

**StarView**  
**Visible Object Listing for:**

<b>January 15, 2018</b>	<b>Local Time (Z- 5): 21:30</b>	<b>Lat: 41.5</b>	<b>Minimum Criteria: Elev: 5° / Mag: 6 Sep: 10 arcmin / Size: 2 arcsec</b>
	<b>Sidereal Time: 04:45</b>	<b>Lon: -81.5</b>	

<b>Name</b>	<b>Con</b>	<b>Type</b>	<b>Mag</b>	<b>Sep/Size</b>	<b>Elev</b>
<b>M31 - Andromeda Galaxy</b>	<b>And</b>	<b>Spiral Galaxy</b>	<b>3.44</b>	<b>190 arcmin</b>	<b>46°</b>
<b>Little Fish</b>	<b>Aur</b>	<b>Open Cluster</b>	<b>4.5</b>	<b>30x75 arcmin</b>	<b>80°</b>
<b>kappa Bootes - Asellus Tertius</b>	<b>Boo</b>	<b>Double Star</b>	<b>4.5, 6.6</b>	<b>13.4 arcsec</b>	<b>9°</b>
<b>Iota Cancri</b>	<b>Can</b>	<b>Double Star</b>	<b>4.2, 6.6</b>	<b>30.6 arcsec</b>	<b>40°</b>
<b>M44 - Beehive Cluster, Praesepe</b>	<b>Can</b>	<b>Open Cluster</b>	<b>3.7</b>	<b>95 arcmin</b>	<b>36°</b>
<b>Eta Cassiopeiae - Achrid</b>	<b>Cas</b>	<b>Double Star</b>	<b>3.4, 7.5</b>	<b>13 arcsec</b>	<b>50°</b>
<b>Delta Cephei</b>	<b>Cep</b>	<b>Star</b>	<b>4</b>		<b>32°</b>
<b>145 Canis Majoris - h3945</b>	<b>Cma</b>	<b>Double Star</b>	<b>4.8, 6.8</b>	<b>27 arcsec</b>	<b>16°</b>
<b>Beta Canis Majoris - Murzim</b>	<b>Cma</b>	<b>Star</b>	<b>2</b>		<b>26°</b>
<b>Delta Canis Majoris - Wezen</b>	<b>Cma</b>	<b>Star</b>	<b>1.8</b>		<b>14°</b>
<b>Eta Canis Majoris - Aludra</b>	<b>Cma</b>	<b>Star</b>	<b>2.4</b>		<b>10°</b>
<b>Gamma Canis Majoris - Muliphein</b>	<b>Cma</b>	<b>Star</b>	<b>4.1</b>		<b>24°</b>
<b>M41</b>	<b>Cma</b>	<b>Open Cluster</b>	<b>4.5</b>	<b>38 arcmin</b>	<b>22°</b>
<b>Zeta Canis Majoris - Phurud</b>	<b>Cma</b>	<b>Star</b>	<b>3.02</b>		<b>15°</b>
<b>Alpha Canum Venaticorum - Cor Caroli</b>	<b>CVn</b>	<b>Double Star</b>	<b>2.9, 5.5</b>	<b>19.6 arcsec</b>	<b>5°</b>
<b>Y Cvn - La Superba</b>	<b>Cvn</b>	<b>Star</b>	<b>5</b>		<b>12°</b>
<b>31 Cygni - Omicron 1</b>	<b>Cyg</b>	<b>Double Star</b>	<b>3.8</b>		<b>10°</b>
<b>32 Cygni - Omicron 2</b>	<b>Cyg</b>	<b>Double</b>	<b>3.98</b>		<b>11°</b>

		Star			
<b>M39</b>	<b>Cyg</b>	<b>Open Cluster</b>	<b>4.6</b>	<b>32 arcmin</b>	<b>20°</b>
<b>North American Nebula - Caldwell 20</b>	<b>Cyg</b>	<b>Nebula</b>	<b>4</b>	<b>100 arcmin</b>	<b>13°</b>
<b>Nu Draconis</b>	<b>Dra</b>	<b>Double Star</b>	<b>4.88</b>	<b>63.4 arcsec</b>	<b>7°</b>
<b>Omicron 2 Eridani - Keid, Beid, 40 Eri</b>	<b>Eri</b>	<b>Double Star</b>	<b>4.5, 9.9</b>	<b>83, 9 arcsec</b>	<b>40°</b>
<b>Alpha Geminorum - Castor</b>	<b>Gem</b>	<b>Double Star</b>	<b>1.9, 2.9</b>	<b>4, 71 arcsec</b>	<b>55°</b>
<b>M35 - Collinder 82</b>	<b>Gem</b>	<b>Open Cluster</b>	<b>5.3</b>	<b>28 arcmin</b>	<b>66°</b>
<b>M48</b>	<b>Hyd</b>	<b>Open Cluster</b>	<b>5.5</b>	<b>54 arcmin</b>	<b>23°</b>
<b>Gamma Leporis</b>	<b>Lep</b>	<b>Double Star</b>	<b>3.7, 6.3</b>	<b>96 arcsec</b>	<b>25°</b>
<b>19 Lyncis - Struve 1062</b>	<b>Lyn</b>	<b>Double Star</b>	<b>5.6</b>	<b>14.8 arcsec</b>	<b>61°</b>
<b>Beta Monocerotis</b>	<b>Mon</b>	<b>Double Star</b>	<b>4.7, 5.2</b>	<b>7.3, 10 arcsec</b>	<b>36°</b>
<b>Caldwell 50</b>	<b>Mon</b>	<b>Open Cluster</b>	<b>4.8</b>	<b>24 arcmin</b>	<b>46°</b>
<b>Christmas Tree - Cone Nebula</b>	<b>Mon</b>	<b>Nebula</b>	<b>3.9</b>	<b>20 arcmin</b>	<b>49°</b>
<b>M50</b>	<b>Mon</b>	<b>Open Cluster</b>	<b>5.9</b>	<b>16 arcmin</b>	<b>31°</b>
<b>Beta Orionis - Rigel</b>	<b>Ori</b>	<b>Double Star</b>	<b>0.1, 6.8</b>	<b>10 arcsec</b>	<b>40°</b>
<b>Delta Orinis - Mintaka</b>	<b>Ori</b>	<b>Double Star</b>	<b>2.2, 6.3</b>	<b>53 arcsec</b>	<b>47°</b>
<b>M42 - Orion Nebula</b>	<b>Ori</b>	<b>Nebula</b>	<b>4</b>	<b>65 arcmin</b>	<b>42°</b>
<b>Sigma Orionis</b>	<b>Ori</b>	<b>Double Star</b>	<b>4.0, 7.5, 6.5</b>	<b>13 arcsec</b>	<b>44°</b>
<b>Theta Orionis - Trapezium</b>	<b>Ori</b>	<b>Double Star</b>	<b>4, 6, 8</b>	<b>19 arcsec</b>	<b>42°</b>
<b>Beta Perseus - Algol</b>	<b>Per</b>	<b>Double</b>	<b>2.1</b>		<b>72°</b>

		<b>Star</b>			
<b>Double Cluster - Caldwell 14, Chi Persei</b>	<b>Per</b>	<b>Open Cluster</b>	<b>3.7, 3.8</b>	<b>60 arcmin</b>	<b>62°</b>
<b>M34</b>	<b>Per</b>	<b>Open Cluster</b>	<b>5.5</b>	<b>35 arcmin</b>	<b>67°</b>
<b>M47</b>	<b>Pup</b>	<b>Open Cluster</b>	<b>5.2</b>	<b>30 arcmin</b>	<b>21°</b>
<b>Aldebaran</b>	<b>Tau</b>	<b>Star</b>	<b>0.87</b>		<b>65°</b>
<b>M45 - Pleiades, Seven Sisters</b>	<b>Tau</b>	<b>Open Cluster</b>	<b>1.6</b>	<b>110 arcmin</b>	<b>69°</b>
<b>Theta Tauri - in Hyades</b>	<b>Tau</b>	<b>Double Star</b>	<b>3.4, 3.8</b>	<b>300 arcsec</b>	<b>64°</b>
<b>M33 - Triangulum Galaxy</b>	<b>Tri</b>	<b>Spiral Galaxy</b>	<b>5.7</b>	<b>50 arcmin</b>	<b>50°</b>
<b>Zeta Ursae Majoris - Mizar</b>	<b>Uma</b>	<b>Double Star</b>	<b>2.3, 4.0</b>	<b>14 arcsec</b>	<b>15°</b>
<b>Alpha Ursae Minoris - Polaris</b>	<b>Umi</b>	<b>Double Star</b>	<b>2.1, 9</b>	<b>18 arcsec</b>	<b>42°</b>

End of Listing: 46 of 134 Stars matched criteria

Developer: Bruce Bream tarow@roadrunner.com

### **M31 - Andromeda Galaxy (And)**

<b>RA: 0h 43m</b>	<b>Mag(v): 3.44</b>	<b>Type: Spiral Galaxy (NGC: 224)</b>
<b>Dec: 41d 16m</b>	<b>Size: 190 arcmin</b>	
<b>Distance: 2.5M ly</b>		<b>Mag: Binoculars El: 46° / Az: 291°</b>

**The Andromeda galaxy (M31) is the closest galaxy to our Milky Way at 2.5Mly away. Andromeda is a spiral galaxy that contains some 1 trillion stars. It is about six times as wide as the full Moon. On clear nights away from the city, it can be seen without a telescope as small hazy spot in the sky.**

### **Little Fish (Aur)**

<b>RA: 5h 18m</b>	<b>Mag(v): 4.5</b>	<b>Type: Open Cluster</b>
<b>Dec: 33d 30m</b>	<b>Size: 30x75 arcmin</b>	
<b>Distance: ly</b>		<b>El: 80° / Az: 138°</b>

**More than a dozen stars in this cluster.**

### **kappa Bootes - Asellus Tertius (Boo)**

<b>RA: 14h 14m</b>	<b>Mag(v): 4.5, 6.6</b>	<b>Type: Double Star</b>
<b>Dec: 51° 47'</b>	<b>Sep: 13.4 arcsec</b>	<b>SP Class: A8IV</b>

<b>Distance: 155 ly</b>	<b>PA: 236° El: 9° / Az: 23°</b>
-------------------------	----------------------------------

**This is a double star viewable by a small telescope. It's traditional name, Asellus Tertius is Latin for 'third donkey colt'.**

### **Iota Cancri (Can)**

<b>RA: 8h 47m</b>	<b>Mag(v): 4.2, 6.6</b>	<b>Type: Double Star</b>
<b>Dec: 28° 46'</b>	<b>Sep: 30.6 arcsec</b>	<b>SP Class: G8II, A3V</b>
<b>Distance: 298 ly</b>	<b>Sep (AU): 2785</b>	<b>PA: 307° El: 40° / Az: 84°</b>

**Iota Cancri is a double star consisting of a brighter yellow giant and white, dimmer, dwarf star. The brighter star is about 200 times brighter than our Sun. The distance between these stars is over 2500 AU and takes at least 65,000 years to orbit each other. Even at this distance the brighter star would seem as bright as our Moon. It is sometimes referred to as the "spring Albireo" due to the similar color contrast of the two stars.**

### **M44 - Beehive Cluster, Praesepe (Can)**

<b>RA: 8h 40m</b>	<b>Mag(v): 3.7</b>	<b>Type: Open Cluster (NGC: 2632)</b>
<b>Dec: 19° 59'</b>	<b>Size: 95 arcmin</b>	<b>SP Class: A, F, G, K, M</b>
<b>Distance: 525 ly</b>		<b>Mag: Low El: 36° / Az: 95°</b>

**This is an open cluster containing over 1000 stars with a total mass of over 500 Solar masses. The nebulous area can be seen without a telescope in a dark sky. It was recognized by the ancient Greeks and Chinese and studied by Galileo in 1609 where he resolved 40 stars. This cluster is estimated to be 600 million years old. The center area of this cluster is about 23 light years across. Two planets orbiting separate stars were discovered in 2012 by ground based telescopes. The Beehive is high over head during winter months.**

### **Eta Cassiopeiae - Achrid (Cas)**

<b>RA: 0h 49m</b>	<b>Mag(v): 3.4, 7.5</b>	<b>Type: Double Star</b>
<b>Dec: 57° 49'</b>	<b>Sep: 13 arcsec</b>	<b>SP Class: G0V, K7V</b>
<b>Distance: 19.4 ly</b>	<b>Sep (AU): 76</b>	<b>PA: 317° Mag: 133x El: 50° / Az: 315°</b>

**Achrid is a binary star system in the constellation Cassiopeia that is about 20 light years from earth. The brighter star is similar to our Sun along with a dimmer magnitude 7 class K dwarf star. It was discovered in 1779 by Sir William Herschel who also discovered the planet Uranus in 1781. He was later appointed the private astronmer to the King of England in 1782.**

### **Delta Cephei (Cep)**

<b>RA: 22h 29m</b>	<b>Mag(v): 4</b>	<b>Type: Star</b>
<b>Dec: 58° 25'</b>		<b>SP Class: F8, B7</b>

<b>Distance: 887 ly</b>	<b>El: 32° / Az: 322°</b>
-------------------------	---------------------------

A binary star that is also a variable star. It varies from magnitude 3.48 to 4.37 over a 5.36 day period. The name of this star is used to describe the class of variable stars, Cepheid Variables, that change brightness over a regular time period.

### 145 Canis Majoris - h3945 (Cma)

<b>RA: 7h 17m</b>	<b>Mag(v): 4.8, 6.8</b>	<b>Type: Double Star</b>
<b>Dec: -23° -19'</b>	<b>Sep: 27 arcsec</b>	<b>SP Class: K0, F0</b>
<b>Distance: 385 ly</b>		<b>PA: 65° Mag: 50x El: 16° / Az: 144°</b>

Also known as the Winter Albireo. There is a bright orange star with a second white blue star.

### Beta Canis Majoris - Murzim (Cma)

<b>RA: 6h 23m</b>	<b>Mag(v): 2</b>	<b>Type: Star</b>
<b>Dec: -17° -57'</b>		<b>SP Class: B1</b>
<b>Distance: 500 ly</b>		<b>El: 26° / Az: 154°</b>

Murzim is a variable star varying from 1.95 to 2.00 over a six-hour period.

### Delta Canis Majoris - Wezen (Cma)

<b>RA: 7h 8m</b>	<b>Mag(v): 1.8</b>	<b>Type: Star</b>
<b>Dec: -26° -24'</b>		<b>SP Class: F</b>
<b>Distance: 1600 ly</b>		<b>El: 14° / Az: 147°</b>

A yellow-white F-type supergiant star about 230 times the size of the sun and 17 times more mass. It has stopped fusing hydrogen in its core. Its outer envelope is beginning to expand and cool, and in the next 100,000 years it will become a red supergiant as its core fuses heavier elements. Once it has a core of iron, it will collapse and explode as a supernova.

### Eta Canis Majoris - Aludra (Cma)

<b>RA: 7h 24m</b>	<b>Mag(v): 2.4</b>	<b>Type: Star</b>
<b>Dec: -29° -18'</b>		<b>SP Class: B5</b>
<b>Distance: 2000 ly</b>		<b>El: 10° / Az: 146°</b>

A blue-white supergiant that is 80 times as bright as the sun. It will eventually become a supernova in the next few million years.

### Gamma Canis Majoris - Muliphein (Cma)

<b>RA: 7h 4m</b>	<b>Mag(v): 4.1</b>	<b>Type: Star</b>
<b>Dec: -15° -38'</b>		<b>SP Class: B8</b>
<b>Distance: 402 ly</b>		<b>El: 24° / Az: 143°</b>

**A blue-white B-type bright giant star about 5 times the size of our sun.**

### **M41 (Cma)**

<b>RA: 6h 46m</b>	<b>Mag(v): 4.5</b>	<b>Type: Open Cluster (NGC: 2287)</b>
<b>Dec: -20° -44'</b>	<b>Size: 38 arcmin</b>	
<b>Distance: 2.3k ly</b>		<b>Mag: Low El: 22° / Az: 150°</b>

**This cluster covers an area about the size of the full moon. It contains about 100 stars including several red giants, one of which is the bright star at the center of the cluster.**

### **Zeta Canis Majoris - Phurud (Cma)**

<b>RA: 6h 20m</b>	<b>Mag(v): 3.02</b>	<b>Type: Star</b>
<b>Dec: -30° -4'</b>		<b>SP Class: B2</b>
<b>Distance: 362 ly</b>		<b>El: 15° / Az: 159°</b>

**A spectroscopic binary system. The pair of stars has only been determined from doppler color shifts.**

### **Alpha Canum Venaticorum - Cor Caroli (CVn)**

<b>RA: 12h 56m</b>	<b>Mag(v): 2.9, 5.5</b>	<b>Type: Double Star</b>
<b>Dec: 38° 19'</b>	<b>Sep: 19.6 arcsec</b>	<b>SP Class: A0, B8p to A7p</b>
<b>Distance: 114 ly</b>	<b>Sep (AU): 655</b>	<b>PA: 229° El: 5° / Az: 42°</b>

**Cor Caroli is a favorite of amateur astronomers. It is the brighter star of a binary system. The two stars are easy to see in a small telescope even though they are separated by about 650 AU. There is a slight color difference between the two with one reddish and the other blue. The brighter star is 60 times brighter than our sun. Cor Caroli also varies in spectral brightness over a period of 5.5 days. It is believed there is a strong magnetic field that produces starspots of enormous extent causing the change in brightness as the stars rotate. The star was named after King Charles of England in 1660. Cor Caroli means "Charles Heart."**

### **Y Cvn - La Superba (Cvn)**

<b>RA: 12h 45m</b>	<b>Mag(v): 5</b>	<b>Type: Star</b>
<b>Dec: 45° 26'</b>		<b>SP Class: C</b>
<b>Distance: 711 ly</b>		<b>El: 12° / Az: 38°</b>

**This is a variable star whose brightness varies from a magnitude of 4.8 to 6.3 over a period of 160 days. This star is a bright, red giant "carbon star" with a surface temperature of about 2800K. Near the end of its life, carbon compounds migrate to the outer layer of the star and absorb the shorter**

wavelength blue light thus giving it such a red color. The radius of this star is about 2 AU which would be from our Sun to beyond the orbit of Mars.

### 31 Cygni - Omicron 1 (Cyg)

RA: 20h 14m	Mag(v): 3.8	Type: Double Star
Dec: 46° 44'		SP Class: K4 + B4
Distance: 880 ly		El: 10° / Az: 327°

31 Cygni is an eclipsing binary star with small changes in brightness over a ten year period. One star is an orange supergiant with a second blue-white star. The brightness changes are due to one star eclipsing the other.

### 32 Cygni - Omicron 2 (Cyg)

RA: 20h 15m	Mag(v): 3.98	Type: Double Star
Dec: 47° 43'		SP Class: K4 + B6
Distance: 1100 ly		El: 11° / Az: 327°

Similar to 31 Cygni, this binary star system has a super large orange giant with a smaller hot white star in a 3.1 year orbital period. The larger star is almost 2 AU in diameter and takes 9 years for one rotation.

### M39 (Cyg)

RA: 21h 32m	Mag(v): 4.6	Type: Open Cluster (NGC: 7092)
Dec: 48° 25'	Size: 32 arcmin	
Distance: 824 ly		Mag: Low El: 20° / Az: 318°

M39 is a beautiful open cluster with about 10 bright blue stars that stand out in a roughly triangular shape. Four of the brighter stars form the corners and side of the triangle. There are about 30 stars spread out over an area about the size of the full moon. M39 is actually about 8 light years in diameter and 900 light years from earth. It is a good view in binoculars since it is about ½ degree across.

### North American Nebula - Caldwell 20 (Cyg)

RA: 20h 59m	Mag(v): 4	Type: Nebula (NGC: 7000)
Dec: 44° 32'	Size: 100 arcmin	
Distance: 1600 ly		Mag: Binoculars El: 13° / Az: 319°

A nebula that is more than four times the size of the full moon. It will appear as a foggy patch of light. It is a large interstellar cloud of ionized hydrogen gas. A band of interstellar dust absorbs the light to give it the rough shape of North America.

### Nu Draconis (Dra)

RA: 17h 32m	Mag(v): 4.88	Type: Double Star
-------------	--------------	-------------------

<b>Dec: 55° 11'</b>	<b>Sep: 63.4 arcsec</b>	<b>SP Class: A6, A4</b>
<b>Distance: 99 ly</b>	<b>Sep (AU): 1900</b>	<b>PA: 312° Mag: 10-50x El: 7° / Az: 353°</b>
<b>A double star, with nearly equal magnitudes, and a 44,000 year rotation period.</b>		

### Omicron 2 Eridani - Keid, Beid, 40 Eri (Eri)

<b>RA: 4h 15m</b>	<b>Mag(v): 4.5, 9.9</b>	<b>Type: Double Star</b>
<b>Dec: -7° -39'</b>	<b>Sep: 83, 9 arcsec</b>	<b>SP Class: K1V, DA4, M4</b>
<b>Distance: 125 ly</b>	<b>Sep (AU): 418, 45</b>	<b>PA: 105, 330° El: 40° / Az: 190°</b>

**This triple star system contains the most easily seen white dwarf star. While only 17,000 miles in diameter it is so dense that one cubic inch would weigh two tons. A very dim red dwarf with only 16% the mass of our Sun.**

### Alpha Geminorum - Castor (Gem)

<b>RA: 7h 35m</b>	<b>Mag(v): 1.9, 2.9</b>	<b>Type: Double Star</b>
<b>Dec: 31° 53'</b>	<b>Sep: 4, 71 arcsec</b>	<b>SP Class: A0IV</b>
<b>Distance: 52 ly</b>	<b>Sep (AU): 60, 1145</b>	<b>PA: 61, 164° Mag: 50-100x El: 55° / Az: 92°</b>

**Discovered as a visual binary in 1678, there are three visible stars that orbit with period of 19 hours and 10 days. Each of the two stars are also an eclipsing binary system. A nearby binary system is also gravitationally linked making this a sextuple star system.**

### M35 - Collinder 82 (Gem)

<b>RA: 6h 9m</b>	<b>Mag(v): 5.3</b>	<b>Type: Open Cluster (NGC: 2168)</b>
<b>Dec: 24° 21'</b>	<b>Size: 28 arcmin</b>	
<b>Distance: 2800 ly</b>		<b>Mag: Low El: 66° / Az: 128°</b>

**This open cluster is next to NGC 2158, a globular cluster, and makes for a double treat.**

### M48 (Hyd)

<b>RA: 8h 14m</b>	<b>Mag(v): 5.5</b>	<b>Type: Open Cluster (NGC: 2548)</b>
<b>Dec: -5° -48'</b>	<b>Size: 54 arcmin</b>	
<b>Distance: 1500 ly</b>		<b>Mag: Low El: 23° / Az: 121°</b>

**This open cluster has about 80 stars greater than magnitude 13. This cluster is about 300 million years old.**

### Gamma Leporis (Lep)

<b>RA: 5h 44m</b>	<b>Mag(v): 3.7, 6.3</b>	<b>Type: Double Star</b>
<b>Dec: -22° -27'</b>	<b>Sep: 96 arcsec</b>	<b>SP Class: F6V</b>



**Distance: 29 ly    Sep (AU): 863    PA: 350°    Mag: 7x    El: 25° / Az: 165°**

**This yellow/orange double star has a good color contrast and wide separation. With this star's proximity and mass of only 1.3 times the Sun's mass and was a primary focus of the NASA Terrestrial Plant Finder mission.**

**19 Lyncis - Struve 1062 (Lyn)**

**RA: 7h 23m    Mag(v): 5.6    Type: Double Star**

**Dec: 55° 17'    Sep: 14.8 arcsec    SP Class: B4V**

**Distance: 468 ly    PA: 315°    Mag: 100x    El: 61° / Az: 48°**

**A blue double star.**

**Beta Monocerotis (Mon)**

**RA: 6h 29m    Mag(v): 4.7, 5.2    Type: Double Star**

**Dec: -7° -2'    Sep: 7.3, 10 arcsec    SP Class: B3Ve**

**Distance: 700 ly    Sep (AU): 1545, 2117    PA: 132, 124°    Mag: 50x    El: 36° / Az: 148°**

**A triple star system. The stars appear as a curved line of three pale blue stars**

**Caldwell 50 (Mon)**

**RA: 6h 32m    Mag(v): 4.8    Type: Open Cluster (NGC: 2244)**

**Dec: 4° 56'    Size: 24 arcmin**

**Distance: 5200 ly    El: 46° / Az: 140°**

**An open cluster in the Rosette Nebula.**

**Christmas Tree - Cone Nebula (Mon)**

**RA: 6h 41m    Mag(v): 3.9    Type: Nebula (NGC: 2264)**

**Dec: 9° 53'    Size: 20 arcmin**

**Distance: 2600 ly    El: 49° / Az: 133°**

**A very young open cluster with 150 members**

**M50 (Mon)**

**RA: 7h 3m    Mag(v): 5.9    Type: Open Cluster (NGC: 2323)**

**Dec: -8° -20'    Size: 16 arcmin**

**Distance: 3200 ly    El: 31° / Az: 139°**

**This open cluster is about 3,200 light years from earth with a diameters of about 20 light years**

**Beta Orionis - Rigel (Ori)**

**RA: 5h 15m    Mag(v): 0.1, 6.8    Type: Double Star**

**Dec: -8° -12'    Sep: 10 arcsec    SP Class: B8Ia**

**Distance: 773 ly    Sep (AU): 2250    PA: 202°    Mag: 100x    El: 40° / Az: 171°**

**Rigel is a violet-blue supergiant star in the constellation Orion. At 854 light years away, it is the 7th brightest star in the Earth's sky, where it shines at an apparent visual magnitude of 0.18. Rigel is a component of a multiple-star system and an intrinsic variable star that varies between magnitudes 0.17 and 0.22 over a period of 2.07 days.**

### **Delta Orinis - Mintaka (Ori)**

<b>RA: 5h 32m</b>	<b>Mag(v): 2.2, 6.3</b>	<b>Type: Double Star</b>
<b>Dec: 0° -18'</b>	<b>Sep: 53 arcsec</b>	<b>SP Class: O9.5II, B0.5II</b>
<b>Distance: 690 ly</b>		<b>Mag: 10x El: 47° / Az: 163°</b>

**This star called Mintaka means bell in Arabic. It is the rightmost of the three belt stars in Orion. A magnitude 7 star orbits it on 5.7 day period.**

### **M42 - Orion Nebula (Ori)**

<b>RA: 5h 35m</b>	<b>Mag(v): 4</b>	<b>Type: Nebula (NGC: 1976)</b>
<b>Dec: -5° -27'</b>	<b>Size: 65 arcmin</b>	
<b>Distance: 1300 ly</b>		<b>Mag: Low El: 42° / Az: 163°</b>

**One of the brightest and most photographed nebula it is visible to the naked eye. It is a treat through binoculars or a small telescope. The Orion Nebula contains a very young open cluster, known as the Trapezium due to the asterism of its primary four stars. Two of these can be resolved into their component binary systems on nights with good seeing, giving a total of six stars. The stars of the Trapezium, along with many other stars, are still in their early years.**

### **Sigma Orionis (Ori)**

<b>RA: 5h 39m</b>	<b>Mag(v): 4.0, 7.5, 6.5</b>	<b>Type: Double Star</b>
<b>Dec: -2° -36'</b>	<b>Sep: 13 arcsec</b>	<b>SP Class: O9, B0, A2, B2</b>
<b>Distance: 1148 ly</b>	<b>Sep (AU): 90</b>	<b>Mag: 50x El: 44° / Az: 161°</b>

**Quintuple star system**

### **Theta Orionis - Trapezium (Ori)**

<b>RA: 5h 35m</b>	<b>Mag(v): 4, 6, 8</b>	<b>Type: Double Star</b>
<b>Dec: -5° -23'</b>	<b>Sep: 19 arcsec</b>	<b>SP Class: B, O</b>
<b>Distance: 1600 ly</b>	<b>Sep (AU): 5111, 12500</b>	<b>PA: 31, 132, 96° Mag: 100x El: 42° / Az: 163°</b>

**These stars are in the center and illuminate the Great Orion Nebula, M42. There are more than 300 very young stars in this stellar nursery at roughly 300,000 years old. Four main stars should be visible.**

### **Beta Perseus - Algol (Per)**

<b>RA: 3h 8m</b>	<b>Mag(v): 2.1</b>	<b>Type: Double Star</b>
<b>Dec: 40° 57'</b>		<b>SP Class: B8V, K0</b>
<b>Distance: 93 ly</b>	<b>Sep (AU): 0.062</b>	<b>El: 72° / Az: 276°</b>

**An eclipsing binary star dropping from magnitude 2.1 to 3.4 about every 2.8 days.**

### **Double Cluster - Caldwell 14, Chi Persei (Per)**

<b>RA: 2h 20m</b>	<b>Mag(v): 3.7, 3.8</b>	<b>Type: Open Cluster (NGC: 869, 884)</b>
<b>Dec: 57° 8'</b>	<b>Size: 60 arcmin</b>	<b>SP Class: B0</b>
<b>Distance: 7500 ly</b>		<b>Mag: Binoculars El: 62° / Az: 317°</b>

**This open cluster has over 300 blue-white super-giant stars in each cluster.**

### **M34 (Per)**

<b>RA: 2h 42m</b>	<b>Mag(v): 5.5</b>	<b>Type: Open Cluster (NGC: 1039)</b>
<b>Dec: 42° 46'</b>	<b>Size: 35 arcmin</b>	
<b>Distance: 1500 ly</b>		<b>Mag: Low El: 67° / Az: 284°</b>

**This loose open cluster contains about 20 brighter stars.**

### **M47 (Pup)**

<b>RA: 7h 37m</b>	<b>Mag(v): 5.2</b>	<b>Type: Open Cluster (NGC: 2422)</b>
<b>Dec: -14° -30'</b>	<b>Size: 30 arcmin</b>	
<b>Distance: 1600 ly</b>		<b>Mag: Low El: 21° / Az: 135°</b>

**This open cluster of about 50 stars has two bright orange giant stars that contrast with the other blue/white stars.**

### **Aldebaran (Tau)**

<b>RA: 4h 36m</b>	<b>Mag(v): 0.87</b>	<b>Type: Star</b>
<b>Dec: 16° 31'</b>		<b>SP Class: K5III</b>
<b>Distance: 65 ly</b>		<b>El: 65° / Az: 185°</b>

**This orange giant is one of the brightest stars in the night sky.**

### **M45 - Pleiades, Seven Sisters (Tau)**

<b>RA: 3h 47m</b>	<b>Mag(v): 1.6</b>	<b>Type: Open Cluster</b>
<b>Dec: 24° 7'</b>	<b>Size: 110 arcmin</b>	<b>SP Class: B</b>
<b>Distance: 444 ly</b>		<b>Mag: Eyes El: 69° / Az: 219°</b>

**One of the nearest star clusters to Earth and most obvious to the naked eye it has been mentioned since antiquity in cultures around the world. A faint reflection nebulosity is seen around the stars from interstellar dust.**

### **Theta Tauri - in Hyades (Tau)**

<b>RA: 4h 29m</b>	<b>Mag(v): 3.4, 3.8</b>	<b>Type: Double Star</b>
-------------------	-------------------------	--------------------------

<b>Dec: 15° 52'</b>	<b>Sep: 300 arcsec</b>	<b>SP Class: K0, A7</b>
<b>Distance: 154 ly</b>		<b>Mag: naked eye El: 64° / Az: 189°</b>

**A white class A giant star next to a dimmer orange type K. The brighter star varies in magnitude from 3.35 to 3.4 over a period of 1.8 hours.**

### **M33 - Triangulum Galaxy (Tri)**

<b>RA: 1h 34m</b>	<b>Mag(v): 5.7</b>	<b>Type: Spiral Galaxy (NGC: 0598)</b>
<b>Dec: 30° 40'</b>	<b>Size: 50 arcmin</b>	
<b>Distance: 3M ly</b>		<b>El: 50° / Az: 270°</b>

**The third largest member of the Local Group of galaxies, which includes the Milky Way galaxy and the Andromeda galaxy.**

### **Zeta Ursae Majoris - Mizar (Uma)**

<b>RA: 13h 24m</b>	<b>Mag(v): 2.3, 4.0</b>	<b>Type: Double Star</b>
<b>Dec: 54° 56'</b>	<b>Sep: 14 arcsec</b>	<b>SP Class: A1V, A5V</b>
<b>Distance: 83 ly</b>	<b>Sep (AU): 345, 16</b>	<b>PA: 152, 71° Mag: 10-50x El: 15° / Az: 27°</b>

**Mizar and it's neighbor Alcor are a binary star system that is 80 light years away in the constellation Ursa Major, the Great Bear, otherwise known as the Big Dipper. These stars are found in the middle of the handle of the Big Dipper. In the past, some have used the two stars as a test of your eyesight if you can see both stars. Mizar, the brighter star, is itself a double star, though you won't see this in a telescope. Spectroscopic analysis shows Mizar has two additional stars and Alcor has three. Spectroscopy gives us the color spectrum of each star which astronomers can use to determine if it is coming from a single star or more than one. You are really looking at a total of seven stars.**

### **Alpha Ursae Minoris - Polaris (Umi)**

<b>RA: 2h 32m</b>	<b>Mag(v): 2.1, 9</b>	<b>Type: Double Star</b>
<b>Dec: 89° 16'</b>	<b>Sep: 18 arcsec</b>	<b>SP Class: F7Ib</b>
<b>Distance: 325 ly</b>	<b>Sep (AU): 2430</b>	<b>PA: 218° Mag: 50x El: 42° / Az: 359°</b>

**The North Star as used in celestial navigation. It has two companion stars that orbit at 18 and 2400 AU. Polaris is a 4.5 solar mass F7 yellow supergiant.**