



Lafayette
CONSOLIDATED GOVERNMENT
LAFAYETTE SCIENCE MUSEUM

Night Sky Checklist

Year-Round

**Unaided Eye
Astronomy**

General Observations

Observation	✓	Date	Comments
Shadow of Earth & the Belt of Venus			
satellite			
Int'l Space Station			
Iridium flare			
meteor			
airplane			
Light dome			
Lunar halo			
Rotation of Earth			
Revolution of Earth			

The Solar System

Observation	✓	Date	Comments
The moon			
Earthshine			
Lunar motion			
Mercury			
Venus			
Mars			
Jupiter			
Saturn			

Asterisms and Stars

Observation	✓	Date	Comments
Little Dipper			
North Star (Polaris)			

What is This Stuff?

A Guide to the Night Sky Checklists Year-Round Objects

The following information may help you understand why these objects are on the Night Sky Checklists.

General Observations

The **Shadow of Earth and Belt of Venus** are seen shortly after sunset during strong twilight on the opposite side of the sky from the sunset position. The shadow of Earth appears as a dark band just above the horizon, and the Belt of Venus appears just above the shadow as a delicate band of sunset colors. These phenomena are visible only when weather conditions are excellent, and only for about 15 to 30 minutes.

Satellites appear to the unaided eye as starlike objects crossing the sky, visible for a few minutes. Since seeing them requires the observer to have a dark sky while the satellite is still in sunlight, they are best seen in the first hour or so of darkness in the evening and the last hour or so of darkness before dawn. Satellites do not have visible blinking lights and can be as bright as bright stars to extremely faint. For a nightly list of satellites visible in your area and the times they will be seen, go to www.heavens-above.com. Once there you must set up for your location. The easiest way is to click on “from database” in the Configuration area, choose your country, then follow the instructions. Once configured, bookmark the site and it will set up for your location when you return each time.

The **International Space Station** is *very* bright, brighter than any of the stars and often bright than bright planets. It’s brightness coupled with its obvious motion make it a striking sight. When you see that little dot of light go by, remember there are people inside it (there has not been a day in the 21st Century when there have not been human beings in orbit!).

Iridium flares result from sunlight glinting off one of a series of communication satellites called Iridium. They can be brighter than the brightest stars, but last only 10–15 seconds.

Meteors, popularly called falling stars or shooting stars because of their appearance, are actually caused by small bits of rock and metal called meteoroids entering Earth's atmosphere from space. They can be bright or dim, and last only seconds.

Airplanes are easily distinguished from satellites because airplanes have flashing lights. Satellites may change their brightness slowly or even in a pattern if they are tumbling, but that looks different from the navigation and anti-collision lights on an airplane.

A **light dome** is the apparent dome of brightness seen over cities from a distance, caused by waste lighting going up into the sky.

A **lunar halo** is a ring around the moon, but clearly separate from the moon. Lunar halos form on nights having a layer of thin, high clouds made of ice crystals. Moonlight goes through the cloud layer, bending (or “refracting”) as it passes through the ice. Since different colors refract by different amounts, a really good lunar halo will have subtle colors to it. Sometimes bright spots to the left and right of the moon, called moon dogs, can be seen. Incidentally, a bright patch surrounding the moon but still seeming to touch it is a corona, generally caused by suspended water droplets rather than ice crystals. A true lunar halo looks like a hoop around the moon.

The daily **rotation of Earth** can be seen over the course of a half hour to an hour by noticing how the moon, stars, and planets appear to rise or set.

The annual **revolution of Earth** around the sun can be seen by observing the sky once a week at the same time of night, and noticing the apparent shift in the positions of stars due to our planet's motion.

The Solar System

Watch **the moon** for daily changes in phase and position as it orbits Earth.

Remember that it cannot always be seen during early evening, depending on its position as it orbits Earth.

During the crescent moon phase, it is possible to see the brightly lighted part of the moon *and* the “unlighted” part. Sometimes called **Earthshine**, this happens when sunlight reflects off Earth, up to the moon and back to our eyes.

Lunar motion can be seen from one night to the next as the moon orbits Earth. Note the moon's position among background stars (or even planets), then look at it again the next night and its change in position will be obvious.

All the other **planets** out to Saturn can be easily seen with the unaided eye, and look like moderately bright to very bright stars. Their positions can be found from the star maps on the Lafayette Science Museum web site, by calling the planetarium, or by using suitable software or web sites. Once you are familiar with their appearance and with the positions of bright stars, it will be easy to identify the planets.

Asterisms and Stars (Asterisms are unofficial, imaginary dot-to-dot pictures in the sky—feel free to make up your own!)

The **Little Dipper** is a part of the constellation Ursa Minor, the Smaller Bear. It's quite faint and may not be visible inside a city. Since it's always in the north, getting well out of town in that direction will make it easier to find.

Polaris, also known as **The North Star**, lies almost exactly in the north and marks the end of the Little Dipper's handle. Contrary to popular belief, it is not the brightest star in the sky. In fact, it's not even in the Top 40!

LSM web site: www.lafayettesciencemuseum.org
Look for the Lafayette Science Museum on Facebook, too!