

Make your own Sundial



Activity Description

As the Earth orbits around the sun, it is also rotating on its axis. An axis is an imaginary line going through the center of the earth (top to bottom) about which it spins or rotates. The Earth's rotating movements creates day and night as distinct parts of the earth turn to face the sun. To us it might look like the sun is "moving" across the sky from East to West as the day progresses, but really it is the Earth rotating! We can track this movement to tell time using a sundial, which casts a shadow at different angles depending on the hour of the day.

Materials

- Pen or pencil
- Paper plate
- Playdough, tape, or putty (optional)

Preparation and Safety

- You will want to do this activity on a sunny day!
- Let an adult help you poke a hole in your paper plate. Sharpened pencils are pointy!

Procedure

1. Write the numbers 1-12 evenly around the outside of a paper plate.
2. Fold your paper plate in half, and then into quarters, then open the folds again. The "X" that the crease lines make will mark your center. (see Image 1)
3. Poke your pen or pencil through the back of the paper plate. This will be the pin that casts a shadow on your dial, also known as a gnomon (pronounced no-men). You can use a piece of playdough or tape to help hold your gnomon in place, if needed.



Image 1

Procedure (continued)

4. Take your sundial outside to a sunny spot at the beginning of the hour and line the shadow up with the correct number (if it is 9:00am, line the shadow up with the 9).
5. Leave the sundial in place and come back to it throughout the day to check the time!
6. Use a watch or a clock to also check the time and to judge the accuracy of your sundial.

Extensions or Adaptations

- Why does the shadow move? Write or draw your explanation.
- How can you make a more permanent sundial using rocks and sticks?
- How accurate was your sundial? How could you make it more accurate?
- Check your sundial at a random time and see if you can guess the correct time of day.
- Do you think your sundial would still work during a different season? Why or why not?