





TARGET LIST - JULY 2014

How many objects and events can you observe this month? Check each of the boxes provided next to the objects and events you observe!

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			
FIRST QUARTER JULY	FULL MOON JULY	LAST QUARTER JULY	NEW MOON JULY
5	12	19	26
11:59 UT	11:25 UT	02:08 UT	22:42 UT

YOUR LOCAL TIME ZONE: _____ (ex: EST = UT -5)

It is important to distinguish your local time from the astronomical standard of **Universal Time (UT)**. Universal Time is the standard by which all observers agree to measure an astronomical event. It is also known as Greenwich Meantime (GMT) or Universal Time Coordinated (UTC). Use a time zone chart (<http://www.worldtimezone.com/>) to find your local time zone and record how many hours + or - from UT 0 (GMT). Use your local time to add to or subtract from the UT times listed to get your local time for an event. **Do not forget to account for time changes due to local observance of Daylight Savings Time. (ex: Eastern Standard Time (EST) = UT-5 becomes Eastern Daylight Time (EDT) = UT-4)**

ASTRONOMICAL EVENTS

Earth At Aphelion (farthest from Sun) on July 4 at 00 UT.

Moon At Apogee (farthest from Earth) on July 28 at 3h UT.

Moon At Perigee (closest to Earth) on July 13 at 8h UT.

CONSTELLATIONS

The following constellations appear at or near the **zenith meridian** (the line running directly north/south in the sky) at 22:00 (10:00pm) **local time** on the first night of the month.

North Celestial Hemisphere

These constellations appear at or north of the **celestial equator**.

- Bootes
- Corona Borealis
- Draco
- Hercules
- Serpens Caput
- Ursa Minor

THE CLASSICAL PLANETS

- Mercury** - Greatest elongation July 12 at 18h UT morning sky. (21°)
- Venus** - Visible just before sunrise.
- Mars** - Setting late evening in Virgo.
- Saturn** - Setting late evening in Libra.
- Uranus** - Rising early morning in Pisces.
- Neptune** - Rising near midnight in Aquarius.

South Celestial Hemisphere

These constellations appear at or south of the **celestial equator**.

- Apus
- Centaurus
- Circinus
- Libra
- Lupus
- Norma
- Ophiuchus
- Scorpius
- Triangulum Australe
- Virgo

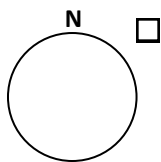
DWARF PLANETS

- Ceres** - Setting late evening in Virgo, mag 8.
- Pluto** - At opposition July 4 at 8h UT in Sagittarius, mag 14.

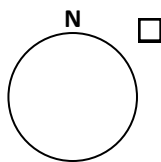
TARGET LIST - JULY 2014

LUNAR PHASES

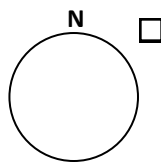
Observe and record lunar phases. Sketch the degree of observed phase by shading in the circles provided. Orient the north lunar limb to top. Record the date and time of observation in UT.



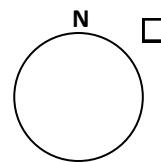
WAXING
CRESCENT
VISIBLE
JULY
1-4



WAXING
GIBBOUS
VISIBLE
JULY
6-11



WANING
GIBBOUS
VISIBLE
JULY
13-18



WANING
CRESCENT
VISIBLE
JULY
20-25

COMETS

- C/2012 X1 (LINEAR) Mag 9.1 in Pisces Austrinus.
- C/2012 K1 (PANSTARRS) Mag 7.7 in Leo.
- C/2013 UQ4 (Catalina) Mag 12.6 in Andromeda.

Visit <http://cometchasing.skyhound.com/> for finder charts and more information on these and other visible comets.

ASTEROIDS

- 4 Vesta** - Setting late evening in Virgo. Mag 6.

MESSIER OBJECTS VISIBLE IN THE EVENING SKY

CANES VENATICI

- M3 Globular Cluster
- M51 Whirlpool Galaxy
- M63 Sunflower Galaxy

COMA BERENICES

- M53 Globular Cluster
- M64 Black Eye Galaxy

HERCULES

- M13 Great Hercules Cluster

HYDRA

- M83 Southern Pinwheel Galaxy

OPHIUCHUS

- M10 Globular Cluster
- M12 Globular Cluster
- M19 Globular Cluster
- M62 Globular Cluster
- M107 Globular Cluster

SERPENS CAPUT

- M5 Globular Cluster

SCORPIUS

- M4 Globular Cluster
- M80 Globular Cluster

URSA MAJOR

- M101 Pinwheel Galaxy

ADD YOUR OWN TARGET

- _____
- _____
- _____
- _____
- _____
- _____

JULY 28-29

ALPHA CAPRICORNID METEOR SHOWER AND SATELLITES

Record any meteors or satellites you observe. (ex: ~~||||~~) If there are multiple observers be sure that each observer keeps record of only the meteors and satellites they observe and not what other observers report. Record date and observation start/stop time in UT.

METEORS

SATELLITES

Visit <http://www.amsmeteors.org/meteor-showers/meteor-shower-calendar/> for more information on meteor showers.