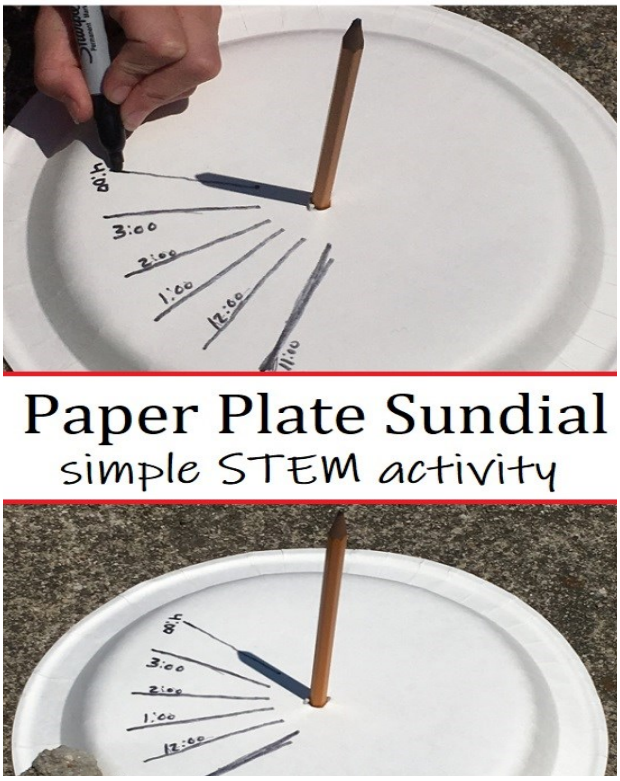


Included in your kit:

- Paper plate
- 1 Permanent marker

Items in red are not in your kit:

- Tape
- Sharpened pencil
- Analog watch or clock

Instructions

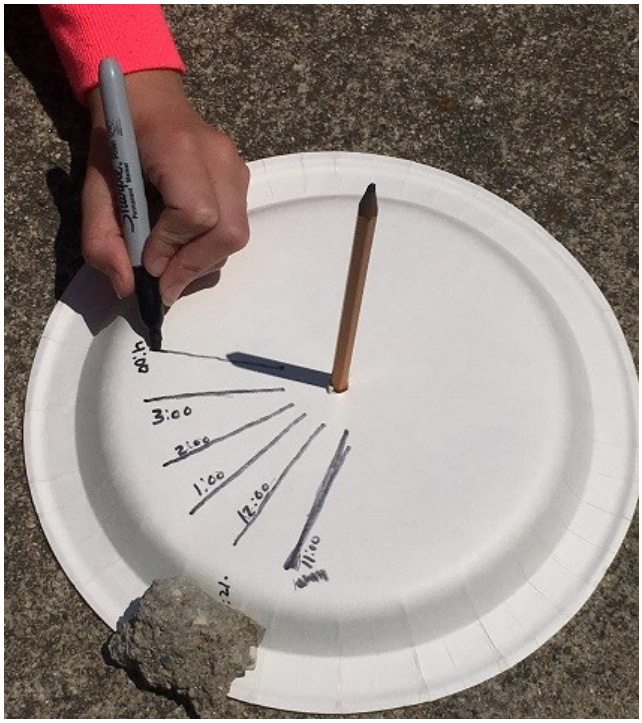
*Turn the plate upside down, with the pencil poking through so the eraser end can rest flat on the surface beneath the plate.

*Next, use a bit of tape to secure the pencil to the plate with the pointed end standing up. For best results you want your pencil to be straight up and down (perpendicular to the paper plate).

*Check your watch or clock.

*A few minutes before the clock strikes the next hour, take your materials outside and place your plate in a flat area that gets plenty of sunshine. This will allow you to start marking the hours on your sundial right away.

*Either tape the rim of the plate to the ground, or use a few small rocks to help weigh it down so it doesn't blow away.



*Each hour on the hour go outside and use your permanent marker to draw a line along the pencil's shadow on the plate. Write the time next to the line you draw.

*Try to do this several hours in a row if possible. Do you notice any patterns?

*If weather permits, leave your sundial outside overnight and check its accuracy the next day.

How a Sundial Works

People can use sundials to keep track of time by observing where the shadow falls on the sundials surface.

During the day the sun moves across the sky because the Earth is slowly spinning on its axis. The different position of the sun in the sky during the day causes the shadow on the sundial to change.

Each day the sun is close to the same position in the sky as it was the day before at that same time. This allows your homemade sundial to be fairly accurate.

You will also notice that when the sun's position changes, the length of the shadow on the sundial also changes.

In the morning the shadow continues to get shorter and shorter as noon approaches. In the afternoon, the shadow gets longer and longer.