

## Facilitator Information

(All you need to know about constellations to survive the day)

### What's a constellation?

A constellation is a group of stars that appears to form a pattern or picture like Orion the Great Hunter, Leo the Lion, or Taurus the Bull. Constellations are easily recognizable patterns that help people orient themselves using the night sky. There are 88 “official” constellations.

### Are the stars in a constellation near each other?

Not necessarily. Each constellation is a collection of stars that are distributed in space in three dimensions – the stars are all different distances from Earth. The stars in a constellation appear to be in the same plane because we are viewing them from very, very, far away. Stars vary greatly in size, distance from Earth, and temperature. Dimmer stars may be smaller, farther away, or cooler than brighter stars. By the same token, the brightest stars are not necessarily the closest. Of the stars in Cygnus, the swan, the faintest star is the closest and the brightest star is the farthest!

### How are constellations named?

Most of the constellation names we know came from the ancient Middle Eastern, Greek, and Roman cultures. They identified clusters of stars as gods, goddesses, animals, and objects of their stories. It is important to understand that these were not the only cultures populating the night sky with characters important to their lives. Cultures all over the world and throughout time — Native American, Asian, and African — have made pictures with those same stars. In some cases the constellations may have had ceremonial or religious significance. In other cases, the star groupings helped to mark the passage of time between planting and harvesting. There are 48 “ancient” constellations and they are the brightest groupings of stars – those observed easily by the unaided eye. There actually are 50 “ancient” constellations; astronomers divided one of the constellations (Argo) into 3 parts.

“Modern” constellations — like the Peacock, Telescope, and Giraffe — were identified by later astronomers of the 1500s, 1600s, and 1700s who used telescopes and who were able to observe the night sky in the southern hemisphere. These scientists “connected” the dimmer stars between the ancient constellations. There are 38 modern constellations. In 1930 the International Astronomical Union officially listed 88 modern and ancient constellations (one of the ancient constellations was divided into 3 parts) and drew a boundary around each. The boundary edges meet, dividing the imaginary sphere — the celestial sphere — surrounding Earth into 88 pieces. Astronomers consider any star within a constellation boundary to be part of that constellation, even if it is not part of the actual picture.

### Why Do We See Different Constellations During the Year?

If observed through the year, the constellations shift gradually to the west. This is caused by Earth’s orbit around our Sun. In the summer, viewers are looking in a different direction in space at night than they are during the winter.

Read more about constellations at:

<http://www.lpi.usra.edu/education/skytellers/constellations/about.shtml>