



MAKING A SIMPLE SUNDIAL AND CALIBRATING IT



A sundial uses the Sun's shadow to tell time.



GOAL

Build a simple sundial and calibrate it so it shows the correct time on a sunny day.



BACKGROUND

The Sun appears to move across the sky from east to west. As it moves, the shadow of an object (called a gnomon) moves too. By marking where the shadow falls at different times, we can create a sundial.

WHAT YOU NEED

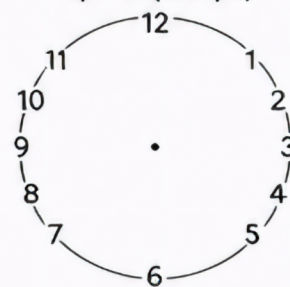
- Paper plate or cardstock (round)
- Pencil with eraser
- Ruler
- Marker or pen
- Protractor (optional)
- Stopwatch or clock
- Tape
- Level surface outdoors



PART 1: MAKING YOUR SUNDIAL

- 1 Poke a small hole in the center of the plate.
- 2 Insert the pencil through the hole so it stands upright.
- 3 Use tape on the underside to hold the pencil vertical. Make sure it is straight (use a level surface).
- 4 Draw a circle around the edge of the plate if needed.
- 5 Mark the "12" position at the bottom edge of the plate (facing you). This will be your noon line.
- 6 You have made the basic sundial structure!

Top View (example)



Noon (12) at the bottom

PART 2: CALIBRATING YOUR SUNDIAL

- 1 Place your sundial outside on a level surface in a spot that gets full sun all day.
- 2 Turn the "12" (noon line) to point exactly toward the Sun. This sets your noon line.
- 3 Starting in the morning, check your clock.
- 4 Every hour, mark the tip of the shadow on the plate. Write the time next to the mark (e.g., 9 AM, 10 AM, etc.).
- 5 Continue until late afternoon.
- 6 Your sundial is now calibrated! The shadow will fall near the times you marked.



TIPS FOR SUCCESS

- Use the same clock throughout the day.
- Daylight Saving Time and your location will affect the shadow. This is normal!
- Re-check and adjust your noon line on different days for best accuracy.
- Best results come from a clear, sunny day.



SCIENCE CONNECTION

Earth rotates from west to east, causing the Sun to appear to move across the sky. Sundials have been used for thousands of years to tell time.

OBSERVATIONS

What worked well? What challenges did you have? How accurate was your sundial?

DRAW YOUR SUNDIAL



SAFETY FIRST! Always be safe in the sun. Wear sunscreen, a hat, and stay hydrated.

