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## Where Is The Big Dipper?

by Marianne J. Dyson

You and your crew of 10 are out for a jaunt in your spiffy new faster-than-real spaceship. This ship zips along at one light year a minute. At that speed, it takes less than a second to fly beyond the distance of Neptune.

You decide to go North, to view the solar system from “above.” Using your handy “connect-the-dots” star chart you head for the familiar shape of the Big Dipper.

After about 6 minutes, you pass Barnard’s star, the second closest star to Sol. (The closest star, Alpha Centauri, is in the “Southern” direction.) About a minute later, you see Wolf 359 on the horizon. It’s a stellar neighborhood, but the Big Dipper beckons.

The crew demands in-flight snacks and drinks, so you turn off the seat belt sign, put the ship on auto-pilot, and float to the galley.

Almost an hour later, all cleaned up from the zero-g food fight, you return to the cockpit. When you look outside, there is no Big Dipper!

Are you lost in space?

You slam on the retro rockets, coming to a stop. The navigation computer says you are 65 light years from Earth, the same distance as a star named Megrez. That name sounds familiar. You grab your star chart. Skipping the three “handle” stars of the Big Dipper, you find the fourth one in the pattern is Megrez. You’re not lost after all.

However, the crew doesn’t understand. They float into the cockpit, demanding you show them where the Big Dipper is. Here is what you do:

Get 10 volunteers, 10 sheets of white, unlined paper, cut into circles, 17 chairs. Line up chairs facing audience. Label stars and have volunteers sit/stand as follows:

Alkaid 110 LY; sits in chair 1.

Alcor 75 LY; in chair 4

Mizar 85 LY; sits in chair 5 with Mizar companion behind.

Alioth 70 LY; sits in chair 7.

Phecda 90LY, in chair 10. Megrez 65 LY; sits in chair 11.

Merak 80 LY; sits in chair 16. Dubhe 100 LY; in chair 17 & companion stands behind.

This is how the Big Dipper looks from Earth. To see what it looks like up close, move chairs/volunteers as follows:

Alkaid chair 4.5 units back.

Alcor one unit back.

Mizar chair & companion back 2 units.

Alioth chair half unit back.

Megrez stays.

Phecda chair back 2.5 units.

Merack chair back 1.5 units. Dubhe & companion back 3.5 units.

Your crew mates look around at each other. One of them says, “So, this is what the Big Dipper looks like from inside!”