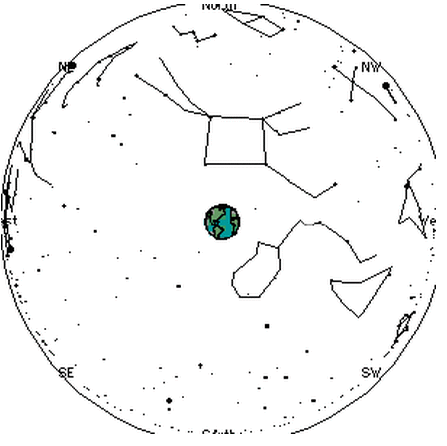
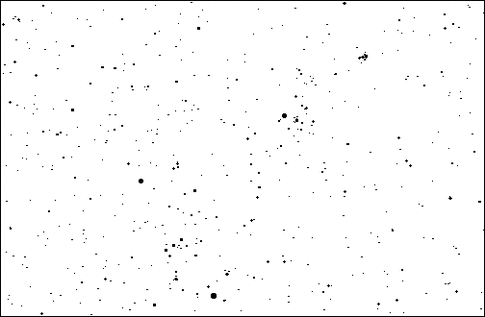
[**Sky Telescope**](http://www.skyandtelescope.com/)  
[**EarthSky**](http://earthsky.org/tonight)  
[**Eyes on the Sky**](http://eyesonthesky.com/Blog/tabid/80/EntryId/179/The-Ultimate-Beginners-Guide-to-Telescopes-and-Amateur-Astronomy.aspx)

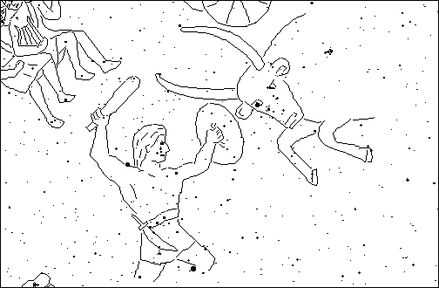
**Have your star charts with.  
Complete the location of 1st magnitude stars.  
Read about M Objects.  
  
The Messier objects are a set of astronomical objects first listed by French astronomer Charles Messier in 1771  
Messier was a comet hunter, and was frustrated by objects which resembled but were not comets, so he compiled a list of them. He never found a new comet.  
   
On your star charts place a small circle around the following M objects.  If not there still make a circle for the location and label the M Object.**[**M1**](http://www.astro.wisc.edu/%7Edolan/constellations/messier/m1.html) **The Crab Nebula  RA 5:35  Dec 22 degrees**[**M20**](http://www.astro.wisc.edu/%7Edolan/constellations/messier/m20.html) **The Triffid Nebula RA 18:02  Dec. -23 degrees**[**M31**](http://www.astro.wisc.edu/%7Edolan/constellations/messier/m31.html) **The Andromeda Galaxy RA  0:42   Dec 41 degrees**[**M42**](http://www.astro.wisc.edu/%7Edolan/constellations/messier/m42.html) **The Great Orion Nebula RA 5:35   Dec. - 05  degrees**[**M45**](http://www.astro.wisc.edu/%7Edolan/constellations/messier/m45.html) **The Pleiades RA  Dec  Find it. It’s next to Orion.**[**M57**](http://www.astro.wisc.edu/%7Edolan/constellations/messier/m57.html) **The Ring Nebula RA 18:55  Dec. 33  degrees**[**M104**](http://www.astro.wisc.edu/%7Edolan/constellations/messier/m104.html) **The Sombrero Galaxy   RA12:40     Dec. -11 degrees**



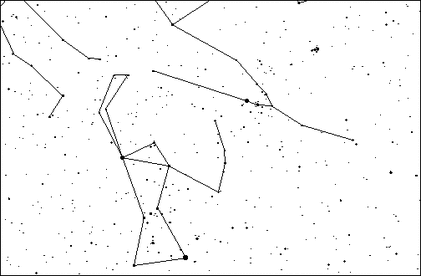
[**Link**](http://C:%5CUsers%5CLarsenE%5CDesktop%5Ccelestial_sphere_anim[1].gif)  
  
[**Celestial Sphere**](http://www.youtube.com/watch?v=1Toya19H12w) **and** [**Constellations**](http://www.youtube.com/watch?v=uKXBtWHExwQ) **Unit**  
[**Star Map**](http://archive.fossweb.com/modules3-6/SunMoonandStars/activities/starmaps.html)  
  
**Star Maps in your text. pages 714-717**



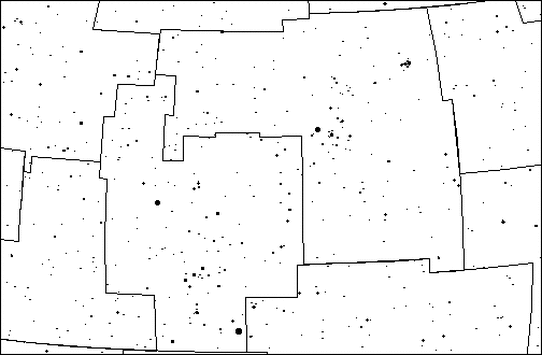
**The human eye can see about 6000 stars without aid**.



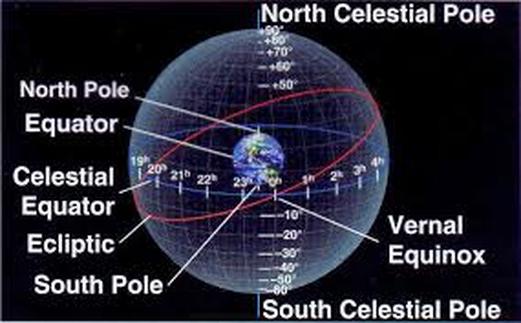
**Constellations a pattern of stars in the sky.  
  
Many where described by the ancient Greeks and Babylonians, although the southern hemisphere has many that were "created" by European explorers a few centuries ago.  
  
The ancients thought of the constellations as representing mythical figures such as Orion the Hunter and Taurus the Bull.**   
  
**A tool to navigate the sea or desert.**  
**1. Why the stories about the figures in the sky?**



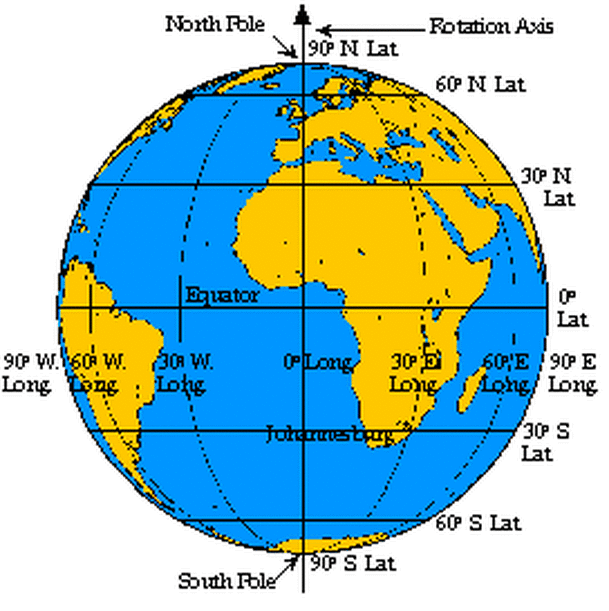
**Nowadays we often think of constellations as "stick figures", consisting of lines connecting the major stars.**



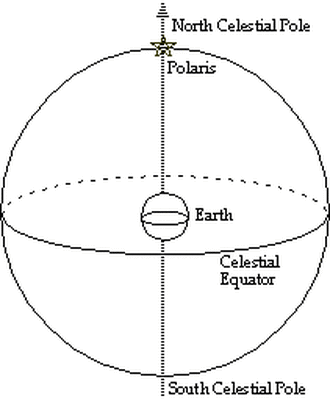
**88 *regions***  
**Astronomers now think of a constellation as one of 88 *regions* that divide up the sky and completely cover it.  
  
Any object can now be said to lie in one constellation or another.**  
**2. What letter do you see in Taurus's head?**  
  
 **Objects within constellations are found by being able to locate a constellation.**  
**3. Tonight the planet Mars is found  in the constellation Taurus.  How would you locate Mars?**



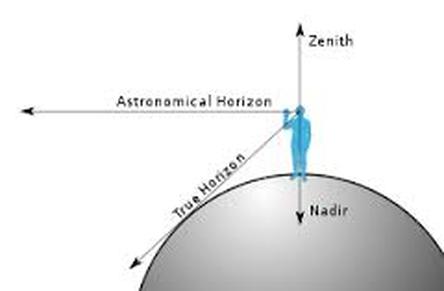
**Celestial Sphere location system that pinpoints the location of objects in the sky.**  
 **4. Where does Mr Larsen live?**  
  
**It is therefore useful to think of the stars as being "painted" on the interior surface of a large sphere centered on the Earth, called the celestial sphere**.  
**5. What does the celestial sphere do?**



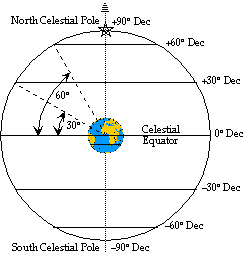
**Latitude and Longitude  a map.**  
 **Celestial Sphere is a map in the sky.**



**North Celestial Pole**  
**The North Celestial Pole is the point on the celestial sphere directly above the Earth's North Pole*.***  
**Polaris is therefore also called the North Star.**  
**6. How do you find the North Star?**  
**Celestial equator is directly above the Earth's equator.**  
**7. How many times is the sun on the celestial equator?**

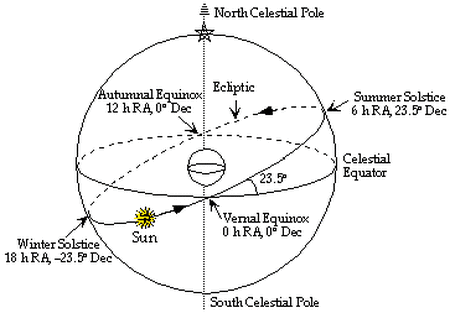


**Zenith For any position on the surface of the Earth, the point on the celestial sphere that is directly overhead is called the zenith.**  
**8. What structure is at the zenith in the classroom?**  
**9. Where will the zenith be in the sky tonight?**

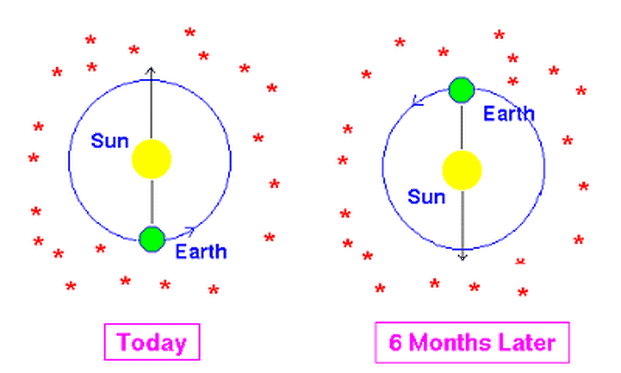


**Declination corresponds to latitude, and is measured in the same way, but relative to the celestial equator (0° dec).  
  
Measured in degrees. The north celestial pole is at 90° north declination (+90° dec). The south celestial pole is at 90° south declination (-90° dec).   
Circles of constant declination are all parallel to the celestial equator.**  
**10. What does Dec. measure?**  
**11. How many degrees north is Polaris?**

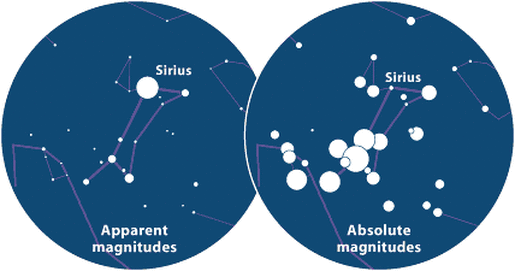


**Right ascension.  A star's position along a circle of constant declination is described by a second number called right ascension.**  
**12. What does RA measure?**  
  
**Measured in hours and minutes.**  
**Instead of 360°, a circle is broken into 24 hours of right ascension.  
So, 360° = 24 h R.A., 15° = 1 h R.A., and 1° = 4 min R.A.**  
**13. How many degrees in 3 hours?**  
  


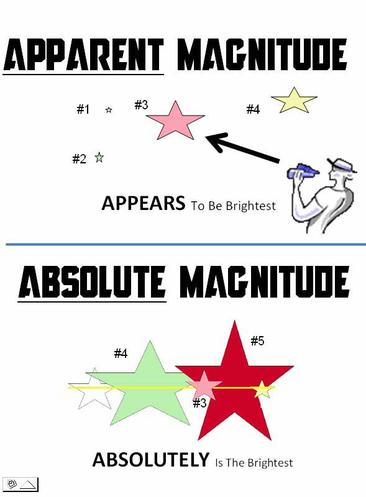
[**Ecliptic**](http://astro.unl.edu/naap/motion1/animations/seasons_ecliptic.html) **Once a year, the Sun traces out a circle on the celestial** [**sphere**](https://www.youtube.com/watch?v=1Toya19H12w) **called the** [**ecliptic**.](http://astro.unl.edu/naap/motion1/animations/seasons_ecliptic.html)  
 **14. Moving north the sun crosses the celestial equator when?  
  
15. Moving south the sun crosses the celestial equator when?**



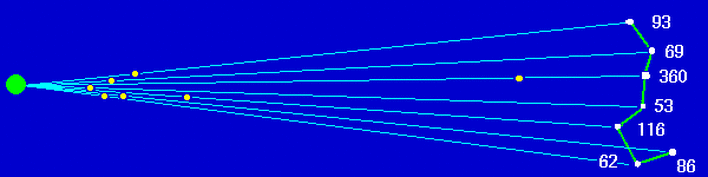
**16. Why can't you see the same   
constellations on the celestial equator all year round?**



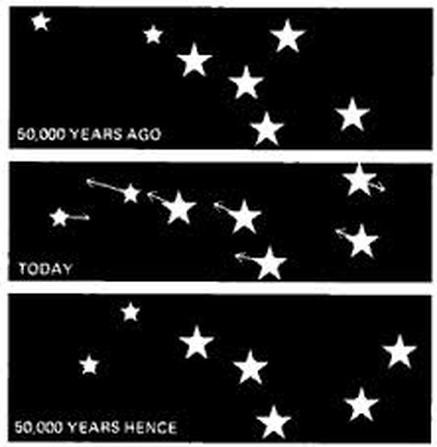
**Apparent Magnitude how bright a star appears.**  
  
**1st Magnitude Star is very bright.**



**absolute magnitude comparing how bright stars are when placed side by side**   
**at a distance of 10 parsecs (which is 32.6 light years) from the Earth.**  
**17. Compare absolute and apparent magnitudes?**



[**The 20 Brightest Stars in the Sky**](http://csep10.phys.utk.edu/astr162/lect/stars/magnitudes.html)



**18. Why is a constellation not a flat image?  
19. Why does the shape of a constellation change over time?**

[Messier](http://www.youtube.com/watch?v=B0nq7OD1rVM&list=PLC9FC5F6773B383D5)  
  
[Messier 1](http://www.youtube.com/watch?v=lBfCQt6TTms)

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