

Star light, Star bright: The Constellations

SNCID7-Space

The Constellations

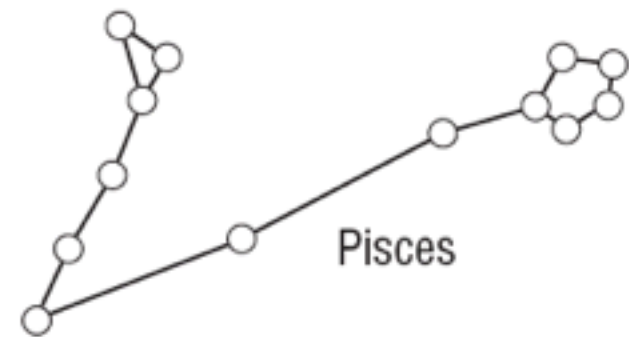
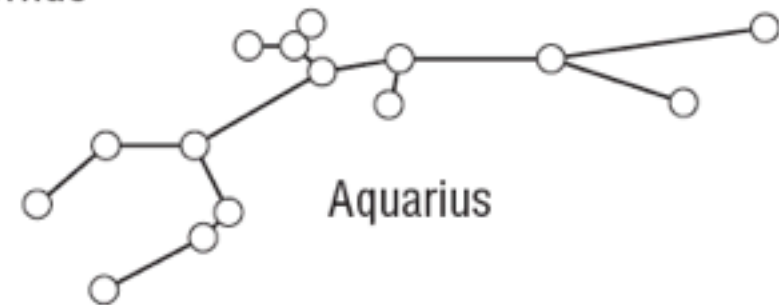
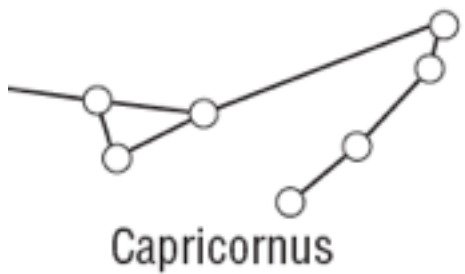
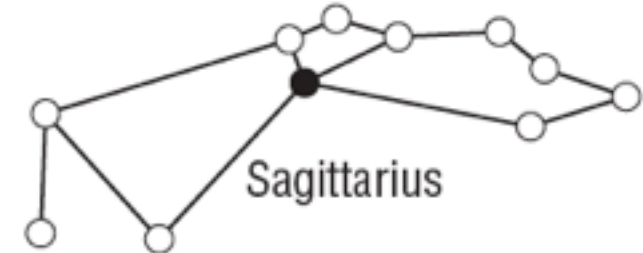
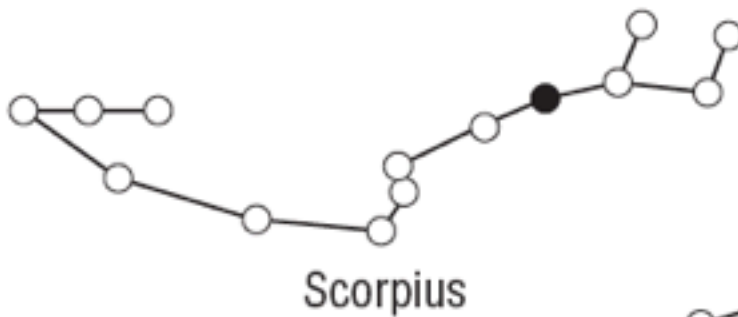
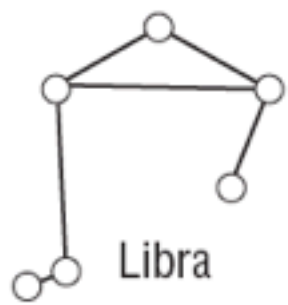
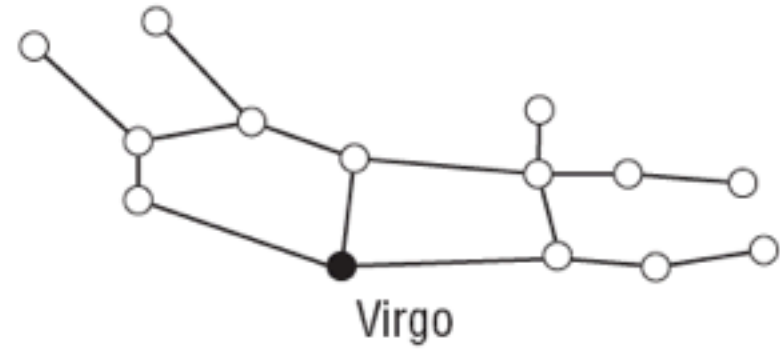
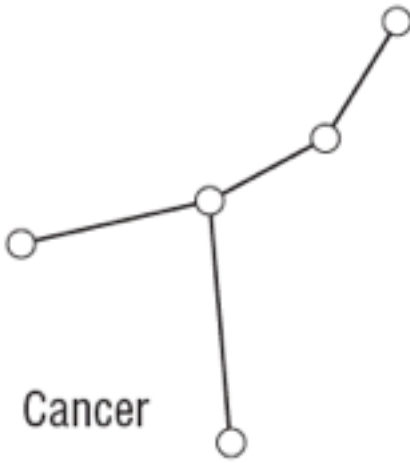
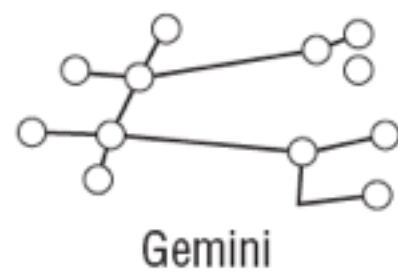
Most cultures imagined that the patterns formed by the stars in the night sky represented different people, animals, and objects.

Constellations are groups of stars that seem to form a distinctive pattern in the sky.



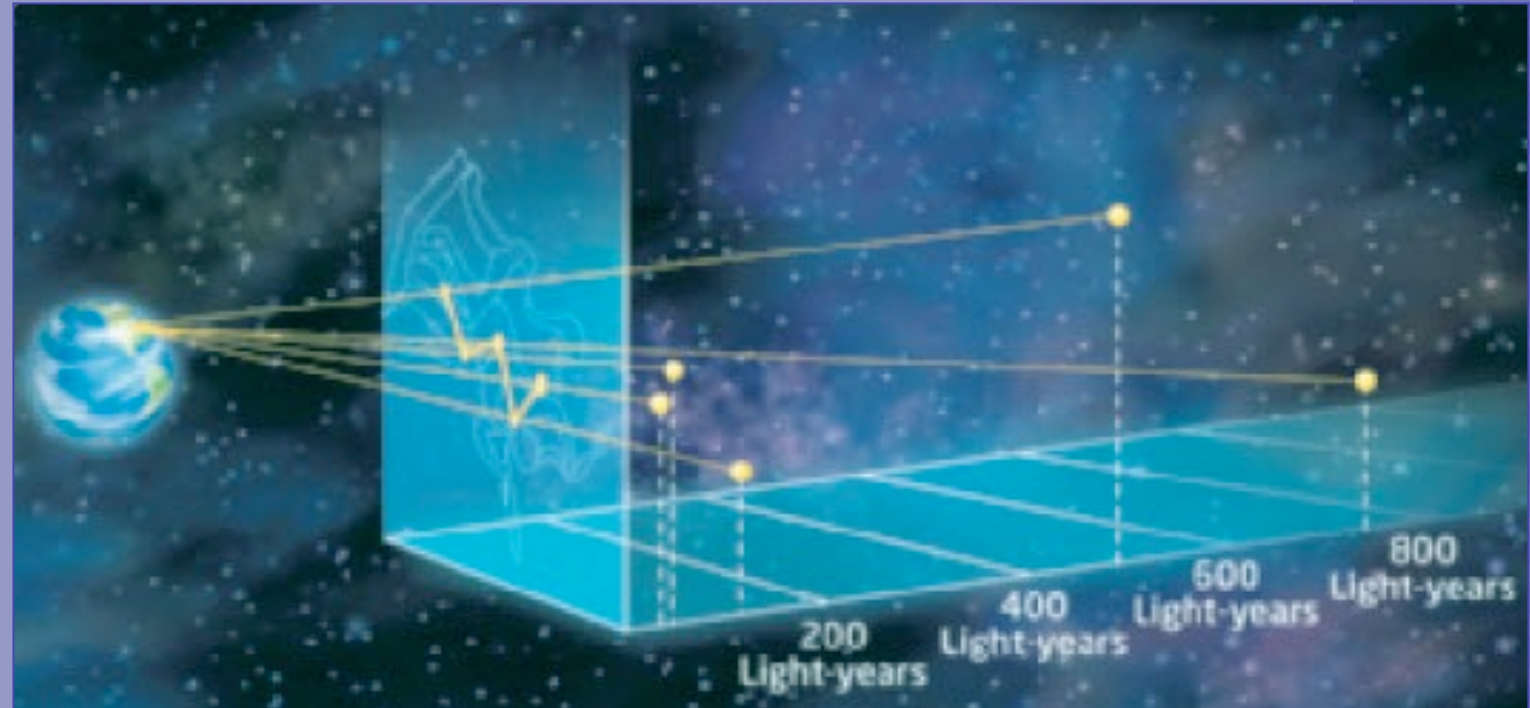
A **light-year** is the distance that light travels in one year, about 9.5×10^{12} km.

Because they lie in the same line of sight, the stars in a constellation appear to be close to each other and at exactly the same distance from Earth. They may in fact be **light-years** apart.

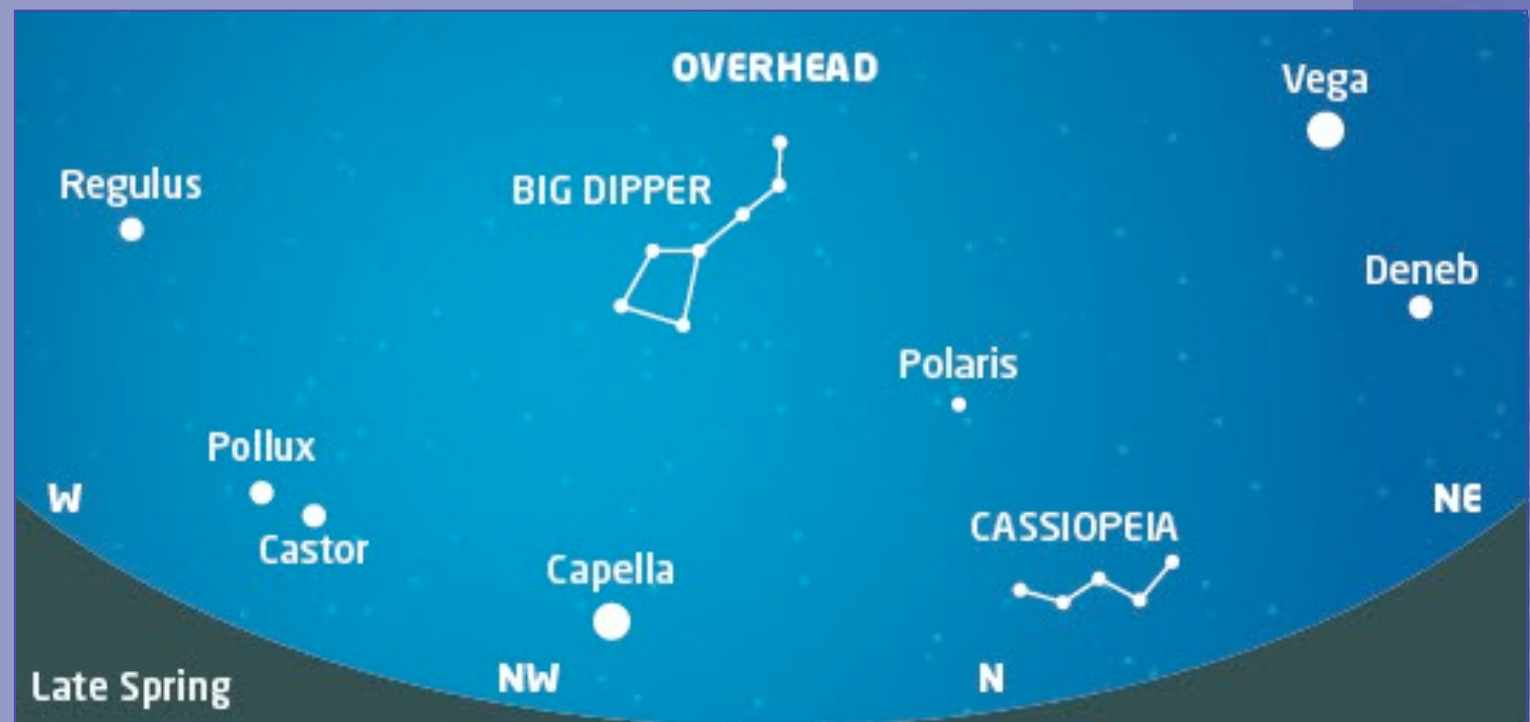


Random Stars in Space

Stars that appear as a constellation when viewed from Earth may appear to be unrelated when viewed from space.



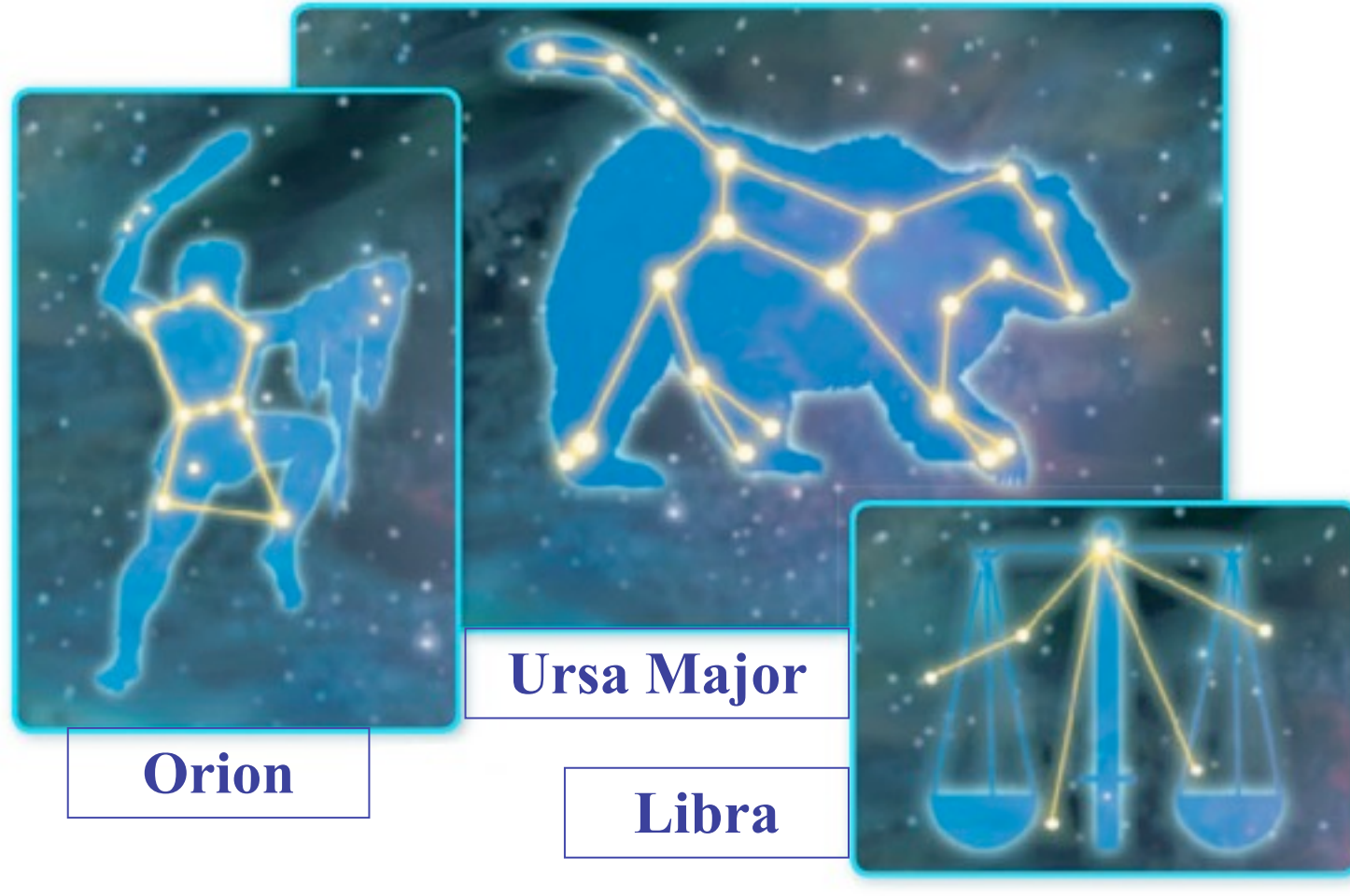
Star maps such as the one shown to the right show constellations and individual stars. The larger the dot, the brighter the star. A star's **apparent magnitude** is its brightness as seen from Earth.



Stellar magnitude scales compare the brightness of stars.

Names of Constellations

The International Astronomical Union (IAU) is the group that names and classifies celestial objects, including the 88 official constellations.



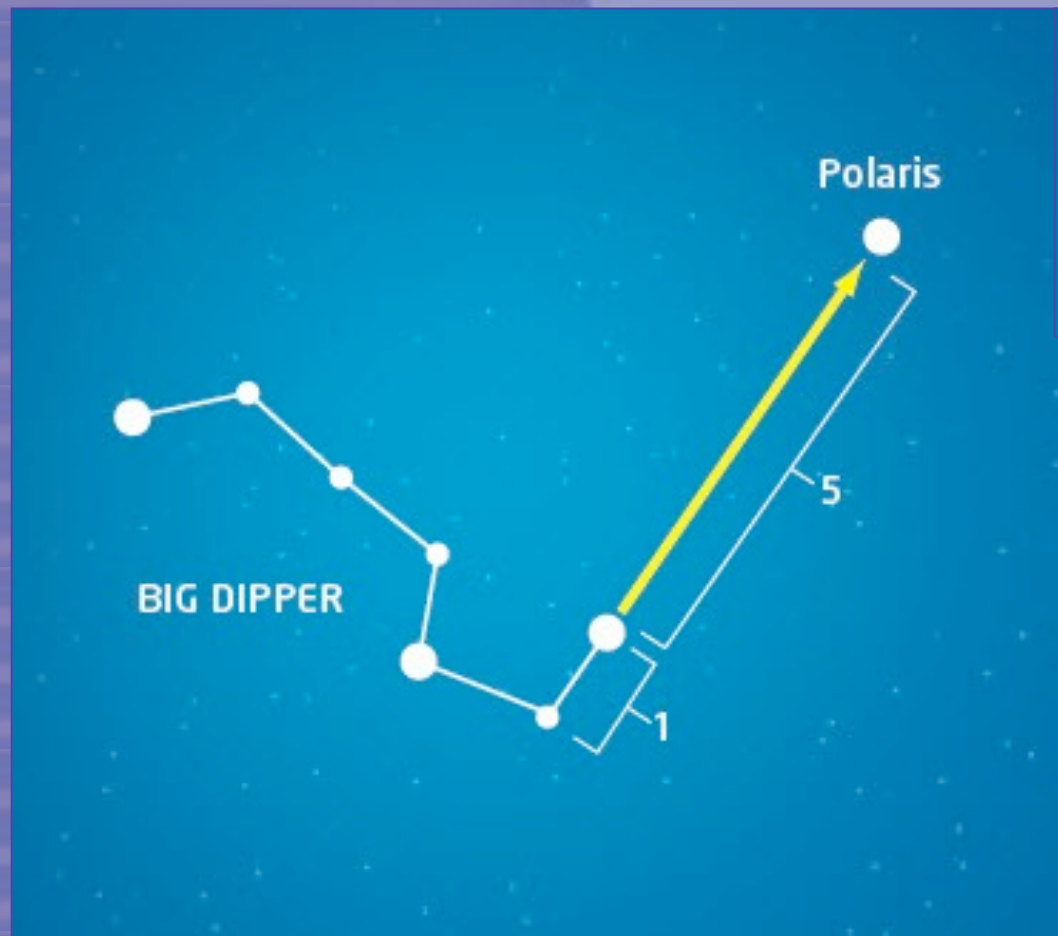
Many of the constellation names, particularly in the northern hemisphere, are from ancient Greek or Latin.



The star pattern in the **Big Dipper** was recognized by many cultures, and a variety of stories attempt to explain its existence and motion. The Big Dipper is considered to be an **asterism**, a pattern within a constellation, **Ursa Major**.

Polaris and the Pointer Stars

The Big Dipper's two end stars are called pointer stars because they point towards Polaris, the North Star.



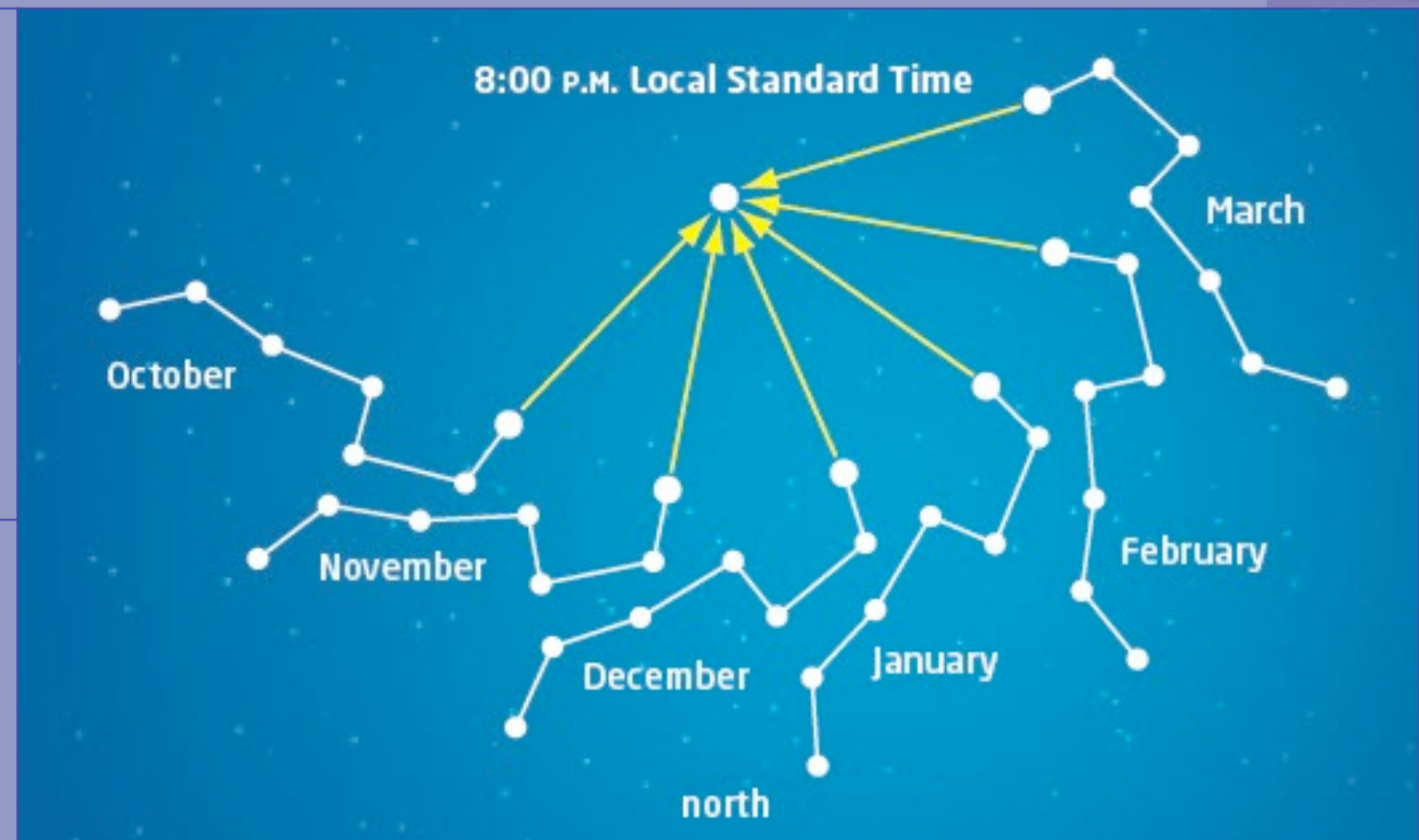
The distance from the pointer stars to Polaris is about five times the distance between the two pointer stars.



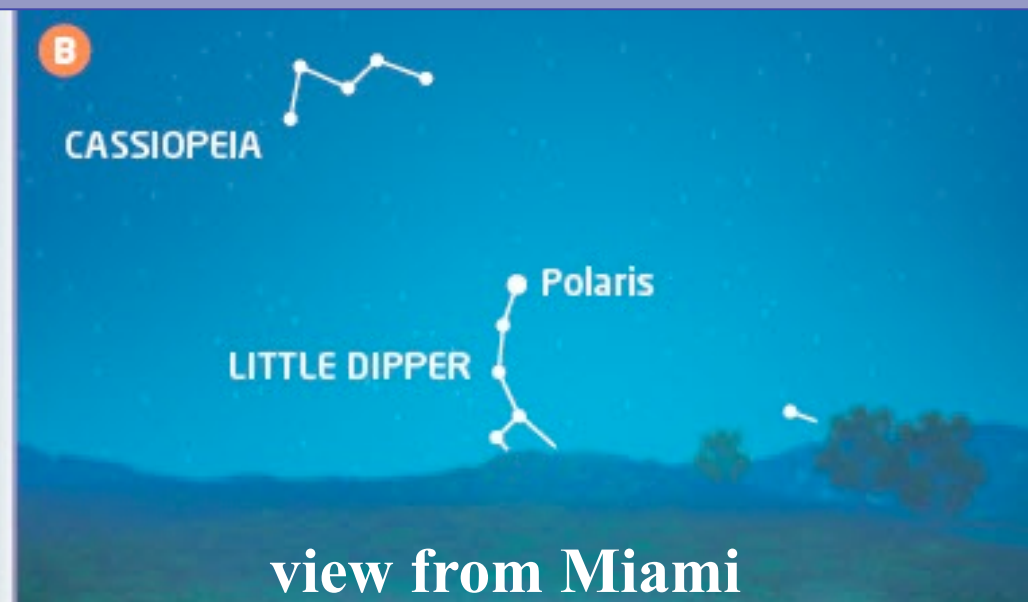
During the night, the stars seem to revolve counterclockwise around Polaris. In the northern hemisphere, Polaris seems to stay stationary in the north sky, making it useful for navigation.

Viewing Different Constellations

Due to Earth's revolution around the Sun, you see different constellations in the evening sky at different times of the year.

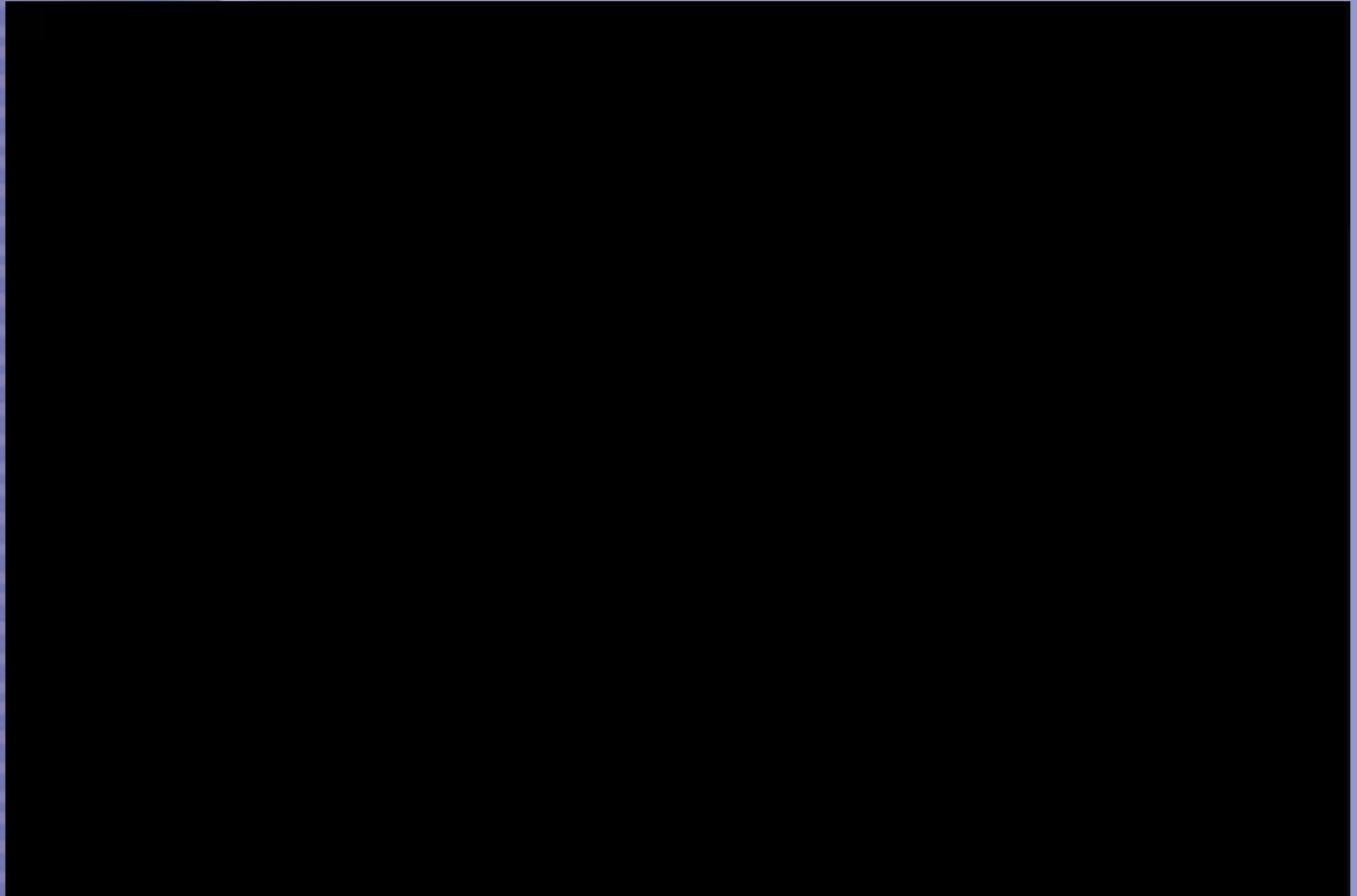


The constellations you see also depends on where you are in relation to the equator (the **latitude** where you're making your observations).



Viewing Different Constellations

Review how the revolution of Earth around the Sun affects the constellations observed.



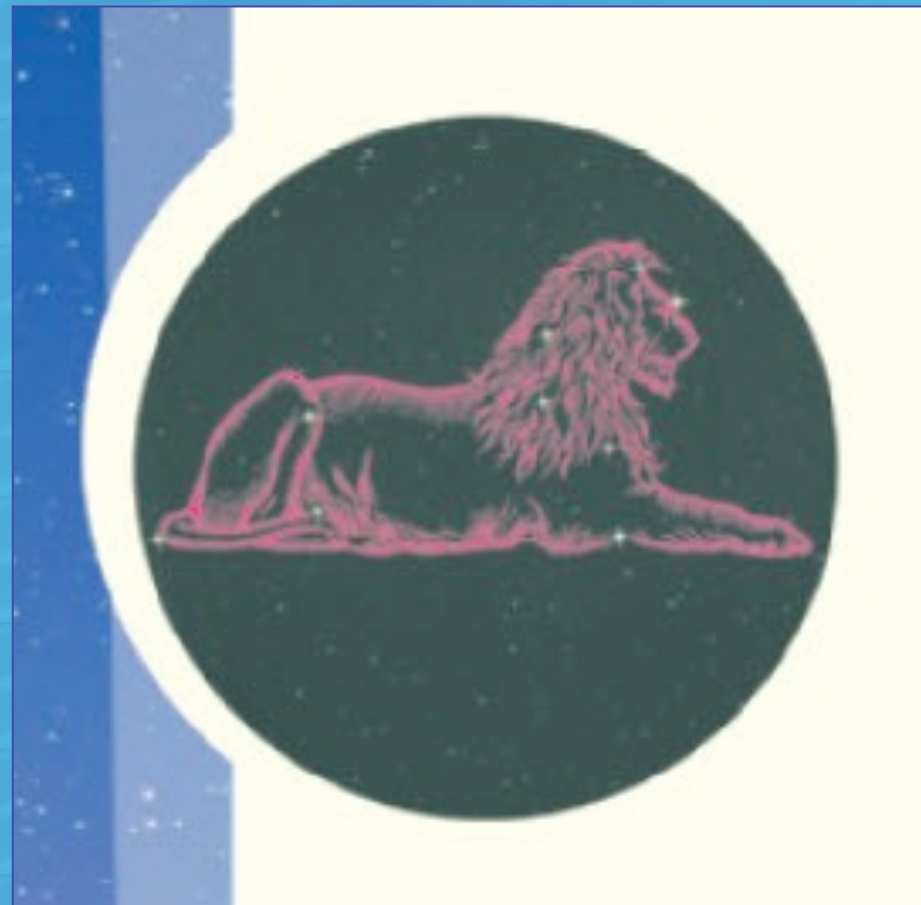
Review

Concepts to be reviewed:

- *What are constellations? How are the positions of stars within them related in space?*
- *What is a star's apparent magnitude?*
- *What is the significance of the Big Dipper? Why is it considered to be an asterism?*
- *How can Polaris be found in the night sky? Why is it useful for navigation?*
- *Why do different cultures have different interpretations of the night sky.*
- *What is a light-year?*

Create Your Own Constellation

Constellations are star patterns that represent different people and objects in the night sky. The stories about any particular constellation vary, depending on the culture observing the star pattern.



Why would different cultures come up with different stories about the same constellation?