



Mini Constellation Maker

Get to know common constellations by making your own mini-star projector to shine a constellation into a dark room.

Materials

- ▶ Toilet Paper Tube or Paper Towel Tube Cut into Thirds
- ▶ Constellations Print Out
- ▶ Black Construction Paper
- ▶ Pin or Thumbtack
- ▶ Scrap of Cardboard
- ▶ Scissors
- ▶ Glue
- ▶ Tape
- ▶ Single Bulb Flashlight

Building It

1. Cut out a constellation along its outer circle from the attached print out.
2. Cut a piece of black construction paper into a circle that matches the constellation circle. Glue them together so that the constellation is on the outside.
3. Place the constellation on a piece of cardboard and use a pin or thumbtack to poke a hole through each star. Hold it up to the light!
4. Place the constellation on top of a tube. Create small tabs that can be folded over the edge of the tube by cutting 10-12 little slits all around the constellation from the outside circle to the inside circle.
5. Fold down the tabs and tape the circle to the top of the tube.

Looking at Stars

1. Test It: Look through the tube. Can you see the pattern of the stars on the other side?
2. Turn Off the Lights: Find a dark room and shine a flashlight into your tube. How small or large can you make your constellations shine?

Extensions

1. Rising and Setting: Our star the Sun rises and sets during the daytime, but the other stars rise and set at nighttime. Can you move your constellation so that it rises in the east and sets in the west?

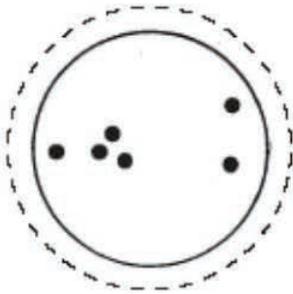
Flashlight Note

To project the stars you need a flashlight with only one bulb so that a single point of light can leave each pinhole.

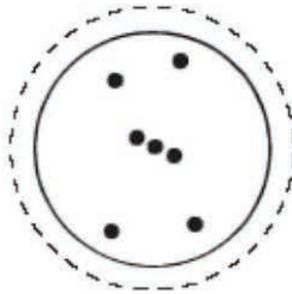
If you don't have a single bulb flashlight (a lot of new flashlights use up to 20 LED bulbs) try using the flashlight on a smart phone!



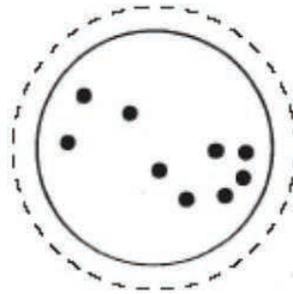
Constellation Circles



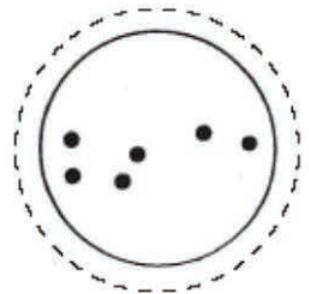
TAURUS
The Bull



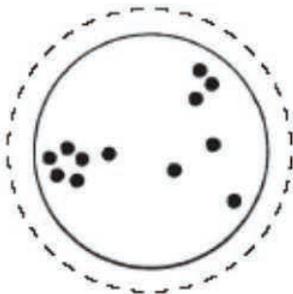
ORION
The Hunter



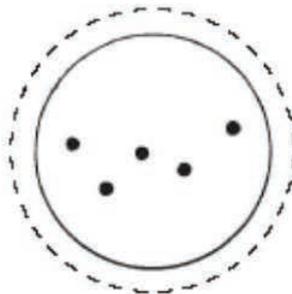
SCORPIUS
The Scorpion



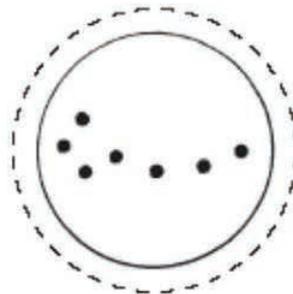
URSA MAJOR
The Great Bear



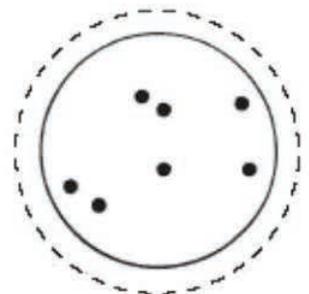
PISCES
The Fishes



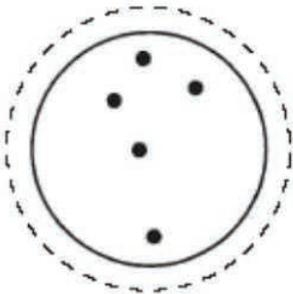
CASSIOPEIA
The Queen



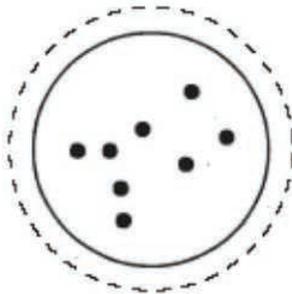
URSA MINOR
The Little Bear



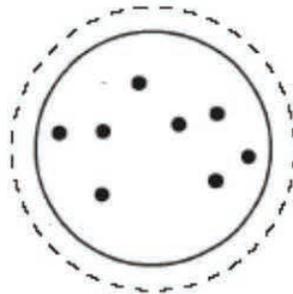
PEGASUS
The Flying Horse



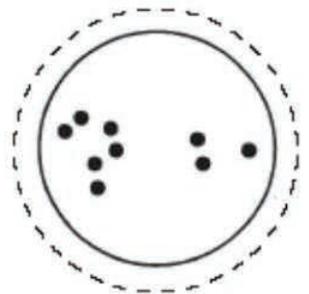
BOOTES
The Herdsman



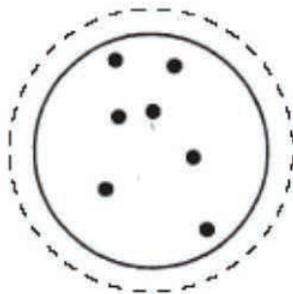
GEMINI
The Twins



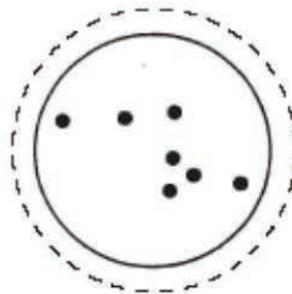
SAGITTARIUS
The Archer



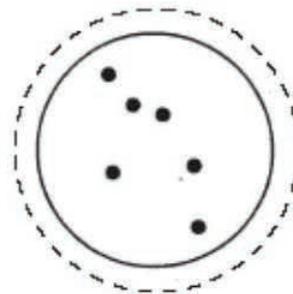
LEO
The Lion



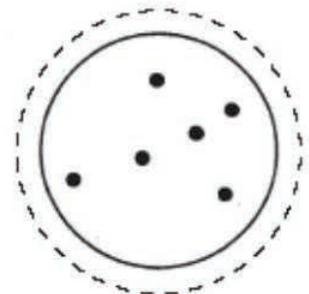
HERCULES



CANIS MAJOR
The Big Dog



PERSEUS



CYGNUS
The Swan