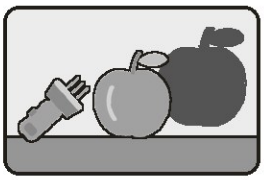
Where do shadows come from? Helping your child see what the flashlight does

Parent page · ages 4–5 · goes with the video "Understand the concept"

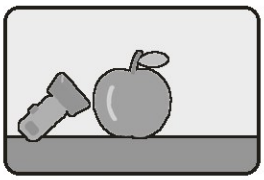
A logical idea

Does your child say "my shadow is mine, it's always there"? They watch their shadow move just like they do, start at their feet, and go with them, especially outside in the sun. It's not a flaw in their thinking: to them, a shadow is part of whoever makes it. In this idea, the light from the flashlight is missing.

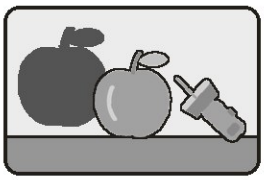
The key idea



flashlight on, on one side: shadow on the other side



flashlight off: no sharp shadow on the wall



flashlight moved to the other side: the shadow switches sides

A shadow is the place where an object blocks the light from the flashlight. Without the flashlight, there's no sharp shadow on the wall. The flashlight on one side, the shadow on the other. It seems to follow your child because the spot where their body blocks the light moves with them. Two nuances: the soft ceiling light makes shadows too, but pale, blurry ones; outside, the sun plays the role of the flashlight (never look at it).

Questions instead of corrections

- "What do you think: where will the shadow be?"
- "What if we turn off the flashlight?"
- "Where is the flashlight? Where is the shadow?"

After each try: "What did you see?" Point and say "this side" and "the other side": at this age, left and right are often still shaky.

Safety

In the evening, with an adult, a soft light kept on in the room. A small LED flashlight, not a very powerful one, with regular batteries, set down on the table (no one holds it); the adult changes the batteries. Never button or coin batteries: if swallowed, they can cause serious burns within hours, even when used up (call Poison Control, 1-800-222-1222, or 911). Never a candle or any flame. Never shine the flashlight in anyone's eyes, don't look at it up close, and never look at the sun, not even for a moment, not even with sunglasses. Opaque objects only; no scissors: hands are enough for shadows. Keep small objects and tape away from younger children.

Page 2, to do together (no reading needed)

- Show the picture at the top: Nouk and a shadow. Say: "Nouk thinks the shadow is always there. What do you think?"
- Before each try, your child circles or points to one picture under the question mark: shadow on one side, no shadow, or shadow on the other side. After the try, they circle one under the eye, without erasing their first choice. They can also point, and you circle for them.
- 1 to 4. Each row shows an object on the table and the flashlight, on or off, on one side; no shadow is drawn on the wall. Your child predicts, you do the try with the real flashlight, then they look. Start with two rows, and cover the others with a sheet of paper.
- 5. The challenge: the white paper is on one side of the wall. Where should the flashlight go so the shadow lands on the paper? Your child circles one of the two circles, then you try it together. 6. Your child draws what surprised them.

Before you play, try the flashlight and the objects yourself (table against the wall, object about eight inches from it, flashlight well off to one side, at an angle), and keep a spot where the shadow is nice and sharp, right beside the object. Keep this page out of view until after the activity.

For you, after your child has checked (flashlight and objects tried by you first)

- Flashlight on, set down on one side of the toy: the shadow is on the other side, on the wall.
- Flashlight off: no sharp shadow on the wall (the soft ceiling light only makes a pale, blurry shadow).
- Flashlight moved to the other side: the shadow switches sides.
- Shadow show: for the shadow to land on the paper, the flashlight goes on the opposite side of the toy from the paper.

A good sign: they talk about the flashlight, or point to the side away from it. If they still point to the flashlight's side, do activity 2 again and let them move the flashlight: it often takes several tries.

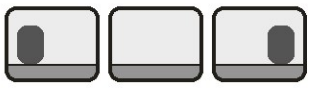
A few days later, without making a big deal of it (adult cuts out)



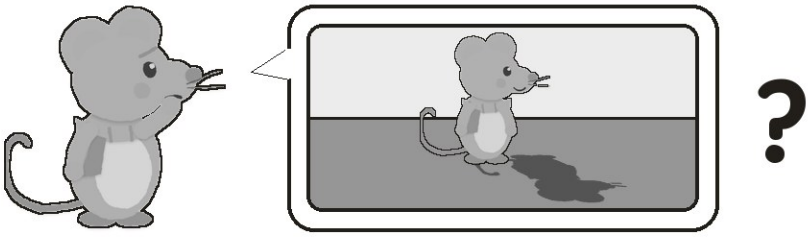
a different toy in front of the wall



the flashlight, off, set down on one side

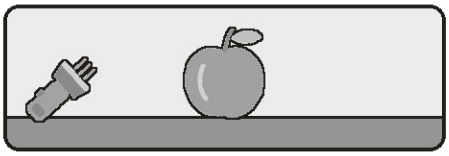


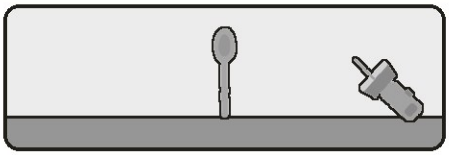
Ask: "If we turn it on, where will the shadow be?" Circle the picture of what you think. Why? Then turn it on together (flashlight set down, never pointed at anyone's eyes, an adult right there) and circle what you see. The adult turns the flashlight off afterward.



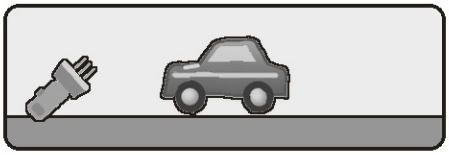
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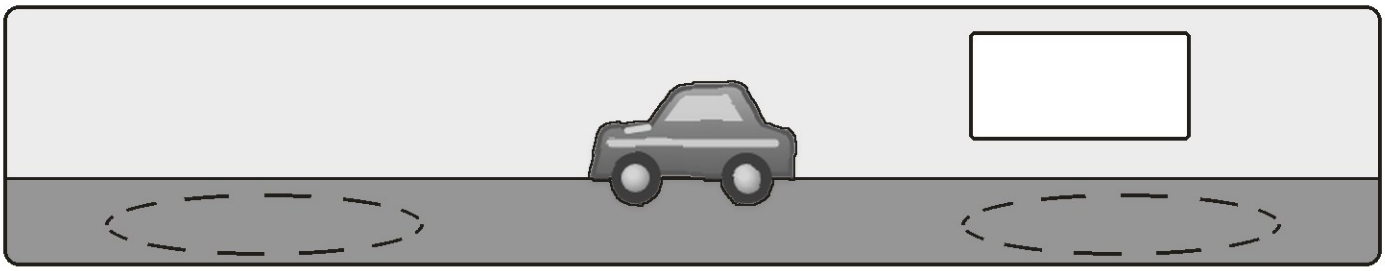


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