Astronomical Terms

gnomon…a vertical stick to track the sun's shadow
dioptra…a tube one looks through to view part of the sky
celestial sphere…the apparent sphere we see in the sky
true north…north without any error from magnetic variations…best shown as the shortest shadow in a shadow plot
astronomical declination…angle above the horizon (not the same as compass declination…error of a compass from true north) similar to geographical latitude…used to locate stars in the celestial sphere
local noon…the highest point of the sun in any day in a specific location therefor giving the shortest shadow on a gnomon
zenith…point in the sky directly overhead
nadir…opposite of zenith (180 degrees opposite of zenith)
meridian…vertical lines through the celestial sphere or earth
zodiac…made of twelve signs or constellations
ecliptic…apparent path (as seen for earth) of the sun in the sky over an entire year, also where the zodiacal signs roughly are found within about 10 degrees above it and below it
celestial equator…plane extending into space from earth's equator
celestial pole…pole extending from earth's poles
waxing…getting bigger
waning…getting smaller
gibbous…"humped" appearance of the moon just before or after a full (second quarter) moon
first quarter Moon…7 days after new moon
third quarter moon…~21 days after new moon
circumpolar stars…stars that never set from where you observe them over an entire year
constellation…88 sections of the sky including star arrangements with names mostly derived from ancient
astronomy…the study of the celestial objects
asterism…group of stars
Great Bear (stars — Dubhe, Merak, Mizar, Alioth, Alcor)
Polaris…north star…today precession will change the pole star
second quarter Moon…14 days through lunar cycle…full moon
zodiacal band…band with the ecliptic passing through the middle where the zodiacal signs are located
absolute magnitude…true brightness of a star from a given constant distance
apparent magnitude…the brightness of a star or object in space that depends on varying distances…closer but less luminous stars might "appear" brighter than farther stars that have greater "luminosity"
Luminosity…the total light output of a star
precession…changing of where the celestial pole point over ~26,000 years or ~1 degree every ~71 years (26,000 ÷ 71.2 = 365 days)
autumnal equinox…~Sept. 22 equal day and night when the earth passes through the ecliptic going south
vernal equinox… ~March 22equal day and night when the earth passes through the ecliptic going north
summer solstice…~June 22 first day of summer and longest "day" (most time of sunlight) of the year, sun reaches its highest point in the sky for the year, a moment when the earth is tilted greatest towards the sun
winter solstice…~Dec. 22 first day of winter shortest day of the year, a moment when the earth is tilted greatest away from the sun