

Shoe Box Planetarium Project



([Click here for a printer friendly version](#) - student handout **UPDATED - DEC 2002**)

([Grading Rubric](#) PDF) **NEW** Jan 2003!

Objectives:

- to make a miniature planetarium
- to practice identifying constellations
- to classify stars
- to use celestial coordinates
- to read Greek mythology

Materials:

- shoe box
- black construction paper
- compass or sharp point
- scissors
- penny
- ruler
- star maps, books, or research links
- permanent marker
- tracing paper (optional)
- white crayon, whiteout, or gel pen
- index cards
- tape

Procedure:

Research your constellation and write the following information neatly on a 3 x 5 index card in black ink (you may type the info if you choose).

1. Name of Constellation
2. # of stars
3. Season best viewed



4. Name **3-4** constellations that border yours
5. Coordinates in degrees and hours
6. Brightest star(s) Name and Magnitude
7. Special features found in your constellations (ex. galaxies, nebulae, meteor showers, etc.....)

Inside of shoebox lid:

1. Write your name at the top of one end in **permanent marker**.
2. Underneath your name, place a **picture** of your constellation that shows the **stars** connected.
3. Place a picture of the **mythological figure** for your constellation.
4. Glue the index card with your information underneath those 2 pictures.
5. Place lid on box.



Shoe box bottom instructions:

1. Place your name on the outside bottom of the shoebox using a permanent marker.
2. Using your ruler, find the center of one end of a shoebox.
3. Place a penny in the center and trace it. This will be your viewer.
4. Using a scissor, carefully bore out the cardboard so that the view hole is the size of the traced penny.
5. Place the lid on the shoebox.
6. On the opposite end, draw a line where the lid meets the side. Take lid off.
7. Using your ruler, mark 2 cm from the bottom, and 2 cm from each side.
8. Cut out the rectangle
9. Cut your black construction paper so that it will cover the rectangular opening.
10. Use tracing paper to copy your constellation and then place it on top of the black paper. Poke holes through the tracing paper and black paper.
11. Make larger holes for brighter stars and smaller holes for dimmer stars.
12. Place the black paper inside the box to cover the rectangular opening. Be sure that the constellation is facing you, not the outside of the box.
13. Tape paper to box.



Outside of Shoe Box

*****Poster Option: For a Lower Grade, you may choose to make a poster with all the requirements as mentioned above.*****

Have students bring in shoeboxes and let them spend a few minutes each day viewing the different boxes and guessing what constellation it is. To check, they can open the box and look inside the lid to see if they were right as well as check facts about their constellation.

You may use the links on this page to do your research in class and at home.

[Night Photos](#) | [Sky Watch - Discovery.com](#) | [Astronomy Dictionary](#) | [ZOOM Astronomy](#) | [FunBrain - Name the Constellation](#) | [Constellation Applet](#) | [NASA Constellations](#) | [Constellation Myths Study Guide](#) | [Constellation Myths & Scientific Info](#) |

NOTE: Lesson idea is modified from original and pictures are from: <http://server.remc12.k12.mi.us/csplanet/activities/shoebox.html>

Lesson is also inspired by "[Adopt a Constellation](#)" by [Sciencespot.net](#)

