



# ASTRONOMY @ HOME

## FUN WITH SHADOWS

The sun is our closest star and the center of our solar system. It provides all the heat and light that we need for life on Earth. We can learn more about the sun by studying shadows on Earth. Shadows can help us measure and analyze what we see as well as make predictions for the future.

### MATERIALS & STEPS

- A flashlight
- A smooth surface, like a table or sidewalk
- Toys of various shapes and sizes (or other household objects)

**Note:** You will need to try this in a room that is mostly dark, or have your grownup take you outside in the late evening.

Your flashlight will represent the sun in this activity. Line up the toys on your smooth surface. Position yourself right in front of them and aim your flashlight right at them. Since light travels in a straight line, the front of your toys should be illuminated, but what is happening behind them? What changes if you aim your flashlight straight down over your toys, or aim it at them from the side? What happens if you move the flashlight closer to your toys or further away?

Now that you've seen how the position and distance of the flashlight changes the shadows you create, how do you think the position and distance of the sun changes the way it creates shadows on Earth? As the Earth rotates the sun appears to move across the sky from sunrise to sunset. What time of day do you think the longest shadows are created?

### VOCABULARY

When we **analyze** something, we are examining or studying it carefully.

A **shadow** is created when an object blocks a light source.

**Illuminate** means to make bright or light up.

### FUN FACT

If you live in New England, the sun will never be directly overhead because of the way our planet tilts. The only place in the United States where the sun is ever directly overhead is Hawaii.



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