

Making a human sundial is one way to help your children understand the rotation of the Earth: by tracing their shadows. This is the perfect opportunity to take short, much needed breaks during the day and get some fresh air. The process is as simple as finding a paved, sunny spot, tracing your shadows, and recording your observations in science notebooks several times that day.

Make a Human Sundial



Materials:

Open space with no shadows and no clouds overhead. Driveways, parking lots, and playgrounds work well.

Sidewalk chalk

Tape measure

Camera (*optional*)

Science notebook or nature journal and a pen or pencil to record observations (*optional*)

Compass (*not necessary, but may help with reference points*)

Optional Steps & Questions:

Note the general location of the sun in the sky in your notebook when you make each tracing.

Measure the length of your child's shadow each time you trace it and record it in your notebook.

Ask your child to predict where their shadow will be and what it will look like at the next tracing time.

How do you think shadows are made?

What did you observe about your shadow and the sun?

Did the sun move? If yes, in which direction?

In which direction did your shadow move?

Are the tracings the same? Why or why not?

When was your shadow the longest?

When was it the shortest?

Why do you think that your shadow changes throughout the day?

Do you think that your shadow also changes throughout the year?

Instructions:

1. Choose a sunny day when no clouds or rain are expected. If clouds move in during the day, you do not necessarily have to stop the experiment, but may have to wait for the clouds to pass.
2. Find an open cement or asphalt area near your home where the sun shines all day to make a human sundial. Make sure you have enough space in all directions around you; shadows can grow long, and houses and trees often cover driveways.
3. Place an 'X' on the spot where you want your child to stand, or find some other way to mark the area in a way that will last all day. If you are not sure of the compass points in the area you are using, use a compass and mark them on the paved area as a reference for later discussion.
4. Use sidewalk chalk to trace your child's shadow at least three times throughout the day. Use chalk to mark time of day next to each tracing. (*Morning, mid-day, and late afternoon and/or early evening are great times of day to trace shadows for these outdoor science experiments. It does not have to be precise, just any different time of day!*)
5. Have your child compare the observations and formulate a hypothesis for why the shadow changes throughout the day.

Having Fun?

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