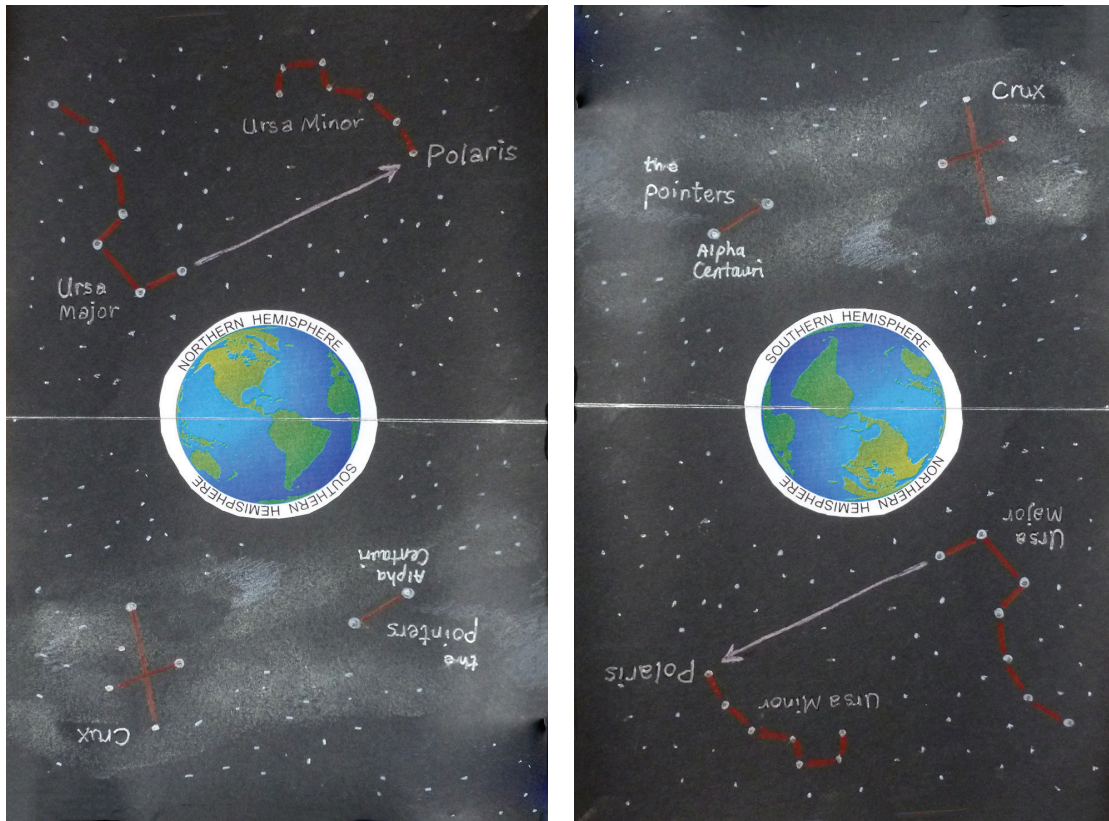


POINTER STARS CRAFT PROJECT



Purpose of activity: to learn about the stars in each hemisphere that were used by navigators before the days of GPS

Target age group: 8-12

Time needed: about 20 minutes, but more if you have older kids and want them to add extra features such as Milky Way

Materials needed:

- copy of the globe page (only one globe needed per student, so this gives you enough for a small group)
- copies of the constellation pattern page printed onto black card stock (or black paper if you can't get card stock)

NOTES: This pattern page gives you 2 copies of the student page. You will need to cut them in half.

Even though you will be printing on black paper, you'll still be able to see the pattern.

- scissors and glue stick
- colored pencils, including white (or white/silver gel pen)
- sharp object for poking star holes, such as push pin, a large darning needle, or a compass point
- a piece of corrugated cardboard to put under project while punching holes
- optional: white chalk for adding the Milky Way

Background information:

Before the invention of GPS and accurate maps, stars were often used as navigation tools. In the northern hemisphere, the star called Polaris (the North Star) made it very easy to determine your latitude, meaning how far above the equator you are. If you'd like to watch a short video that explains this, here is a YouTube video that I used in my class:

"Night Sky Navigation #2 Finding North in the Southern Hemisphere" posted by KennethKramm

When sailors in the 1500s began sailing south, down the coast of Africa, they watched Polaris sink further down in the sky each night. Then, one night, it was gone! They had sailed below the equator. They searched the skies for

a “Southern Star” that would help them navigate in the south, but alas, they could not find one. Navigation seemed almost impossible below the equator! They had to stay close to the shoreline so they would not get lost at sea. Then, finally, they discovered how to navigate using a constellation called Crux, or the Southern Cross. You could draw an imaginary line out from this constellation, then draw another imaginary lines out from some nearby pointer stars, and where these imaginary lines crossed was where a southern pointer star should be (but wasn’t).

The Southern Cross has figured prominently in the history of the exploration of the southern hemisphere, and this constellation appears on the flags of five countries located south of the equator (Australia, New Zealand, Brazil, Samoa, and Papua New Guinea).

Each student will need:

- 1) a half-sheet of black paper with the sky pattern printed on it.
- 2) access to a white pencil or white or silver gel pen, plus at least one other color (a light color)
- 3) a push pin or some other sharp object for piercing holes in the paper
- 4) picture of globe (just one, from the colored pattern page) and a pair of scissors, and access to a glue stick
- 5) white chalk if they want to add Milky Way

What to do:

- 1) Cut out the globe, making sure to include the words.
 - 2) Use glue stick to glue the globe right on the equator, in the middle of the page. **MAKE SURE THE NORTHERN SIDE OF THE GLOBE IS UNDER POLARIS!** Several of my students still got it wrong, even after being alerted this issue. If you are working with a class, check each student’s work before the glue dries.
 - 3) Use a white pencil or white/silver gel pen to trace across the equator. Go right over the globe. (Use a ruler or straight edge if necessary.)
 - 4) Use a while pencil or white/silver gel pen to put a white dot on top of each star dot. Older students might also like to trace over the words.
 - 5) Use another color (perhaps red, orange or yellow?) to put lines between the stars of the dippers and the cross. Also trace over the arrow. (Imaginary arrows in the south are more complicated, and too long to fit on the page.)
 - 6) Use the push pin or other sharp tool to poke small holes through the star dots in the constellations. (Put cardboard under project while punching.) Don’t punch holes for other stars, just the stars of the constellation. When you hold the page up to a light source you will be able to see the constellations very clearly.
 - 7) Add smaller, random star dots in the sky with the white pencil or gel pen.
 - 8) Optional: Add the Milky Way across the southern sky using a piece of white chalk or chalk pastel. **DON’T** draw right on the paper with the chalk! Rub the chalk on a fingertip and then rub the paper with the fingertip. When the chalk is rubbed off the finger, re-apply more chalk to the finger. This technique will be less messy and will give you a very light, subtle look, like the real Milky Way.
- NOTE: There are dark spots in the Milky Way near the bottom of the Crux and near the pointers. Search online for a photograph of the Milky Way in the southern sky and you will see these dark areas. You might want to print out a picture for your students to use in class.
- 9) Optional: Label the left pointer star as Alpha Centauri, the closest star to earth.

How to use the craft:

Hold the page up to a light source and you will see the constellation stars shining brightly, as they appear in the night sky.

