





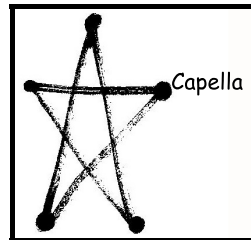
November Skies over the Pinnacles

November's four principal phases of the moon

November 8	Last Quarter	
November 15	New Moon	
November 22	First Quarter	
November 30	Full Moon	

The November Experience

Observing the night sky during the month of November is a special time. The colorful leaves of fall are starting to leave the branches behind and there is a special thrill in seeing the nighttime stars through the trees. The constellations which take up residence above us don't have many bright stars to help us pick out familiar constellations. That is unless we have a view of the eastern sky and can spy Capella, one of the brightest stars in the sky. Capella is in the constellation, Auriga, the chariot driver. If you draw a 5-pointed star, like one on the American flag, and put a dot on the points of the star you can imagine Auriga.



Just south of Auriga you can catch sight of one of the prettiest little collections of stars that you can see without binoculars or a telescope. I'm talking about the Pleiades (say plee-a-dees), sometimes called the Seven Sisters because they represent the seven daughters of the god Zeus, of Greek mythology. That's appropriate because the Pleiades are riding on the shoulder of Taurus, the bull, one of the forms taken by Zeus in one of those old myths.

For scale, here's a picture of the Pleiades I took a few years ago. Look for that little collection of stars to the left of the bottom light on the cell tower. Some people mistake the Pleiades for the Little Dipper.



Here's a closeup I took of the Pleiades on April 3 when Venus was seen in the same area of sky. Sharp-eyed readers might notice that the stars of the Pleiades are rotated almost 180 degrees from the first picture. That's because in the fall the 'bowl' of this star cluster is 'up' when it climbs higher in the eastern sky. In spring the 'bowl' is 'down' when the Pleiades are setting in the west.



The Pleiades are actually a young cluster of stars which probably formed from the same dust and gas left over after the deaths of other stars. Stars follow the same pattern of life-following-death as we do. These stars are hot and young. They probably began shining between 75 and 100 million years ago. They are about 440 light years away. That means that the light we see tonight from this beautiful star cluster started on its journey to us when Sir Frances Drake returned to England after his attempt to circumnavigate the Earth.

Some groupings of objects in the sky are fairly permanent, like the Pleiades and the constellations. Others are really temporary. The Moon and planets are always busy traveling along their orbits. Because our solar system formed in the shape of a dinner plate, the Sun, Moon and planets appear to be traveling on similar tracts through the sky. This helped create the myth that the distant stars that are seen in the same direction 'behind' the planets are somehow special and can influence our daily lives. These constellations I'm writing about are called the constellations of the Zodiac.

Here is a temporary pattern in the sky made by the Moon, Saturn and Jupiter last October 22. Our neighbor's play set is seen at the bottom of the picture. The Moon is the brightest object in the left. Saturn is above and to the right and Jupiter is at lower right.



Other Attractions in November

Even casual night time observers of the night sky can't miss brilliant orange Mars rising high in the sky. Last month I described the Earth as 'passing' Mars by because we are moving faster on our orbit than the red planet. This motion is similar to a faster race car passing a slower one and leaving it behind. As the distance between Earth and Mars increases it will begin to get just a bit dimmer each night in November.

As you can see in the picture above, Jupiter and Saturn are inching closer to the western horizon on cold November evenings. The pair will set at about 8PM EST by mid month.

The end of November offers us another chance to glimpse speedy planet Mercury. On the 22nd, find bright Venus in the south-east. The star Spica will be above Venus and to the right and Mercury will be below and to the left, about 3 times the separation between Venus and Spica. Here's the bad news. You'll have to be up about a half-hour before sunrise to see this!

- November 1** Daylight Savings Time ends. (I like to call Daylight Savings Time, "GNT" or Government Nuisance Time).
- November 2** In another temporary alignment, the shrinking, or waning gibbous Moon will be about 4 degrees, or just about 3 finger-widths held at arm's length from the star Aldebaran. That's the brightest star in the constellation, Taurus the Bull.
- November 12** (For you early risers.) Get up early and see a very pretty collection of the fingernail moon, Venus, the star, Spica and (maybe) Mercury.
- November 17** The Leonid Meteor Shower can be enjoyed in the wee hours between midnight and dawn.
- November 18** The trio of Saturn, Jupiter and the Moon stage a, sort-of, repeat performance to the one pictured above. And they will form a nice triangle the following evening.
- November 25** The Moon slides by Mars by about 5 finger-widths.
- November 29** The Moon does the same thing near the Pleiades.
- November 30** The month ends with an eclipse of the Moon. That's when the Moon's orbit takes it through the shadow of the Earth. This time, the Moon will only skirt the outermost part of Earth's shadow. Don't expect the Moon to darken much. When the Moon goes through the darkest part of Earth's shadow we get to see it turn dark coppery orange. You'll have to wait until May 26, 2121 to see that to happen!