Miniature Planetarium

Sections

Joey Scouts | Cub Scouts | Scouts | Venturer Scouts | Rover Scouts

Scouts VICTORIA

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Challenge Areas

COMMUNITY | CREATIVE | OUTDOOR | PERSONAL GROWTH

Scout Method Elements

COMMUNITY INVOLVEMENT | LEARNING BY DOING | NATURE AND THE OUTDOORS | PROMISE AND LAW | PERSONAL PROGRESSION | PATROL SYSTEM | SYMBOLIC FRAMEWORK | YOUTH LEADING, ADULTS SUPPORTING

SPICES Growth Areas

CHARACTER | EMOTIONAL | INTELLECTUAL | PHYSICAL | SOCIAL | SPIRITUAL

The Adventure

Create a miniature planetarium to project a constellation onto your wall or ceiling and bring the stars inside.

Plan

1. Investigate planetariums, what they are, how they are made, and what they are used for. What are some different types of planetariums and what technology is used in them? You might find this website a good starting point.
2. Investigate different constellations. How do they differ depending on location? Are there similarities or differences depending on if you are in the Southern or Northern Hemisphere?
3. Look at some of the constellations in your local area and research some of the stories behind and around them. During this, you may also like to research what some of the local Indigenous stories for the constellation are.
4. Learn how we can navigate using the stars and what stars are used as part of this.
5. Investigate what stars are made of, how we see them, and find some interesting facts about stars. How do stars differ from planets, asteroids, etc?
6. Choose a constellation that you would like to put in your planetarium. You might like consider some of the ones found here or a star sign. If considering a star sign, learn about the difference between astronomy and astrology. If working in a patrol, you might like to discuss what constellations you are making so that you end up with a set of different constellations.
7. Read the safety information and discuss with your leaders or another appropriate adult what safety equipment, precautions, and supervision may be required. Ensure that you have these safety measures in place before starting the 'Do' section.
8. Gather all the equipment that you need to make your planetarium. You will need the following: an empty tin can, a can opener, duct tape, a circular template, scissors, a pencil, a pin, and a torch.

Do

1. Remove both ends from the tin.
2. Using a pencil, trace around the outside edge of a roll of masking tape onto a piece of black card. The outside edge of the masking tape roll should be about a centimetre larger than the tin can you are using. If you don't have a suitable roll of tape, you could also use a glass or a compass.
3. Cut out the circle.
4. Place the tin in the centre of the cut-out circle and trace around the bottom.
5. Draw about 10 evenly spaced lines from the outside circle to the inside circle and cut along those lines. This will form little tabs on the black circle.
6. For the tabs toward the centre of the circle.
7. Draw your chosen constellation onto the middle of the circle. You may like to have a printed reference image for this.
8. Using a pencil or drawing compass, poke holes where the stars are. Depending on the section, a sharp pin may also work. Make sure to factor in the relative size of the stars.
9. Place the card circle on the top of the tin with all the tabs on the outside.
10. Tape down the tabs to secure the black card to the tin.
11. Shine a torch into the open end of the can, while pointing your can at a wall to project your constellation. This works best in a dark environment.

Review

1. What went well in making your planetarium and did it work as you expected? Why or why not?
2. What did you learn in planning and making your planetarium? What is one new constellation that you learnt about?
3. What could you do differently in the future to improve your planetarium?

Safety

- Sharps risk: The edge of the tin is sharp and may cut someone. Get an adult to cover the over the edges with duct tape. Scissors are also used in the challenge card and pose a cuts risk.
- Torches are used in this challenge card. Never intentionally shine a torch in someone's eyes as this can cause damage.

Variations

- For younger sections, such as Joeys, leaders can pre-make or prepare part of the miniature planetarium, and the youth members can learn to identify common constellations, such as the Southern Cross.
- You can add some colour to your planetarium by adding a layer of coloured cellophane to your black card. If you want to be extra creative, you could even try multiple colours of cellophane.
- Attach the black card using a rubber band instead of tape and you can swap out constellations.
- This challenge card pairs well with other astronomy and space-based challenge cards – such as Marshmallow Constellations - to build a space night program.