



Day and Night - Teacher Notes

Background

About 4.6 billion years ago, the rocks and dust that formed our planet became a lumpy sphere that slowly started solidifying from the outer crust inwards. It continued spinning and circling the Sun until a small planet crashed into it about 4.5 million years ago. This blasted off some of our planet's surface to create our Moon. The impact also tilted the planet's axis by approximately 23° from vertical, this tilt is responsible for our seasons.

The Earth has continued to spin on its axis once every day. The Sun will appear to track across the sky in the day. It "rises" in the east and it "disappears or sets" at night over the western horizon. Actually the Sun remains constant at the center of our Solar System and we rotate daily in our orbit round it.

Day and Night

To help the students understand why the position of the Sun appears to change and why some people suggest that dawn and dusk should really be called "earthrise" and "earth set" we have this activity.

Materials

- Room on the mat for students to stand up
- A good torch or lamp
- Find North (most smartphones have a compass in them). North should always be at the "top" of the map.

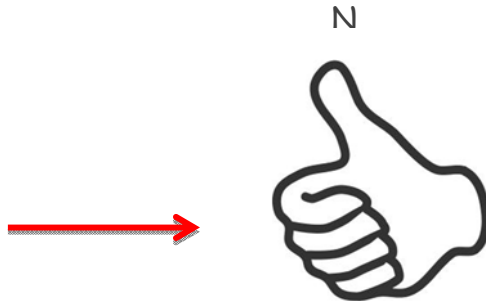
Method

1. Dim the overhead lighting if possible
2. Ask the students to stand and hold out their right hand in front of them with the thumb pointing upwards.
3. Ask the students to fold their fingers to make a fist.



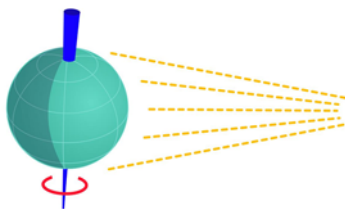


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The direction that our fingers fold is the direction that the Earth spins. This is sometimes known as the "Right hand rule".

4. Using the walls of the classroom and your knowledge of the location of north, organise the students to slowly spin and stop when asked.
5. Remain unmoving like the Sun and shine your torch while the students rotate into torchlight on their front side (day) and out of torchlight on their front side (night).



Some fascinating spin facts

Although we are standing on the surface of a spinning planet moving at about 1,600 km/h, we are not spun out into space because the force of gravity is greater than this centrifugal (out-throwing) force.

One regular change that all humans expect to find is that day follows night.



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Heat and Light from the Sun

Roughly half of any 24 hour day, one half of the planet will be facing the Sun absorbing its heat and light and the other half will be facing away from the Sun experiencing night and cooler temperatures.



Quick question 1 Which senses could we use to find if day is warmer than night?

We could use our sense of touch to feel. Our skin has heat receptors. Some students may answer that we could use our eyes and ears to watch and listen to TV or radio to hear the weather report!

Quick question 2 If it is cold at night, what can we do to keep warm?

We can light fires, wear warm clothes and stay in shelter away from cold wind.

Quick question 3 Which senses could we use to find if day is brighter or lighter than night?

We can use our eyes to see. It is usually easier to see during the day.

Quick question 4 At night when it is dark, what can we do to see better?

We can put on lights.

These daily changes affect our everyday lives.

