

GOODNIGHT, MOON (AND STARS)

EXPERIMENT: STARLIGHT FLASHLIGHT AND MOON JOURNAL

Do you ever notice how the night sky changes above you? The moon's shape changes throughout the month, and the constellations change with the seasons. Make your own constellations shine with a starlight flashlight, and observe the moon's phases by tracking its shape in a journal.

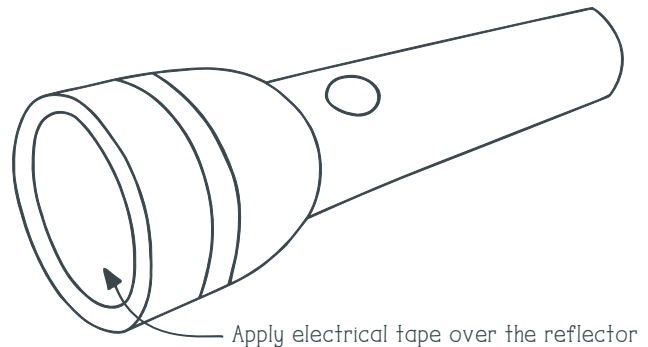
MATERIALS

- ☐ Flashlight
- ☐ Aluminum foil
- ☐ Duct or masking tape
- ☐ Electrical tape
- ☐ Paper
- ☐ Rubber bands
- ☐ Pen or pencil
- ☐ Pushpin
- ☐ 18-ounce cups (Styrofoam, paper or plastic)
- ☐ Scissors or utility knife
- ☐ Moon journal (msichicago.org/summerbrain)



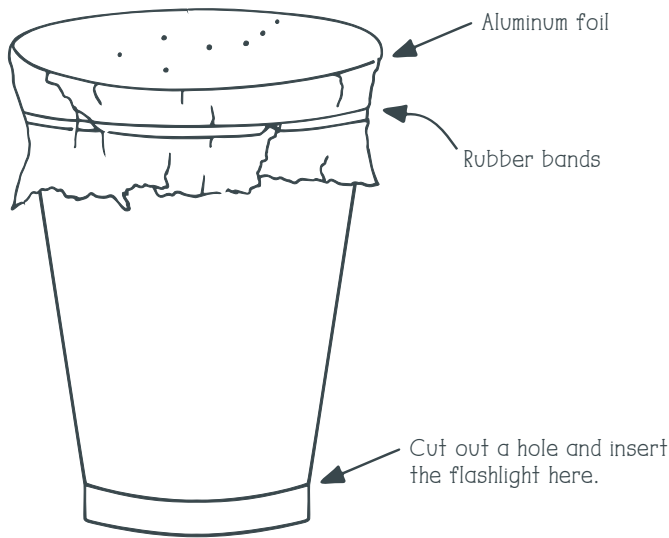
INSTRUCTIONS

Your starlight flashlight will work best with a bright, focused beam of light. If your flashlight has a shiny, reflective surface around the bulb, unscrew the top and remove the lens. Cover the reflector with black electrical tape and reassemble the flashlight without the lens.



Cut out the bottom of a cup so there's a hole. Check to make sure the flashlight fits snugly inside the hole. If needed, apply some tape around the edges of the hole to help the cup fit more snugly; this can also smooth any sharp edges if you're using a plastic cup.

Cut a piece of aluminum foil big enough to fit over the open mouth of the cup. Place it over the cup and secure it in place with a rubber band. Use a pushpin to poke holes in a constellation pattern. You can make a real constellation, or design your own!



Insert the flashlight into the hole at the bottom of the cup. Turn on the flashlight in a darkened room and aim the starlight flashlight at the wall. Make several constellation cups so you can change what you see in your night sky!

Check out the real night sky and track the phases of the moon in a moon journal (available at msichicago.org/summerbrain). Find the moon on a clear night and shade in the part of the moon that appears dark. You can also note the date and time of your observation. Make an “X” if it’s cloudy or rainy and you can’t see the moon. As you make your observations, notice how long it takes for the moon to return to the same shape.

WHAT’S HAPPENING?

A constellation is a group of stars that appears to form a pattern or picture. There are 88 official constellations, many of which were named after animals or mythological characters by ancient Greek astronomers. Constellations seem to move across the sky but it’s actually the movement of the Earth rotating on its axis that causes the constellations to shift positions.

The moon changes shape because of its orbit around the Earth. It takes about four weeks to go through all its phases: waxing crescent, first quarter, waxing gibbous, full moon, waning gibbous, third quarter and waning crescent before the next new moon. The moon doesn’t give off its own light; the bright part of the moon you see is light reflected from the sun.

GAME ON

Create your own constellation design for your starlight flashlight, and give it a name. Make up a story about it, and tell your friends. Create other constellation designs for the other characters in your story. Or try turning yourself into a constellation – just lay down on the sidewalk in an interesting pose and have a friend use chalk to make dots at your head, shoulders, elbows, hands, feet, knees, etc. Stand up and connect the dots to create your constellation!

TIPS

The full moon on July 31 will be a “blue moon” – the second full moon in a month (the first is on July 2). The last blue moon was in 2012. There will be a total lunar eclipse on September 28. This is also called a “blood moon” because the moon glows red.

MORE WAYS TO PLAY WITH THE NIGHT SKY

Use sky maps (skymaps.com) to help you find your way around the night sky.































RECOMMENDED READING

“Find the Constellations”
by H. A. Rey































“Zoo in the Sky: A Book of Animal Constellations” by
Jacqueline Mitton



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SUN	MON	TUE	WED	THU	FRI	SAT
						01  ____:____ A.M. P.M.
02  ____:____ A.M. P.M.	03  ____:____ A.M. P.M.	04  ____:____ A.M. P.M.	05  ____:____ A.M. P.M.	07  ____:____ A.M. P.M.	08  ____:____ A.M. P.M.	09  ____:____ A.M. P.M.
10  ____:____ A.M. P.M.	11  ____:____ A.M. P.M.	12  ____:____ A.M. P.M.	13  ____:____ A.M. P.M.	14  ____:____ A.M. P.M.	15  ____:____ A.M. P.M.	16  ____:____ A.M. P.M.
17  ____:____ A.M. P.M.	18  ____:____ A.M. P.M.	19  ____:____ A.M. P.M.	20  ____:____ A.M. P.M.	21  ____:____ A.M. P.M.	22  ____:____ A.M. P.M.	23  ____:____ A.M. P.M.
24  ____:____ A.M. P.M.	25  ____:____ A.M. P.M.	26  ____:____ A.M. P.M.	27  ____:____ A.M. P.M.	28  ____:____ A.M. P.M.	29  ____:____ A.M. P.M.	30  ____:____ A.M. P.M.
31  ____:____ A.M. P.M.						

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JULY

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			01 ____:____ A.M. P.M.	02 ____:____ A.M. P.M.	03 ____:____ A.M. P.M.	04 ____:____ A.M. P.M.
05 ____:____ A.M. P.M.	06 ____:____ A.M. P.M.	07 ____:____ A.M. P.M.	08 ____:____ A.M. P.M.	09 ____:____ A.M. P.M.	10 ____:____ A.M. P.M.	11 ____:____ A.M. P.M.
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