

# Challenge!

## Measuring Your Shadow

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### Can you answer these questions?

What's your shadow? Do you always have a shadow? Do you have a shadow in the dark? Or when it's very cloudy?

For you to have a shadow, there must be light around you. You almost always have a shadow when you're in the sun or in a room with lots of light. That's because the light shines all around you, but it can't shine through you. The area where the light can't shine is your shadow.

Here's a shadow experiment for you to try on a sunny day:

In the morning, get a piece of chalk and go outside with a friend. Notice where the sun is in the sky, but don't look directly at it because it can hurt your eyes. Ask your friend to draw around your feet with chalk so you know exactly where you are standing. Then ask your friend to trace your shadow. Write your name with the chalk on the ground.



Now repeat this for your friend and trace his or her feet and shadow.



With a yardstick or tape measure, measure your two shadows and make a note of the measurements.

At lunchtime, both of you stand in your footprints from the morning. Take turns to trace around your shadows again. Where is the sun? Where are your shadows? Take the measurements of your shadows and note them down.

In the afternoon, both of you stand in your footprints from the morning. Take turns to trace around your shadows one more time. Where is the sun? Where are your shadows? What happens to your shadow during the day? Take the measurements of your shadows and note them down.

At the end of the day, complete this chart.

you	time _____	measurement _____
	time _____	measurement _____
	time _____	measurement _____
your friend	time _____	measurement _____
	time _____	measurement _____
	time _____	measurement _____

As the sun moves across the sky, it passes your body at different angles. This makes your shadow change shape and position. At noon, your shadow almost disappears. Why? Because the sun is directly above you – you're standing on your shadow!