Name: _____ Date: _____

Star Data

1) Before you begin: What question are we trying to answer? Record this question below.

This is the pattern of stars that Western astronomers call the Crux constellation, known to many Aboriginal Australian people as the head of the Emu in the Sky. The Tukano people of Northwestern Brazil call these stars Yurara, or the Tortoise.

A *constellation* is a picture that humans use to organize into familiar patterns the thousands of stars and objects that we see in the sky. The brightest stars that are officially recognized as part of the Crux constellation are Gacrux, Acrux, Mimosa, Imai, Alpha Centauri, Epsilon Centauri, and Hadar.

Stars in Crux

Star	Distance to the Sun compared to the distance from the Sun to Earth	Mass of the star compared to our Sun
Gacrux	5.6 million times further from the Sun than Earth is from the Sun	1.5 times as massive as the Sun
Imai	23 million times further from the Sun than Earth is from the Sun	9 times as massive as the Sun
Acrux	20 million times further from the Sun than Earth is from the Sun	actually several stars, the largest of which is 17.8 times as massive as the Sun
Mimosa	22 million times further from the Sun than Earth is from the Sun	actually two stars, with masses that are 16 and 10 times larger than the Sun
Alpha Centauri (closest to the Sun)	0.28 million times further from the Sun than Earth is from the Sun	actually two stars with masses that are about the same as the Sun and a third star that is only 1/10 the size of the Sun
Hadar	33 million times further from the Sun than Earth is from the Sun	11 times as massive as the Sun
Epsilon Centauri	24 million times further from the Sun than Earth is from the Sun	12 times as massive as the Sun

2) To us, all the stars in the sky appear to be the same distance from Earth, like in the physical model below. Many early Western astronomers, like Ptolemy, believed models like this to be an accurate representation of stars.

a. Is this an accurate representation of the stars? Explain your answer.

b. If we were to make a physical model out of Styrofoam spheres and skewers, what would it look like?

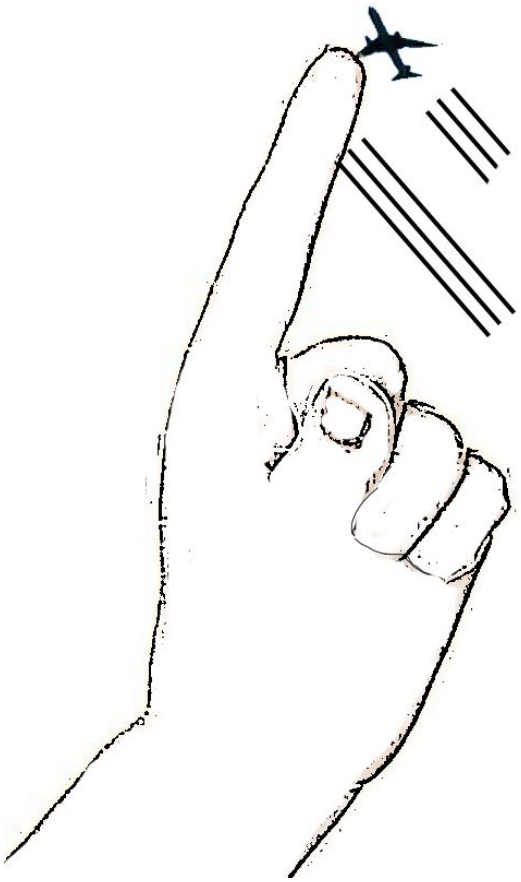
3) If these stars are the same size or larger than the Sun, why do they appear so small?

4) What do you think you would see if you could get as close to a star as Earth is to the Sun?

How fast are stars moving?

Most stars that we see in the sky are probably moving at about 224,000 mph, or 100 km/s. But the stars are so far away that it takes a long time for us to notice this motion. You can understand this by thinking about an airplane speeding through the sky. If you move your finger in front of your eyes you can easily make it appear to move faster than the speeding jet that is many miles away. But this is not because you are moving your finger faster than the jet. It is because your finger is so much closer to your eyes.

5) If these stars are moving so quickly, why do the stars in the simulation from Lesson 7 appear not to be moving closer to or further away from other stars?



6) Based on the information you just obtained about stars, write a response to the question you recorded in #1.