

ASTRONOMY 101 – RESOURCES

- **Videos**
 - Size of Universe <http://www.youtube.com/watch?v=b0lxbzgwW7I>
 - Comparative Star Sizes - <http://www.youtube.com/watch?v=6X47B9x670E>
- **Planetarium Programs**
 - For the PC - Stellarium - <http://www.stellarium.org/>
 - Lots of others, Mac and PC, at <http://astro.nineplanets.org/astrosoftware.html>
- **Point & View Applications and Web Sites**
 - **For android** – star3map or Google Sky Map
 - **For iPhones** – Starwalk or Starmap
 - **Moon phase** - <http://aa.usno.navy.mil/imagery/moon>
 - **Local sidereal time** - <http://tycho.usno.navy.mil/sidereal.html>
 - **Sun/Moon rise/set times** and lots of other astro info – <http://www.usno.navy.mil/USNO/astronomical-applications>
 - **Constellation Photos** - <http://www.allthesky.de/>
 - **Hubble photographs** - <http://hubblesite.org>
 - **Messier Catalog** - <http://messier.seds.org/>

16 Brightest Stars

	Apparent Magnitude	Proper Name	Distance (LY)	Constellation
	-26.74	(Sun)	0.000016	--
1	-1.46	Sirius (α CMa)	9	Canis Major
2	-0.72	Canopus (α Car)	310	Puppis
3	-0.04 var	Arcturus (α Boo)	37	Bootes
4	-0.01	Rigel Kent (α Cen A)	4	Centaurus
5	0.03	Vega (α Lyr)	25	Lyra
6	0.12	Rigel (β Ori)	770	Orion
7	0.34	Procyon (α CMi)	11	Canis Minor
8	0.42 var	Betelgeuse (α Ori)	640	Orion
9	0.5	Achernar (α Eri)	140	Eridanus
10	0.6	Hadar (β Cen)	530	Centaurus
11	0.71	Capella A (α1 Aur)	42	Auriga
12	0.77	Altair (α Aql)	17	Aquila
13	0.85 var	Aldebaran (α Tau)	65	Taurus
14	0.96	Capella B (α2 Aur)	42	Auriga
15	1.04	Spica (α Vir)	260	Virgo
16	1.09 var	Antares (α Scorpio)	600	Scorpius

For Fun Only

Astrological Sign	Birthday
Aries	Apr 19 – May 13
Taurus	May 14 – Jun 19
Gemini	Jun 20 – Jul 20
Cancer	Jul 21 – Aug 9
Leo	Aug 10 – Sept 15
Virgo	Sept 16 – Oct 30
Libra	Oct 31 – Nov 22
Scorpio	Nov 23 – Dec 19
Sagittarius	Dec 20 – Jan 18
Capricorn	Jan 19 – Feb 15
Aquarius	Feb 16 – Mar 11
Pisces	Mar 12 – Apr 18

ASTRONOMY 101 - TERMINOLOGY/GLOSSARY

- **Asterism** – a smaller grouping of stars that is known informally by various names (ex. The Big Dipper in England is known as “The Plow”)
- **Celestial Sphere** - is an imaginary sphere of arbitrarily large radius, concentric with the Earth and rotating upon the same axis.
- **Constellation** – A set of (50-100) stars that is formally recognized by international treaty as a ‘group’ delineating some object (usually an animal) for convenience
 - There are 88 and the ‘shape’ is purely accidental and would not be the same viewed from another star system
- **Ecliptic** – the apparent path of the sun through the celestial sphere over the course of a year. The moon and planet paths also lie roughly on the ecliptic
- **Galaxy** - gravitationally bound system of stars, stellar remnants and dust
 - 10 million to 100 trillion stars
 - Our Milky way is medium sized with only 200-400 billion
- **Globular Cluster** – spherical collection of stars orbiting a galactic core
 - Move as a unit, bound together by gravity
 - Many were formed in the early formation of the universe and are metal poor
 - Contain any number of stars – small have 100, larger have 100,000
- **Light Year** – the *distance* light travels in one year - ~ 5.8 trillion miles
 - Our sun is about 8 light-minutes away
- **Magnitude, Relative** – how bright a star appears under optimum seeing conditions as seen by an observer on Earth – affected by pollution, ambient light, atmospheric conditions, landscape, and humidity
 - Higher magnitude numbers are dimmer stars (only 15 brighter than 1)
 - Sun is -26, Moon is -12.6 ,
 - faintest star visible to naked eye is 6, faintest star in good binoculars 8.5,
 - faintest star visible to huge telescopes is about 30
- **Magnitude, Absolute** – how bright a star actually is at a standard distance (10 parsecs)
- **Milky Way** – Our Galaxy as seen edge on
- **Nebula** - interstellar cloud of dust, hydrogen, helium and other ionized gases
 - Often a nursery for new stars
 - Can be HUGE – The Eagle Nebula is well over 40 light years across
- **Parsec** - ~ 3.26 Light Years or 19 trillion miles
- **Star** – a ‘sun’ like our own – may be *much* larger or hotter or both
- **Solar Time** – time measured by position of the sun. 24 hours in a solar day.
- **Sidereal Time** – time measured by the position of the stars. The sidereal day is *shorter* than the solar day by about 4 minutes due to the movement of the earth around the sun. 23 hours and 56 minutes in a sidereal day
- **Zodiac** – a band traditionally 9 degrees either side of ecliptic containing constellations that have had similar names/meanings since Sumerian times