

# SHADOW BEAR

Explore light and shadows with *Moonbear's Shadow*

## Materials

Flashlight ("sun")  
Toy Bear  
Toy Tree  
Templates  
Pond and fish landscape  
Challenge cards



## Let's Play

1. Pretend the flashlight is the Sun and use it to play with shadows. Shine the Sun onto the toy bear. Where is Bear's Shadow?
2. Try moving the light. What happens to Bear's shadow as the Sun moves?
3. In *Moonbear's Shadow*, Bear discovers his shadow and has many other adventures. Choose a challenge card and try new things with Sun and Bear.

## Shadow Challenges

- Try to make Bear's shadow in front of him.
- Try to make Bear's shadow behind him.
- Try to make Bear's shadow long.
- Try to make Bear's shadow short.
- Bear's shadow scared the big fish away. Try to make Bear's shadow touch the fish in the pond.
- Move the Sun across the sky, from sunrise to sunset. What happens to Bear's shadow as the Sun moves?
- Shine the Sun straight down on Bear from above his head. Where is his shadow?
- Bear wants to hide in the shade of the tree. Can you help him?

## Learning Objectives

This activity explores these ideas:

- A shadow is created when an object blocks light from falling on a surface.
- An object's shadow always appears on the opposite side from the light source.
- Shadows change when the relative positions of the light source and the object change.

This activity can also be connected to the 2024 solar eclipse event, with this additional learning objective:

- A solar eclipse occurs when the Moon passes directly between the Sun and the Earth, blocking the Sun's light and casting a shadow on Earth.

## What's the Science?

A shadow is created when an object blocks light from falling on a surface.

An object's shadow always appears on the side opposite of the light source. In this activity, Bear's shadow



appears on the mat when light from the flashlight is blocked by the toy bear. No matter what he does, Bear is always between the Sun and his shadow.

The flashlight in this activity is a model for how the Sun casts shadows on Earth. On a sunny day, you can block sunlight and cast a shadow on the ground, a wall, or another surface. Your shadow always falls on the side opposite from the Sun, just like Bear's. If the Sun is behind you, your shadow will be in front of you.

When the light source of the object moves, the shadow changes. If you hold the flashlight down low, close to the table, Bear's shadow gets very long. If you move the light high over Bear's head, his shadow gets shorter.

Outside, shadows change throughout the day as the Sun appears to move an arc across the sky. A tree's shadow is longer at sunrise and sunset, when the Sun appears low in the sky, and shorter at noon when the Sun appears high in the sky.

## Take It Further

If you have access to the outdoors on a sunny day or easily darken the room you're in, you can make a connection between Bear's shadow and the children's own shadows. Reinforce the learning goals in this activity by explaining that the Sun, light bulbs, and flashlights are all examples of light. When an object blocks the path of light, that object can cast a shadow. We can see the shadow on surfaces such as floors or walls.

You might also experiment offering this activity with a story-time program. You could read *Moonbear's Shadow* by Frank Asch and offer several extra sets of materials to allow multiple groups or families to experiment with the activity.