

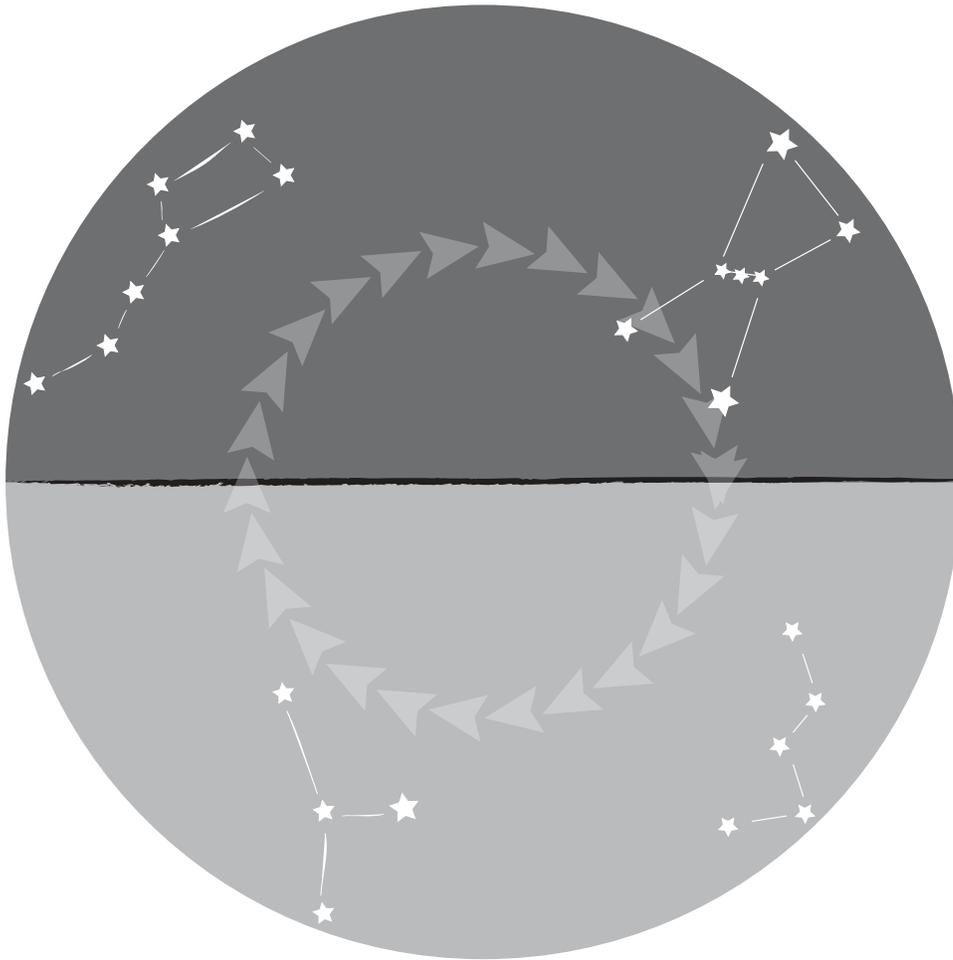
The North Pole

So far, we have met stars that are famous for being bright, like Sirius and Arcturus. And we have met stars that are famous for the distinctive shapes they create, like those of the Big Dipper and Sagittarius.

Our next star is well-known for a different reason. This star is not all that bright, nor does it belong to a constellation that is particularly fun or easy to pick out. Nevertheless, it just might be the most famous star of all.

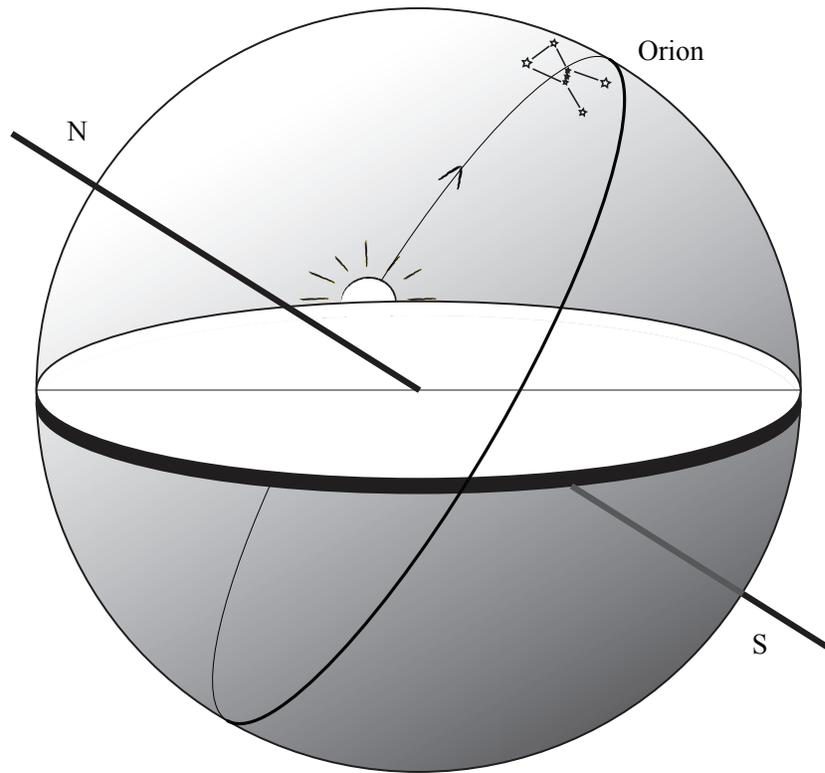
Most people have heard of the North Star, Polaris. This star isn't famous for its brightness or for its constellation, Ursa Minor. The North Star is interesting because of its unique position in the sky. Ursa Minor, the Little Bear, deserves attention only because it contains the North Star.

In this chapter we will explore what makes the North Star so special.



We have been looking at the constellations as though they are turning on a wheel.

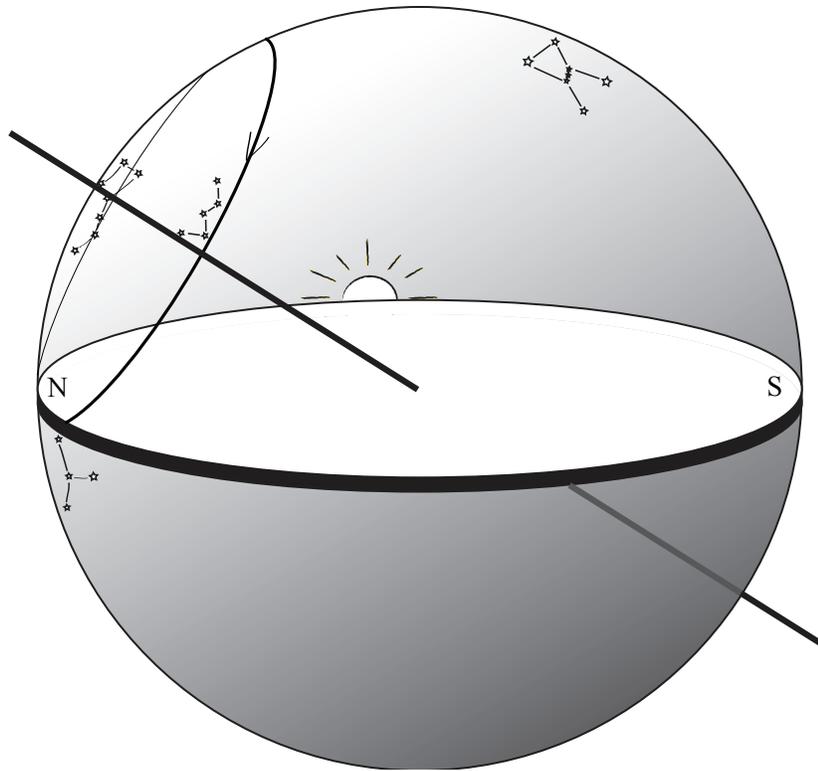
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But actually, they appear more as if they are turning on a giant sphere in the sky.

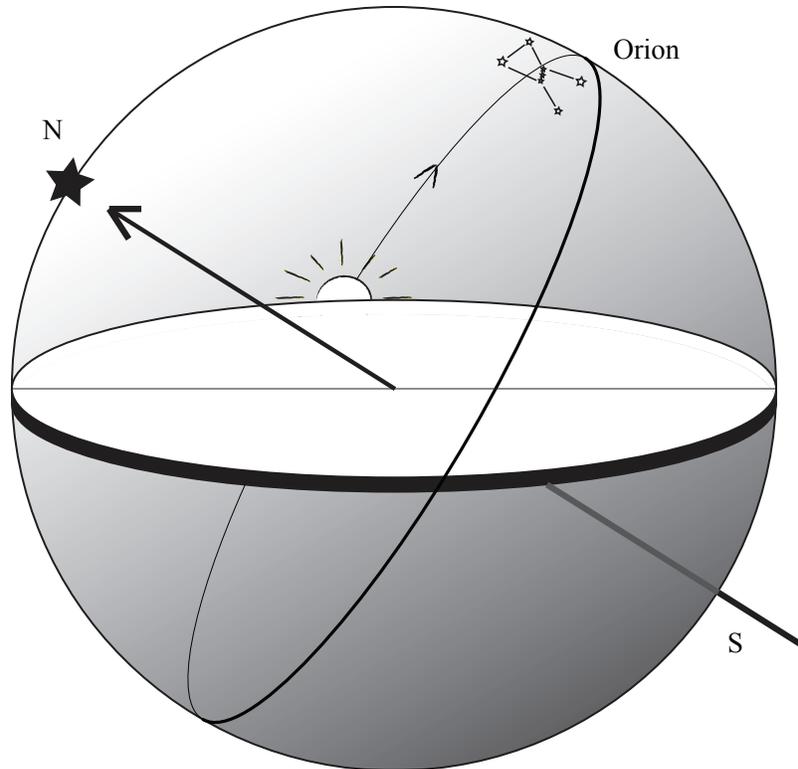
Every wheel needs an axle, and every turning sphere needs an axis. The axis that our star sphere turns on goes through the north and south poles.

The stars that are far from the poles, like the ones forming Orion, travel in a large circle.



The stars that are closer to a pole, like those of the Big Dipper or Cassiopeia, travel in a smaller circle.

The North Pole

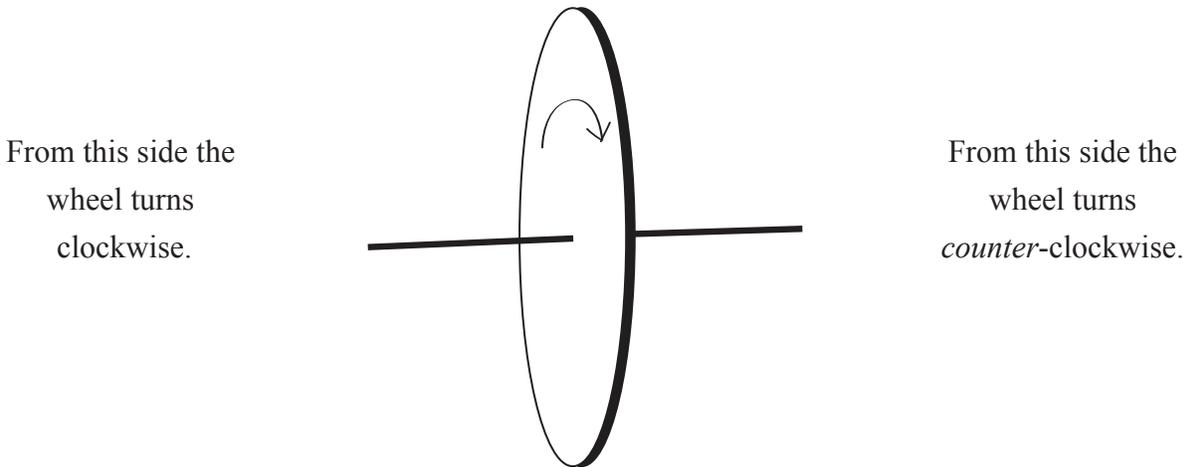


The star directly at the pole doesn't travel at all. It just pirouettes in one place, day and night.

This exceptional star is called the North Star, or Polaris for "Pole Star."

The fact that the North Star doesn't move, and that it marks the direction "north," makes it a very important star to know. Everyone should know how to find the North Star.

We can use our Guidepost constellations to easily find the North Star any time.

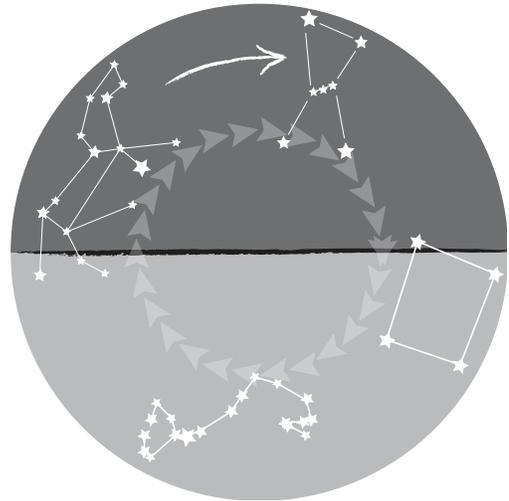
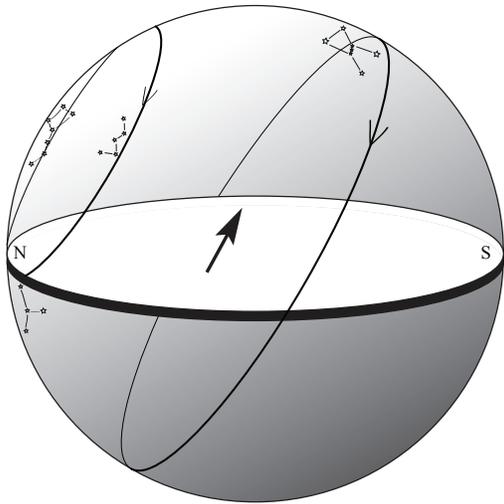


Before we look at how to find the North Star, we need to discuss a possible source of confusion that arises when we observe the sky.

The sky overhead appears to us as though we are inside a giant globe, with the stars surrounding us on all sides. But we can't see all the stars at once since we can only look in one direction at a time. This complicates trying to grasp the whole sphere of stars at once.

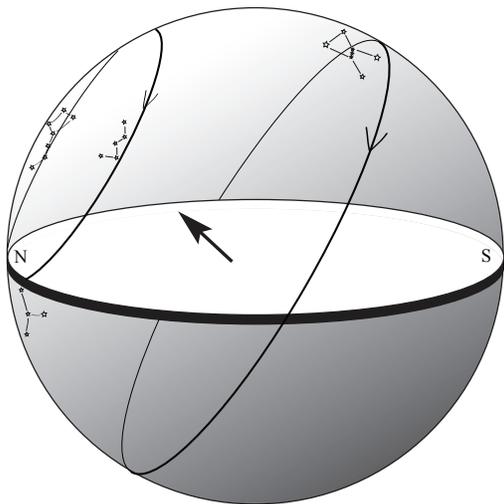
We can compensate for this by thinking of the motion of the stars in a certain way.

The North Pole



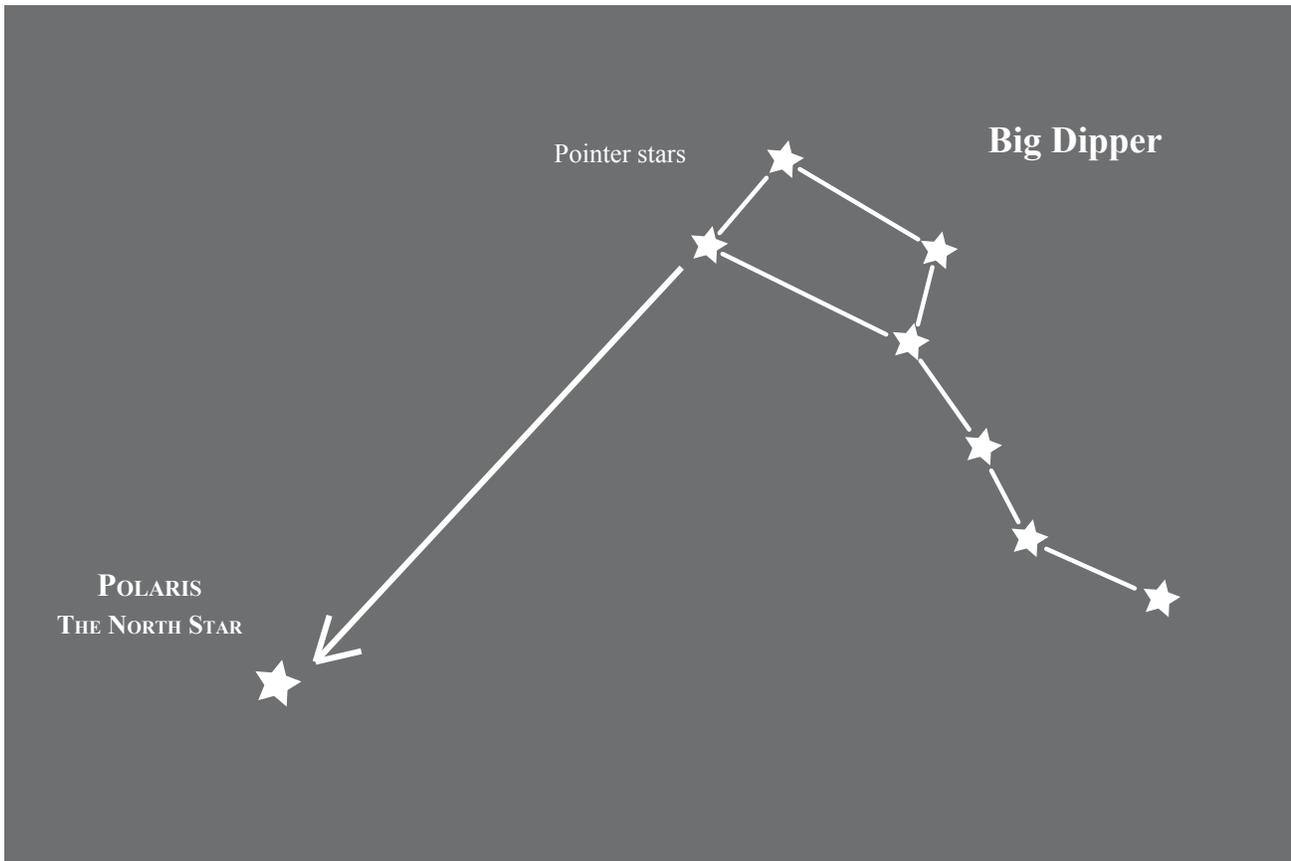
When we look **South** to watch the Sun or Orion cross the sky...

...we think of a wheel that turns **Clockwise**, carrying the Sun and stars from left to right.



When we look **North** to watch the Big Dipper or Cassiopeia...

...we think of a wheel that turns **Counter-Clockwise**, carrying the stars from right to left.



Now let's find the North Star. We have four ways to find it, one for each Guidepost. The easiest way is to use the Big Dipper.

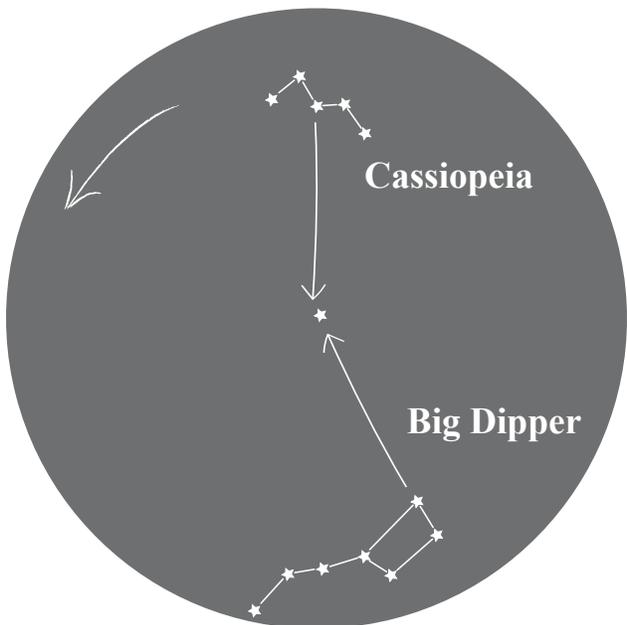
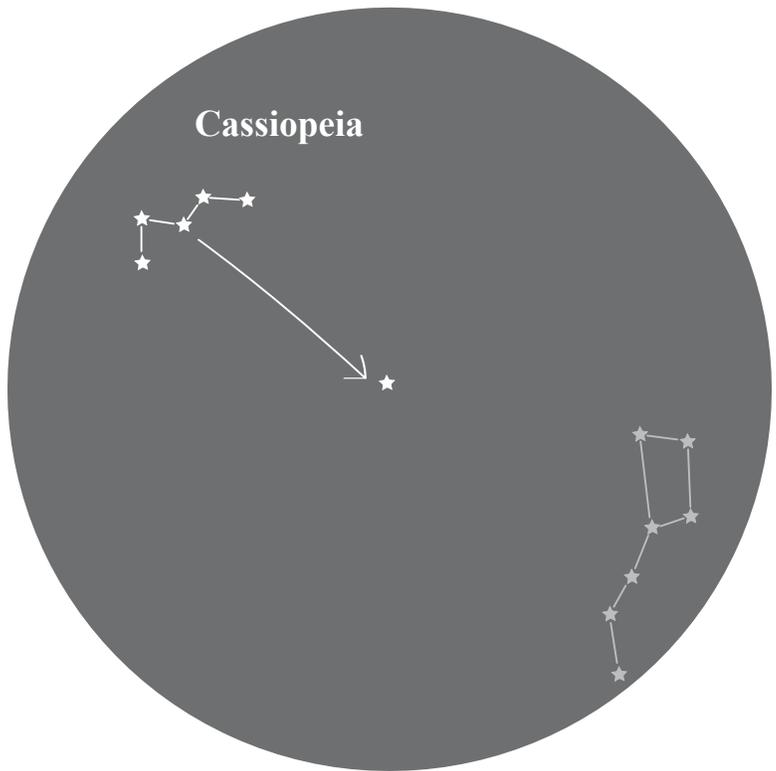
The Big Dipper is ideal for finding Polaris. In fact, the two stars that form the lip of the Dipper are called the Pointers because they point at the North Star.

Polaris is famous for its location, not its

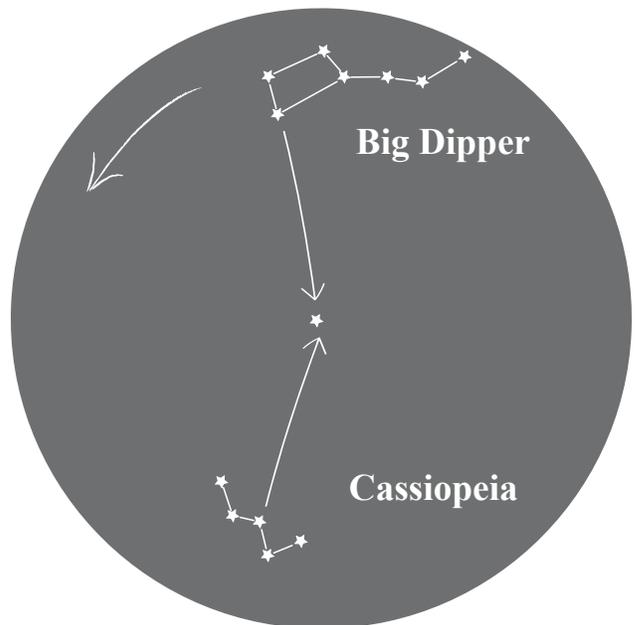
brightness. It doesn't make our list of brightest stars. It has a magnitude of 2, about the same as the stars of the Big Dipper.

One of the things that makes Polaris easy to find is there are no other stars that are as bright anywhere near it. If you follow the pointer stars a distance of about the length of the Big Dipper including the handle, you will find Polaris.

Cassiopeia offers us another way to find the Pole star. The “W” of Cassiopeia opens up towards Polaris.



Cassiopeia is just about opposite the Big Dipper as they both circle the pole, so when one is down...

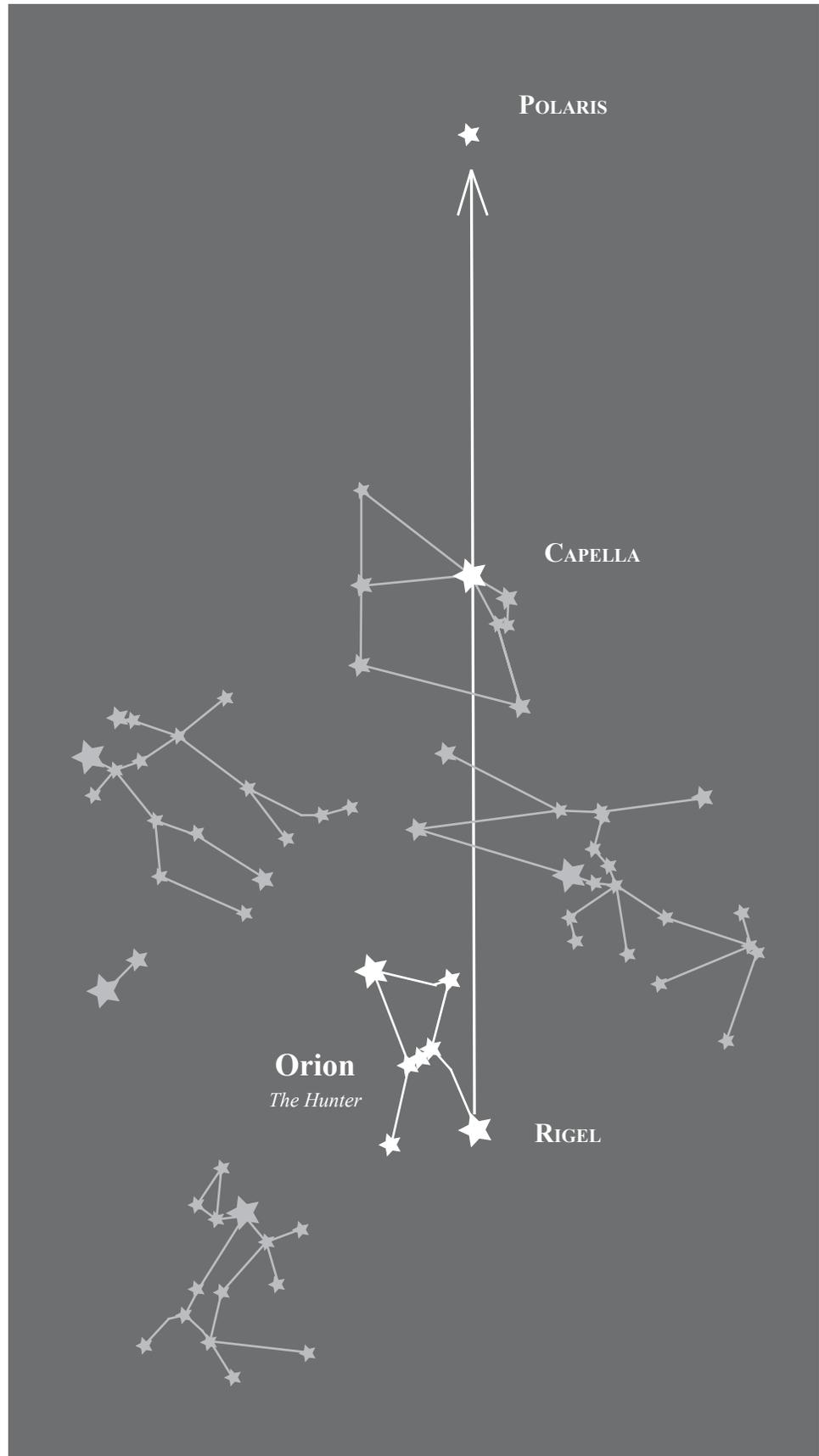


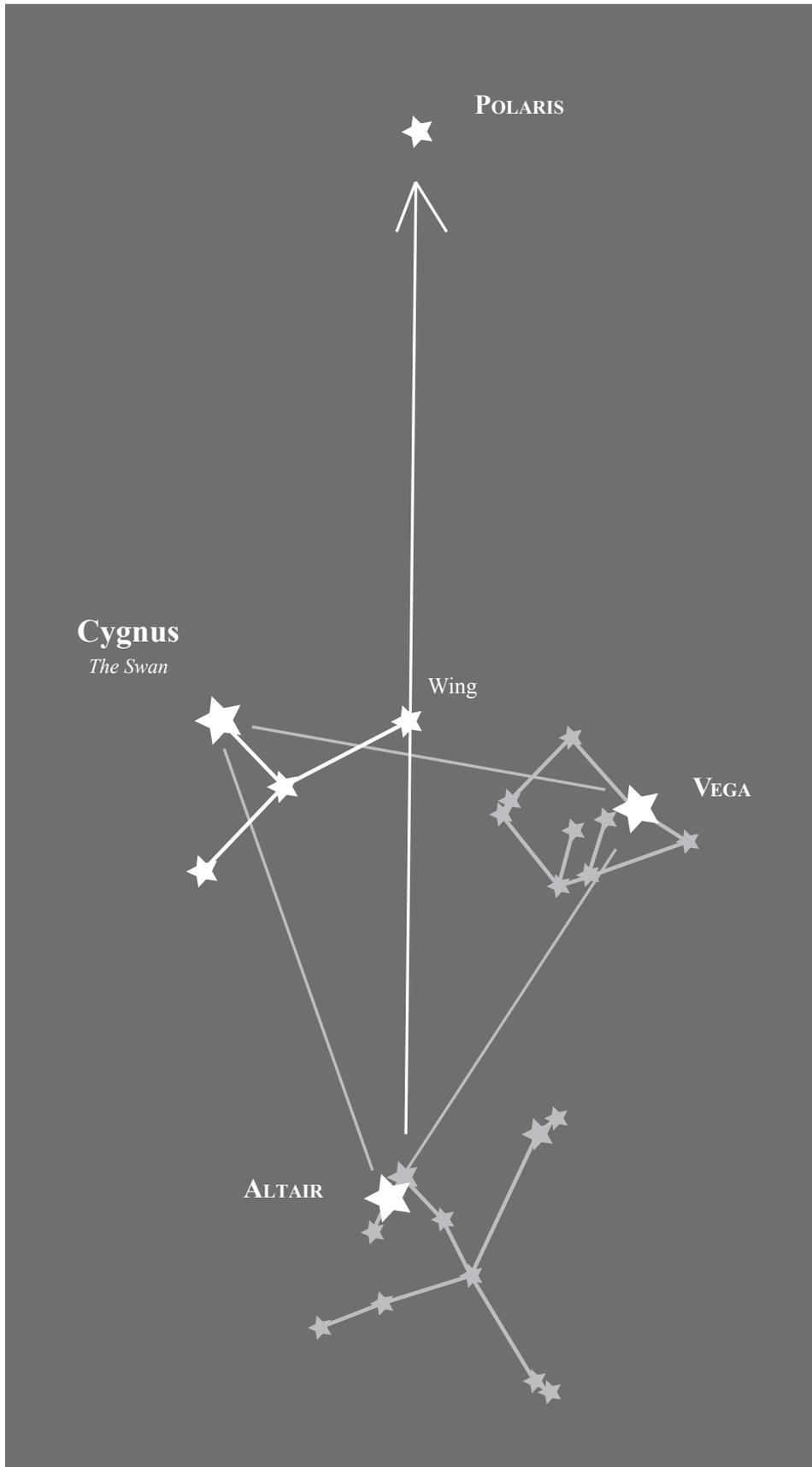
... the other is up. This means that you can find Polaris using either the Big Dipper or Cassiopeia almost any time.

If Orion is dominating the sky when you happen to look, you can use him and his posse to find Polaris.

Follow a line from Orion's brightest foot, Rigel, up through the bright star Capella in the Charioteer to find Polaris.

Notice that Capella is about halfway between Rigel and Polaris.

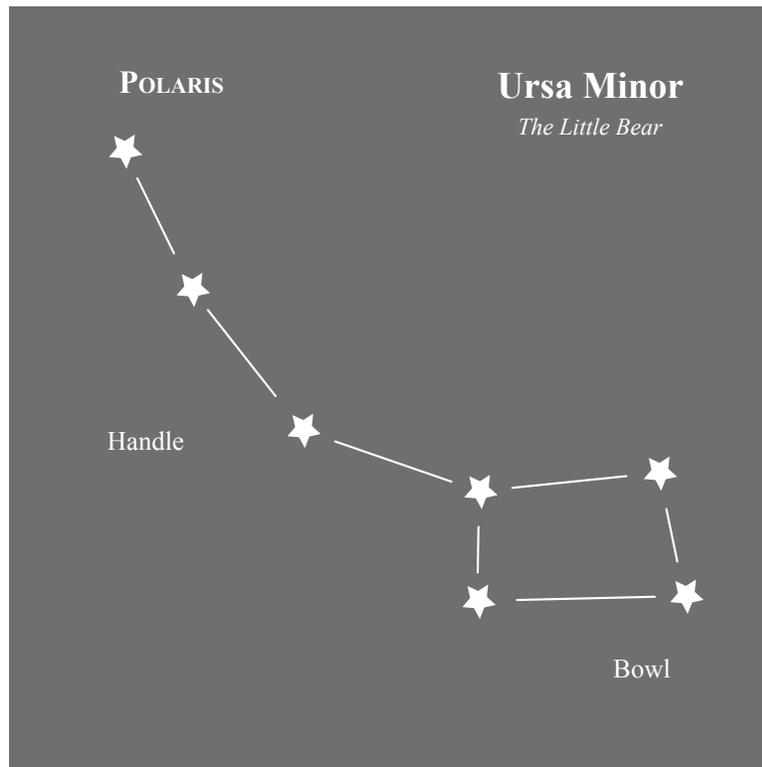




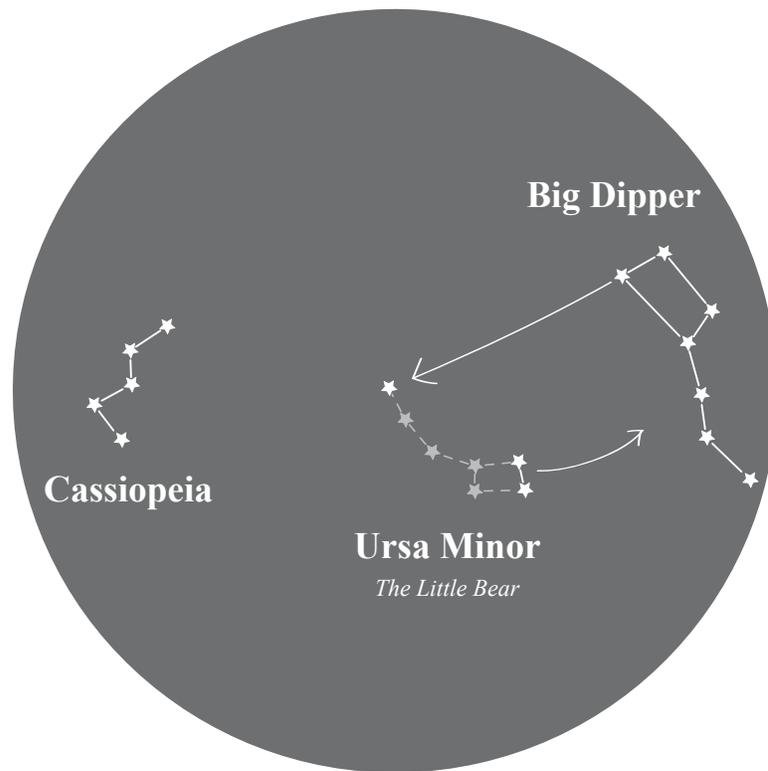
Cygnus *The Swan*, too, can show you the North Star.

Follow a line from Altair in the Eagle up through the Swan's wing (the one toward Vega).

Polaris is a little farther from the Swan than the Swan is from the Eagle.



The North Star Polaris is part of the constellation Ursa Minor *The Little Bear*. It is better known as the Little Dipper.



As the Big Dipper points at Polaris, the Little Dipper curls around to point back at the Big Dipper.

Besides Polaris, there are only two stars in the Little Dipper that are somewhat bright, the two forming the lip of the bowl.

Now you can locate the North Star from any of the Guidepost constellations. The North Star is easiest to find from the Big Dipper, but Cassiopeia, Orion, and Cygnus can show us the way, too.

You saw how the North Star stays in one place, night and day, and lets the other constellations circle around it.

Next we'll take a look at a few constellations you've probably heard about, even if you've never seen them before. These are the Zodiac constellations.