

## Level 4

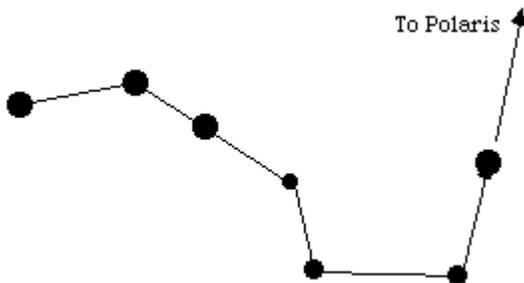
# Constellations North Star, South Star

### The Constellations

Constellations are groupings of stars that form easily recognized and remembered patterns, such as Orion and the Big Dipper. The Big Dipper is actually an asterism, not a constellation, because it is only part of the constellation Ursa Major (the Big Bear). Actually, the stars in the majority of all constellations do not “belong together.” Usually they are at greatly varying distances from Earth and just happen to lie more or less in the same line of sight as seen from our solar system. But in a few cases, the stars of a constellation are actually associated; most of the bright stars of the Big Dipper travel together and form what astronomers call an *open cluster*.

### The Great Bear and the Seven Stars

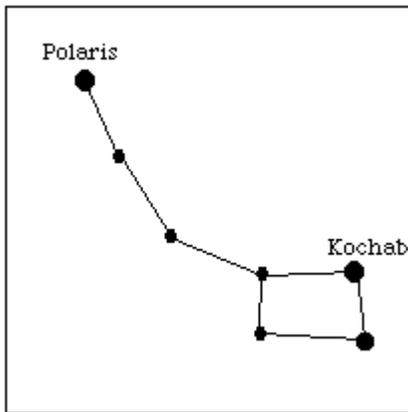
Probably the most famous group of stars is the Big Dipper. It is a part of the constellation called Ursa Major. It resembles a bear in many civilizations. The handle of the Dipper is the tail of the bear curving away from the bowl. It has the seven bright stars in it namely, Alkaid, Alcor & Mizar (appear as one), Alioth, Megrez, Phecda, Merak and Dhubé. Two of these that form outer wall of the bowl are called the Pointers, directed towards the Polaris when joined in a line from bottom upward.



## Astronomy

### The Little Bear and Polaris:

Five major constellations are always visible above the horizon from our latitudes: Ursa Minor, Ursa Major, Cassiopeia, Cepheus and Draco. They all revolve once in 24 hours around the North Star and stars in these are known as Circumpolar stars. Ursa Minor or the Little Bear is well known for being the host of Polaris, positioned very close to the celestial north pole. Actually the Polaris revolves in radius of 1 degree about the North celestial pole.



Polaris is the brightest star in the Ursa Minor. It is part of 7 well known stars similar to Big Dipper. The handle in it curves towards the bowl unlike Big Dipper.

### The North Star:

Polaris – Polaris is also called the North Star. This star appears to have a fixed place in the sky and appears to be directly over the North Pole. Navigating off of the North Star is an excellent way to guide your way at night. One drawback is that if it is cloudy, the stars are not visible

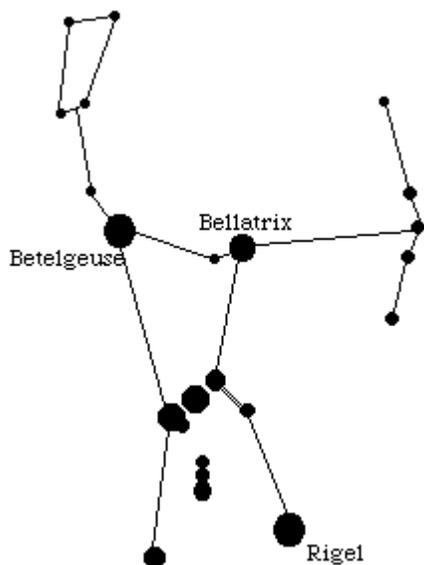
### Is there a "South Star"?

There is no "South Star". It's just a coincidence that there happens to be a bright star (Polaris) close to the Celestial North Pole. The Southern Hemisphere isn't so lucky. The only star that comes close is Sigma Octans, which is 1 degree away from the South Celestial Pole. But it's too dim to see at all except under optimal conditions.

## Astronomy

### The Orion and its Bright Stars:

Next to the Big Dipper, Orion is the most well-known constellation of all. Its shape and group of bright stars dominate the winter sky. It contains more bright stars clustered together than any other single group. To the ancients, the figure represented the giant Orion, placed in the heavens, in a heroic gesture holding the shield against Taurus the mighty Bull. The bull on the other hand, with fire darting out from its eye (marked by Aldebaran), is about to charge with its splendid long horns. Orion stands with his right arm holding a great club uplifted in the air, ready to strike. Over his left arm hangs a lion's skin that he holds up as a shield before him to stop the raging bull. With a bit of imagination, it is not difficult to observe in this constellation, a colossal figure and a story behind it.



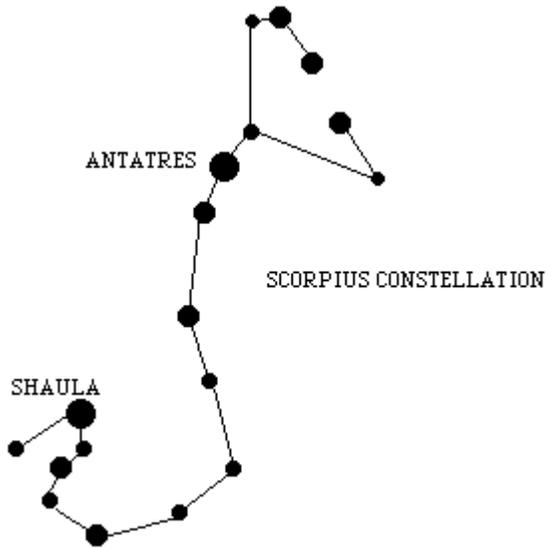
Orion contains two of the 1st magnitude bright stars, Betelgeuse and Rigel. Betelgeuse marks the right shoulder or armpit, while Rigel forms the left foot.

The three stars of Orion's belt are sometimes called "Three kings." Hanging from the belt is a curved line of 3 stars known as sword of Orion.

Orion is in the center of the galaxy that marches in a procession across the winter sky. Orion comes into view in October between 9 and 10 p.m. It brings the news of nightly frost of the coming winter. During November and December, Orion is undoubtedly the most beautiful and dominating constellation in the night sky. In February, one observes it in the southern sky at 9 p.m. In March and April, it is rushing furiously down the western sky. In the middle of May, it is completely gone from the night sky.

## Astronomy

Scorpius Constellation:



### SCORPIUS CONSTELLATION

Constellation Scorpius meaning scorpion is where Antares can be found. The mighty hunter Orion does not return to the sky until scorpion is gone. The two Orion and Scorpion never appear together in the sky. As Orion foretells of the coming frost and winter, Scorpius foretells of the coming Spring and Summer.