

# The Distance of Stars

It can be hard to imagine how far away stars and galaxies are, so let's scale these "astronomical" distances down to something that is easier to understand! On a nice day, go outside with a piece of chalk to mark distances.

## Before we Begin

Let's pretend that the distance light travels in 1 year (also known as 1 light year) is squeezed down to the width of a single grain of rice – that's only about one millimeter! You could fit more than 1,000 solar systems into that single grain of rice – or one light year of space.

## Steps:



1. Begin by marking our solar system with a circled dot so that you can find it again. You will use this mark as your starting point to measure all of the following distances.

2. First, measure the width of a drinking straw and mark an asterisk (\*). This is where the star Proxima Centauri is located. If you have chalk, write its name.

3. To find a cool spring star named Arcturus (48 years away) measure from your starting point the length of your thumb, and mark the point. Label the point Arcturus.

4. Return to the solar system again and measure about the length of your arm from the elbow to the tip of your finger. This is where the North

Star, known as "Polaris" is located - 323 light years away! Mark it and write the star's name.

5. Next, measure the length of the longest stride you can take. This is where you'll find Rigel, part of the constellation "Orion" – 864 light years away! Mark it and write the star's name.

6. Now we'll travel about 26 large steps to find the Hercules Globular Cluster – it is 22,180 light years away! Mark it and write the group's name.

7. To find the Andromeda galaxy (2 million light years away), you'll need to travel 1.25 MILES, or the distance you can walk in about 25 minutes.

8. Finally, a typical Quasar is about 5 BILLION light years away! That would be about 3,125 miles away! For fun, look on a map and find a city that is that distance from yours.

For other fun activities including virtual tours of the night sky check our UWM Planetarium website: <https://uwm.edu/planetarium/>