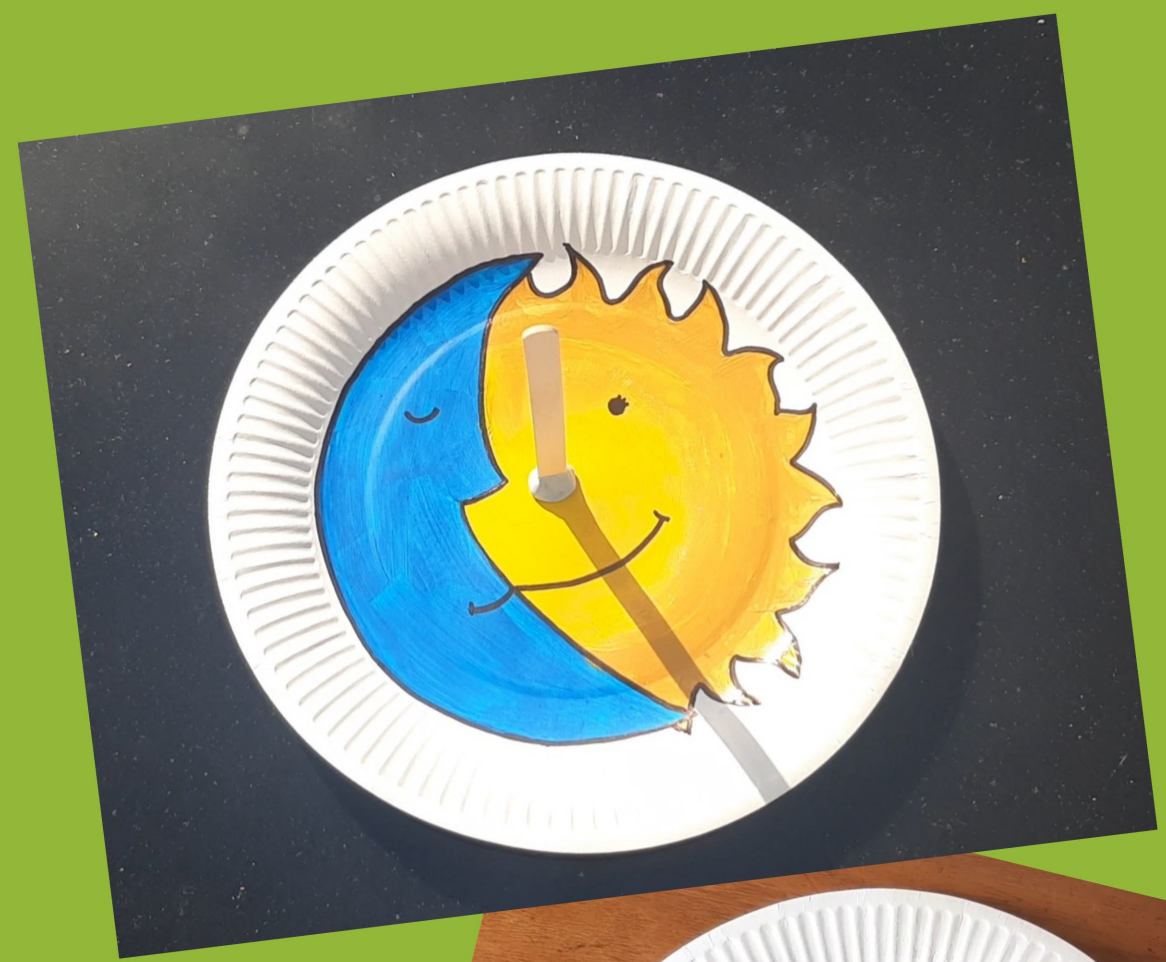


What do I need?

- Paper plate
- Pen or pencil
- Lolly stick
- Blu-Tack
- Ruler
- Sticky tape
- Paints
- Paint brushes



sundial paper plate

What do I do?

Do this activity on a sunny day in an area outside which gets sunshine all day long.

Paint your paper plate in the design of your choice. Why not paint a mandala pattern or a sun and moon design?

Once the paint is dry, put a small piece of Blu-Tack onto one end of your lolly stick. Press it down firmly in the centre of your plate, with the lolly stick upright.

Just before midday, take your plate outside to a sunny spot. Tape it in place on the ground or on a table so that it doesn't blow away.

Look at the shadow cast by the sun hitting the lolly stick. Use your ruler and pencil to draw the shadow line onto your plate. Write the time 12pm at the end of the line.

Return to your plate every hour on the hour to see where the shadow moves. Draw the shadow line and mark the time on your plate each time.

After sunset, bring your plate inside to study the shadows formed during the afternoon. Do you notice a pattern? Can you guess where the shadows would fall in the morning hours?

Why don't you repeat the observation during a different season to see how this affects the position of the shadows. Make sure the plate is always in the same position.

Telling time from the sun

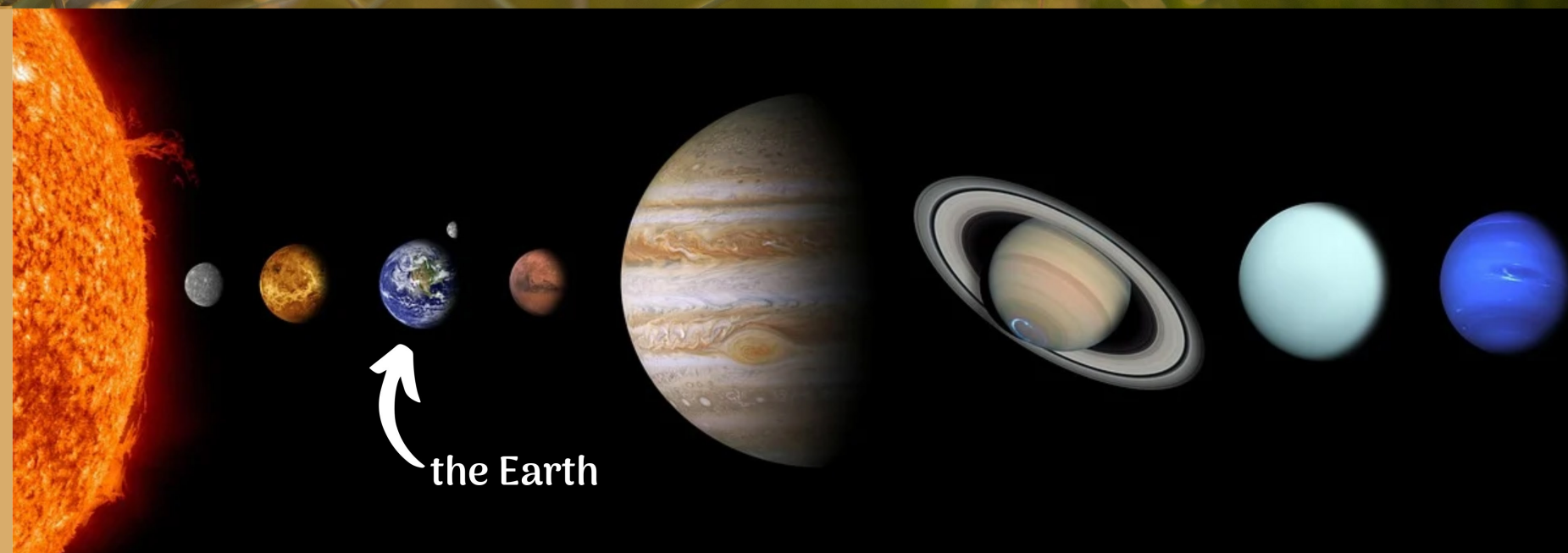
The Sun and the Earth

The sun is a star in the centre of our solar system. A star is a big ball of burning gases. The Sun has very strong gravity. Like a magnet, it pulls the planets in our solar system towards it and keeps them in line. Without the Sun, Earth would drift into space!

The Sun's gravity makes the Earth move in two ways. The first movement is the spinning of Earth around its central axis - an invisible line that runs from the North Pole to the South Pole. One complete rotation on its axis equals one full day on Earth.

As Earth rotates on its axis, some parts face towards the Sun and others face away from it, giving us day and night. Each day, as where we are on Earth rotates, the Sun appears to slowly rise from the east and move across the sky before disappearing, or setting, to the west.

The second movement, called 'orbiting,' is the circuit of Earth around the Sun. One complete orbit around the Sun equals one full year on Earth. Earth's orbit around the Sun gives us our four seasons: spring, summer, autumn and winter.



How sundials are used

Before clocks were invented, sundials were used to tell the time. Sundials work by casting the shadow of a pointer onto a surface marked with the hours of the day. The direction of the shadow changes as the sun moves across the sky.

If you look at the shadows in your garden, you'll see that they are at their shortest at midday when the sun is at its highest in the sky, and at their longest in the early morning and late afternoon when the sun is very low in the sky. This is how we can read the time on sundials.