

## Measure Your Shadow

Is it easier to catch a big shadow or small shadow?



### Materials Needed

- A sunny day
- A measuring tape or long piece of string
- Something to write/draw on
- A helper

### Grade Range

K-2

### Topics/Skills

Science: Light and shadows

Math: Measurement

English Language Arts: Story telling

### Learning Standards

NGSS: [Space Systems: Stars and the Solar System](#)

### Duration

5 minutes daily

### Prep Time

5-10 minutes

Some have said that if you can catch your shadow then you can fly, but in order to catch your shadow you must know how big it is. Measure your shadow to know when the best time to catch it would be.

### Activity Challenge

Measure your shadow at three different times of the day.

### Preparation

1. What is a shadow and how is it made?
2. What would be 3 good times during the day to measure your shadow?

### To Do

1. On a sunny day, choose a spot where a dark shadow can be seen all day and will not be obscured by shadows cast by other objects.
2. At the 3 chosen times, go outside to the same spot and stand with your back to the sun.
3. Ask your helper to measure the length of your shadow.
4. Ask them if they think their shadow is taller or shorter than they are.
5. Record the length of your shadow for each of the 3 times.

### Guiding Questions

- What time of day did your shadow appear to be the longest and the shortest?
- What is the best time of day to measure your shadow if you wanted to catch it?

## Extensions

### Art Challenge

- Choose a small object to place on a piece of paper where the object can cast a shadow on the paper. Draw an outline of the shadow.
- Explore how moving the object can change the shape of the shadow.

### Language Challenge

- Make up a story with your shadow as a character.
- Consider reading the story about Peter Pan or click the link to a narrated video of the story (<https://bit.ly/34cOg44>). Watch an animated clip of Peter Pan chasing his shadow (<https://bit.ly/3bNya3q>). This is a great way to spark imagination and develop language skills!

### Math Challenge

- Is there any connection between the time of day and the size of your shadow? What time of day will your shadow be half the longest shadow measurement you took?

## The Science behind the Activity

When light travels through space, its path can be obstructed. Rays of light will bounce off solid objects in space. The obstructed light does not continue to travel in one direction. On the other side of the obstruction a dark outline, surrounded by illumination, may appear. Depending on the angle(s) of radiation and intensity of light, shadows may look short, long, or gigantic.