered M 57, but further recent research shows that Charles Messier discovered it on January 31, 1779. See the June 2017 issue of Sky & Telescope, page 32 for the discovery article. M 57 can be blinked through an 8x50 finder scope using an O-III filter. In my 8" SCT at low power, M 57 appears as an elliptical ring, almost donut like.

M 56, globular cluster. M 56 has a visual magnitude of 8.4, a distance of 27,400 light years, is about 55 light years across and contains about 320,000 stars. This globular cluster can be seen in 10x50 binoculars. It was discovered by Charles Messier on March 19, 1779. An 8" telescope will resolve M 56 into stars. M 56 can be found between Gamma Lyrae and Albireo in Cygnus.


M57
Vega
Double Double
Alex McConahay
Lyra
M57
M56
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Equipment Recommendations:

Binoculars for Astronomy:

Celestron Cometron 7x50 Binoculars ($35)
Orion's UltraViews 10x50 ($140)

Cell phone mount:

These grab hold of the eyepiece and keep the lens of your camera steady for imaging on a spotting scope, binoculars, or small telescope. You can find these for about $15 on Amazon: https://amzn.to/3h3GjE6

Beginner telescopes:

For kids: 8" Dobsonian Telescope: https://bit.ly/2XEFaeK
or build it yourself: https://bit.ly/3h4UkS8

For adults: (it's going to depend what you want to look at)

8" Newtonian Reflector https://bit.ly/3f3C0qS (easy to use, good all-around scope for deep sky objects, planets, moon)

8" Schmidt-Cassegrain https://bit.ly/3dJKG59 (more compact, good all-around scope for planets, galaxies, nebulae, astrophotography)

90mm Refractor https://bit.ly/37aG8lX (harder to use, best for planets and moon observing)