



**TAKE AND MAKE:** Star Projector Based on <https://mysteryscience.com/sky/mystery-5/stars-daily-patterns/128>

Materials we provide:

Cup  
Toothpick  
Sticker  
Flashlight  
Big Dipper template

Materials you provide:

Scissors  
Blank paper and crayons or markers, optional

Cut your Big Dipper template out on the dotted line.

Turn your cup upside down and use the sticker to attach the template to the bottom of the cup.

Use the toothpick to poke a hole in each “star”.

Get your flashlight. Turn off the room lights and cover the windows.

Shine the light through the cup and onto the table or flat surface. Experiment to find the spot where you see the Big Dipper.

Think about it:

What could you do if you had a second flashlight? Could you make the Big Dipper disappear without turning off your flashlight?

Try this with a friend:

Get a flashlight for each of you. Have one of you be the Starmaker and one the Sunshine.

The Starmaker should project the Big Dipper onto your surface.

While the Starmaker has the Big Dipper projected, the Sunshine should use their flashlight to mimic the rising sun. What do you see?

What about when the Sunshine mimics the setting sun?

Think about it:

Why do stars only come out at night?

Is the sun the only light source that keeps us from seeing stars?

Is it harder to see stars in the city or country?

Follow up:

Can you make other constellations?

Can you find the Big Dipper outside in the night sky? Why or why not?

Can you draw a backdrop on which to project your constellation?

