




**LUNAR PHASES**

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



**FIRST QUARTER**  
APRIL  
**7**  
08:31 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)



**FULL MOON**  
APRIL  
**15**  
07:42 UT


**ASTRONOMICAL EVENTS**  
**Moon At Apogee** (farthest from Earth) on April 8 at 15h UT.  
**Moon At Perigee** (closest to Earth) on April 23 at 00h UT.  
**A Total Lunar Eclipse** occurs on April 15. Begins 04:52UT, mid at 07:46UT, ends 10:39UT.  
**Annular Solar Eclipse** on April 29. Visible only in parts of Australia and Antarctica.



**LAST QUARTER**  
APRIL  
**22**  
07:52 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.

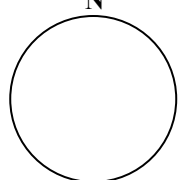
- |  |   |
|--|---|
| <b>North Celestial Hemisphere</b><br>These constellations appear at or north of the celestial equator.                                 | <b>South Celestial Hemisphere</b><br>These constellations appear at or south of the celestial equator.  |
| <input type="checkbox"/> Cancer<br><input type="checkbox"/> Leo<br><input type="checkbox"/> Leo Minor<br><input type="checkbox"/> Lynx | <input type="checkbox"/> Ursa Major<br><input type="checkbox"/> Antlia<br><input type="checkbox"/> Carina<br><input type="checkbox"/> Chamaleon<br><input type="checkbox"/> Hydra<br><input type="checkbox"/> Pyxis<br><input type="checkbox"/> Sextans<br><input type="checkbox"/> Vela<br><input type="checkbox"/> Volans |



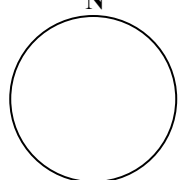
**NEW MOON**  
APRIL  
**29**  
06:14 UT

**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.

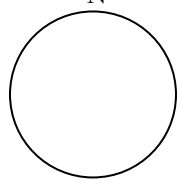
**Waxing Crescent**  
Visible Apr 1-7  
Date and Time:



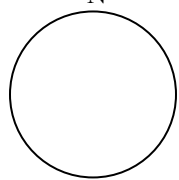
**Waning Gibbous**  
Visible Apr 14-21  
Date and Time:



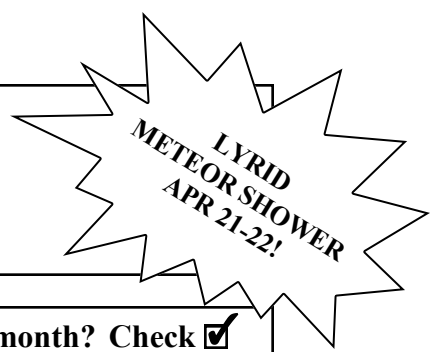
**Waxing Gibbous**  
Visible Apr 8-14  
Date and Time:



**Waning Crescent**  
Visible Apr 23-28  
Date and Time:



THE ASTRONOMER'S WORKBOOK  
**TARGET LIST**  
APRIL 2014




**LUNAR PHASES**

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



**FIRST QUARTER**  
APRIL  
**7**  
08:31 UT



**FULL MOON**  
APRIL  
**15**  
07:42 UT



**LAST QUARTER**  
APRIL  
**22**  
07:52 UT



**NEW MOON**  
APRIL  
**29**  
06:14 UT

**THE CLASSICAL PLANETS**

- Venus** - Rises around dawn.
- Mars** - At opposition on Apr 8.
- Jupiter** - Prominent in the evening sky in Gemini.
- Saturn** - Rising near midnight in Libra.
- Neptune** - Rises around dawn in Aquarius.

**COMETS**

- C/2013 R1 (Lovejoy)**
- C/2012 X1 (LINEAR)**
- C/2012 K1 (PANSTARRS)**

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

**DWARF PLANETS**

- Ceres** - At opposition on Apr 15.
- Pluto** - Rises early morning hours in Sagittarius, magnitude 14.

**ASTERIODS**

- 4 Vesta** - At opposition on Apr 13.

**MESSIER OBJECTS VISIBLE IN THE EVENING SKY**

**MONOCEROS**

- M50 Open Cluster

**PUPPIS**

- M47 Open Cluster
- M46 Star Cluster
- M93 Star Cluster

**CANCER**

- M44 The Beehive Cluster
- M67 Open Cluster

**HYDRA**

- M48 Star Cluster

**URSA MAJOR**

- M81 Bode's Galaxy
- M82 Cigar Galaxy

**LEO**

- M95 Galaxy
- M96 Galaxy
- M105 Galaxy

**ADD YOUR OWN TARGET**

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**LYRID 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.