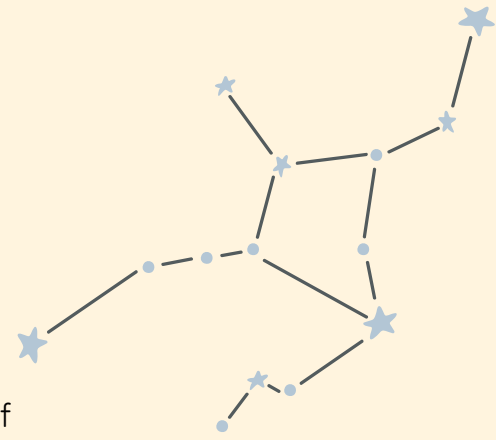


Constellation Projector



In our Constellation Projector experiment, we'll use a special piece of cardboard with holes and a flashlight to create beautiful star patterns on a wall or surface. It's like having your own little planetarium at home!

Materials

- Dark piece of cardboard or black construction paper
- Pencil
- Flashlight

Science Behind the Experiment

Constellations are patterns of stars observed from Earth, not actual physical groupings in space. They appear close together in the night sky, but stars within a constellation can be at different distances from us. Brightness and visibility vary among stars within constellations. They hold cultural and historical significance, with different names and interpretations across cultures and time periods. Constellations are located on the celestial sphere, an imaginary sphere surrounding Earth, making stars and celestial objects seem projected onto it.

Step 1: Prepare dark background

Start by cutting or obtaining a dark piece of cardboard. You can use black construction paper or a cardboard box flap. This will be the base for your constellation projector.

Step 2: Mark & poke holes

Using a pencil or a small nail, mark the positions of the stars in the specific constellation you want to project. You can find constellation patterns online or use a star chart as a guide. Once the positions are marked, use a pin or the tip of a pencil to poke holes through the cardboard at each marked spot.

Step 3: Set up projector

Find a dark room or dim the lights to create a better projection. Hold the cardboard up to a flashlight, smartphone flashlight, or a small LED light source.

Step 4: Project the constellation

Hold the cardboard steady and adjust the distance and angle of the light source until the projected image of the constellation appears on the wall or a flat surface.