Star Knowledge

For thousands of years, people across the world have looked up at the night sky and marveled at what they saw. They create different pictures from the patterns of the stars, and tell stories about the stars, planets, comets, and other objects in the sky. They use astronomical knowledge to tell time, navigate, predict the weather, create art, tell stories, and make sense of the world around them.

Astronomy traditions vary across cultures, communities, and individuals. The information collected here is a small sample of how some cultures view the night sky.

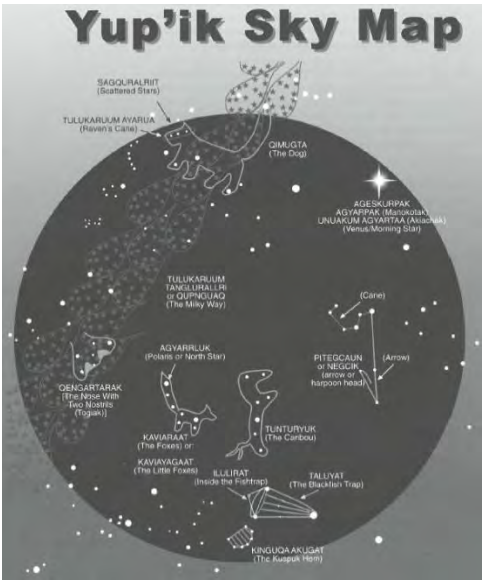
Night sky at Denali National Park.
Image: National Park Service/Jacob W. Frank

Yup’ik Astronomy

The Yup'ik people of southwest Alaska have identified many constellations, based on the animals, tools, and concepts familiar in their lives. There are many stories about these constellations and patterns in the sky. For example, the story "How Raven Made the Milky Way" explains how Raven snowshoed across the sky in search of light; the tracks he left behind became the Milky Way.

For generations, Yup'ik people have used their knowledge of the stars to navigate at night. Learning the patterns of the stars and how they appear to move can help guide travelers safely to their destinations.

The most important star landmarks for navigating are *Tunturyuk* (the Caribou, known in English as the Big Dipper), *Agyarrluk* (the North Star), and *Qengartarak* (the Nose with Two Nostrils, known as English as Cassiopeia).



Note: *Yup’ik constellations and names vary across villages and regions. This map shows one version of Yup’ik constellations; there are many others.*

Information and map from Star Navigation, Math in a Cultural Context Series, edited by Jerry Lipka, 2007.

Dené (Athabascan) Astronomy

The Dené (Athabascan) people of Interior Alaska use their knowledge of the stars to tell time, navigate, and predict the weather. Stars also play an important role in spiritual beliefs.

Dené groups from across Alaska identify one large constellation that spans the sky. This constellation is generally seen as a person, sometimes with an animal tail. It is known as *Yahdii* (Gwich'in), *Neek'e'eltiin* (Upper Tanana), *Nek'eltaeni* (Ahtna), or *Naq'eltani* (Dena'ina).

Smaller groups of stars within the constellation are named using other body part terms, with the stars corresponding to the Big Dipper as the tail. This system is simple to remember, and helps observers locate stars more easily; by recognizing one part of the constellation, you can identify the remaining parts based on an existing mental map of the human body.

Artist's depiction of the Gwich'in constellation *Yahdii*.

Image: Mareca Guthrie, in consultation with Chris Cannon and Paul Herbert.

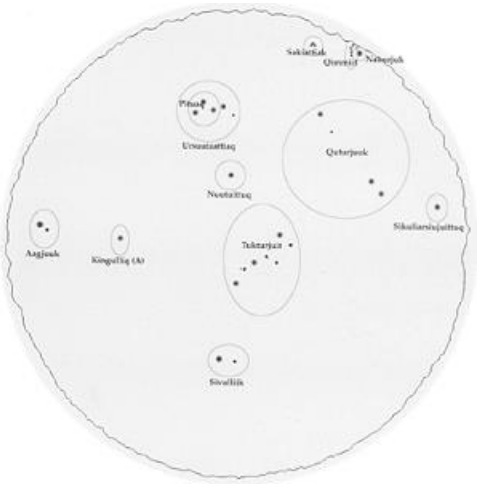
Information from Alaska Athabascan Stellar Astronomy by Chris Cannon.

Inuit Astronomy

For many Inuit cultures of northern Canada, the stars and night sky are a vital part of their world. Stars are important in many myths, legends, and spiritual beliefs. People also tell time and seasons by the movement of the stars, and use the position of the stars for navigating on dark nights.

Many Inuit constellations are named after mythical people or animals, such as *Ullaktut* (the three runners) and *Nanurjuk* (the spirit of the polar bear). Other constellations are named after common household items, such as *Ursuutaattiaq* (the blubber container) and *Pituaq* (the lamp stand).

The constellation *Aagjuuk* is associated with daylight. When it appeared in the sky around the time of the winter solstice, it was a signal that daylight would soon return.



Note: *Names and meanings of constellations vary across Inuit communities. These explanations are from the village of Igloolik, Northwest Territories.*

Information and map from The Arctic Sky: Inuit Astronomy, Star Lore, and Legend, by John MacDonald, 1998.

Greek and Roman Astronomy

Greek and Roman scientists such as Hipparchus and Ptolemy observed the sky, catalogued the stars they could see, and developed models to explain the motion of the sun, stars, and planets. Many of the commonly known constellation names come from ancient Greek and Roman mythology. For example, Pegasus represents the white winged horse from Greek stories, Draco represents a dragon from Roman legend, and Hercules represents the famous hero.

The zodiac signs also come from Greek and Roman cultures. Viewed from Earth, the Sun appears to trace a circular path, called the ecliptic, through the sky. The zodiac is the group of constellations that fall along the ecliptic; the Sun appears to "pass" through these constellations during the course of the year. Greek and Roman astronomers used the cycle of the zodiac to determine the time of year.

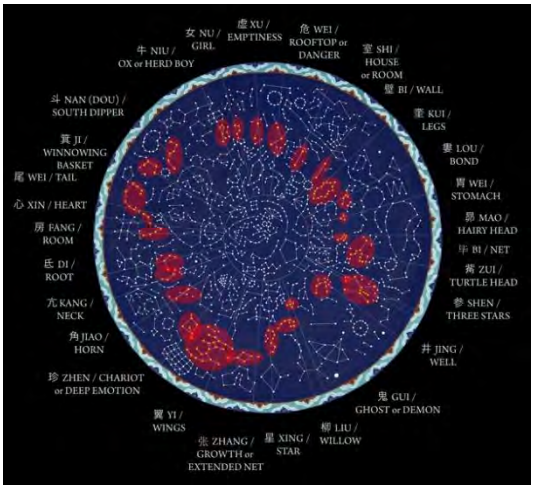
Version of the Greco-Roman sky map.
Image: Constellation-guide.com.

Information from:
Lunar and Planetary Institute
Constellation-guide.com

Chinese Astronomy

In ancient China, it was believed that events in the sky directly reflected events on earth. For example, a comet appearing in the sky meant something important and unexpected was about to happen. The emperor was seen as the Son of Heaven, and his astronomers were expected to watch the sky very carefully. They kept accurate records of the movements of the stars and planets.

The Chinese sky is divided into five regions: north, south, east, west, and center. The four cardinal directions are each associated with an animal: the Black Tortoise of the North, the Red Bird of the South, the Blue Dragon of the East, and the White Tiger of the West. Each of these regions contains seven constellations. The center region contains several additional constellations, and is associated with the emperor.



Sky map of 28 major Chinese constellations.

Information and map from [International Dunhuang Project.]

Star Stories

What stories do YOU know about the stars or the night sky? Write a story or draw a picture!

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Observe the Sky!

Go outside and observe the sky. What do you notice? Can you see any constellations?

Look at the sky at different times and from different places. Do you see any changes?

Write and draw your observations.