

Constellation Design Challenge

Introduction

A constellation is a recognizable pattern of stars in the night sky. Bring the night sky inside by creating constellations with a light source.

Materials



Writing Utensil

Recycled Material

- Be creative! We recommend cardboard, plastic containers, or even a paper plate!
- Make sure the material is at least 5 inches x 5 inches for this project

Hole Punch

- Anything to poke a hole for your stars will work, like a nail, scissors, or a pencil.*

**Some adult assistance may be required*

Any Light Source

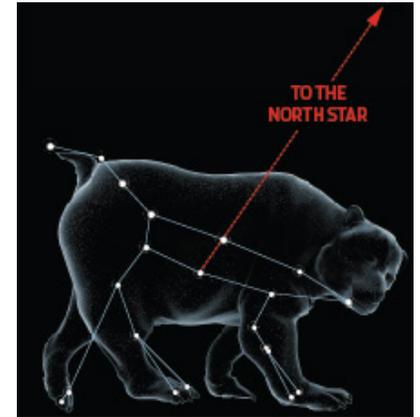
- Could be a lightbulb, a flashlight, or the good ol' Sun!

Plan Ahead

- What can you use as a light source?
- Which part of the night sky do you want to create?
- Can you create a structure to hold the light inside?
- Can your constellation project on a wall?
- What materials might work best for this project?

Some Background

For thousands of years, the positions of constellations (recognizable patterns of stars) have helped people navigate, track the passing of a year, and even tell time. One of the easiest constellations to find is Ursa Major, or “The Great Bear”. The Big Dipper, an easy-to-find set of bright stars, makes up the back and tail of Ursa Major. The two rightmost stars of the Big Dipper point to Polaris, the North Star. Take a look at the night sky or view an **online night sky** <https://www.timeanddate.com/astronomy/night/> map and see if you can locate this popular constellation!



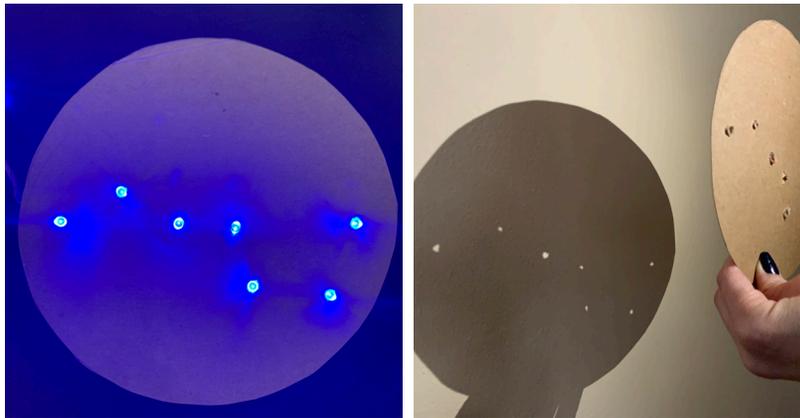
Build

- 1 Research constellations and find one that you want to create (or design your own).
- 2 Mark the location for the stars with a writing utensil on your base material.
- 3 Use a hole punch, pencil, or scissors to create space for the light to shine through.*
**Some adult assistance required*
- 4 Shine a light from behind your constellation or use sunlight to make your stars glow.

Constellation Design Challenge Continued

Test

Use the sun, a lightbulb, or any other light source to see your constellation.



With holiday lights

Projecting with a flashlight behind



Empty plastic container with phone flashlight

Revise your design:

- Can't see the stars? Experiment with different light sources or materials to see what works best.
 - **TIP** Is your light source directional, like a flashlight? Or does it radiate out in all directions from one spot, like a light bulb? Directional lights work best.
- How could you improve your indoor constellation?

What's Happening?

Constellations are not always in the same spot in the sky. As the Earth revolves around the sun, we are pointed at different areas of space and thus see different constellations throughout the year. As the Earth rotates throughout the night, the constellations rise and set just like the sun does. Only the star Polaris seems to stay still - all other stars look like they rotate around it! Modern day astronomers use constellations to divide the sky into different regions to help explain the location of discoveries.

Submit your indoor constellation to
AtHome@discoveryworld.org
for a chance to have your design
featured by Discovery World!