



# GOOD LIGHT, GOOD NIGHT

## ACTIVITY INSTRUCTIONS

[ncscifest.org/starparty](http://ncscifest.org/starparty)

### OBJECTIVES

- Discuss the impact of lighting choices on ourselves and the environment
- Discover that well-directed light makes it easier to see the ground – and the stars – than unshielded light does

### SUGGESTED AGE RANGE

Ages 5 and up

### ACTIVITY DURATION

10 minutes

### SETTING

Indoors in a very dark room; or outdoors at night, away from unshielded lights

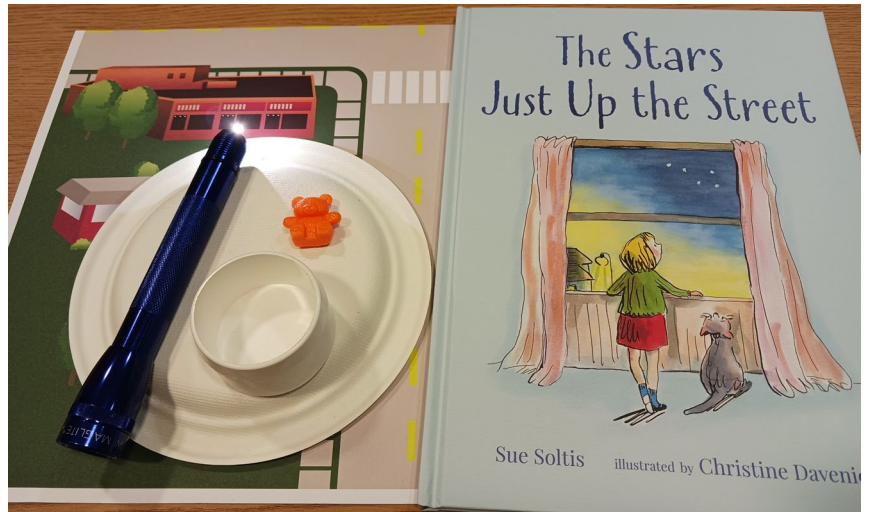
### MATERIALS

- small white flashlight that can be operated in “candle mode”
- PVC cap or other item to act as a shield
- white surface such as a paper plate
- figurine about 1 to 1.5 inches tall
- Optional: *The Stars Just Up the Street*, written by Sue Soltis and illustrated by Christine Davenier
- Optional: City mat image (can be downloaded from <https://globeatnight.org/dsr/>)

### PREPARATION

1. This demonstration is most effective in a very dark setting. If indoors, turn all lights off and cover any windows with a double layer of black trash bags.
2. Make sure your flashlight is in candle mode (or is otherwise designed such that a bare bulb sticks out). You want everyone to see the glare from the exposed bulb when you are not using the shield.
3. Set up a street scene with the figurine standing on the “ground” (paper plate or city mat) right next to the unshielded “streetlight” (flashlight standing on its end in candle mode).

Recommended: Tape the figurine to the paper plate, especially if you plan to walk around with the demo.



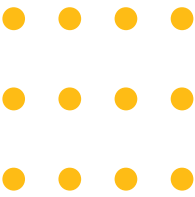
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## ACTIVITY INSTRUCTIONS, CONT'D.

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### PROCEDURE

1. Optional: Begin by reading and discussing a picture book about dark skies, such as *The Stars Just Up the Street*.
2. Ask your participants about their experiences viewing the night sky. Have they ever been under a really dark starry sky? How well can they see the stars from outside their home? Let's explore why on clear nights we can see more stars from some locations than others.
3. Turn the room lights off (or do the demonstration outside at night), so that the only light source is your unshielded "streetlight" standing on the white paper plate or city mat. Has anyone ever seen a light like this? Where is the light shining? Where is the light needed?

Observe how well you can—or more likely, can't—see the figurine. Note how the exposed bulb glares brightly in your eyes.

The sky is aglow with wasted light.

4. Now cover the flashlight with the PVC cap (or any other shield, such as your hand), to represent a shielded streetlight. Now the figurine and surrounding area are well lit. Glare is eliminated. The sky is dark! You can see more stars.

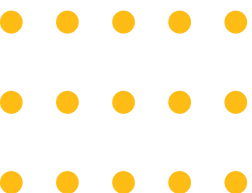


Step 3



Step 4

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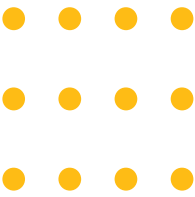


STATEWIDE  
STAR PARTY

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## ACTIVITY INSTRUCTIONS, CONT'D.

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### PROCEDURE, CONT'D.

5. Discuss several positive outcomes you get with full shields:

- Light is directed downward where it is wanted, saving energy and money.
- There is no direct glare to impair night vision or cause light trespass.
- General light pollution overhead (“skyglow”) is lessened.
- Darker skies are also connected to better human health, less harm to wildlife, less disruption to ecosystems.

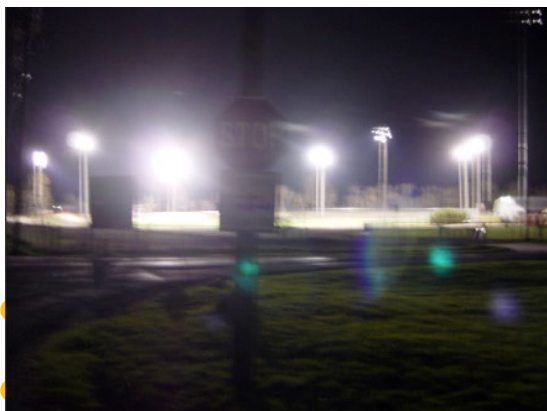
Bottom line: Decreasing light pollution improves the quality of life for people, animals, and plants; saves money and energy; and preserves our beautiful night skies.

6. Prompt discussion: What might we do to use outdoor light more wisely at our homes and in our towns? (Some suggestions: shield and direct light, use only the minimum brightness needed, use timers or motion sensors where appropriate, turn off unnecessary lights.)

### BACKGROUND INFORMATION

Three main types of light pollution:

**1. Glare** is too much background light.  
Can you see the stop sign or read the sign below it in this image?



**2. Light trespass** is light that spills into an area where it is unwanted. Would you be able to sleep if your bedroom window faced this neighbor’s light?

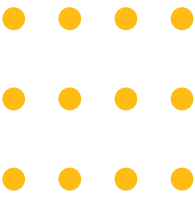




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ACTIVITY INSTRUCTIONS, CONT'D.  
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## BACKGROUND INFORMATION, CONT'D.

3. **Sky glow** is lots of light scattering off particles in the air, giving the appearance of a glowing sky. Do you see any stars in this image?

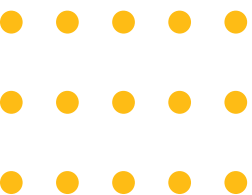


## MORE RESOURCES

1. Watch a version of this shielding demo in this 19-second video:  
<http://www.youtube.com/watch?v=nb7eryzSBno>
2. Learn more about light pollution and find resources for educators:  
<https://www.darksky.org>
3. Participate in an international citizen science campaign to measure the brightness of your night sky: <https://www.globeatnight.org>

## CREDIT

This activity is adapted from: NSF's NOIRLab's Quality Lighting Teaching Kit, where you can find more dark sky activities (<https://noirlab.edu/public/products/education/edu001/>); the Big Astronomy Toolkit, created using NSF funds ([www.bigastronomy.org](http://www.bigastronomy.org)); and Chuck Bueter's materials at <https://analyzer.depaul.edu/paperplate/lights.htm>



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