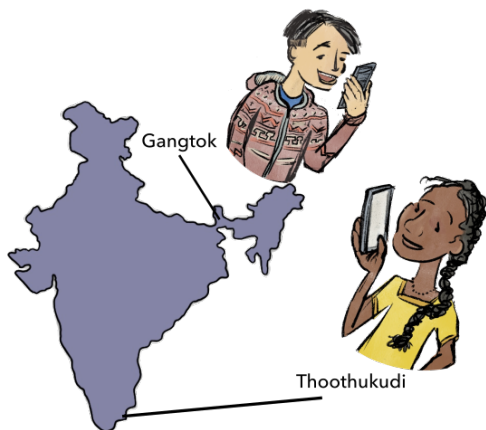


Does the Sun Really Rise in the East?

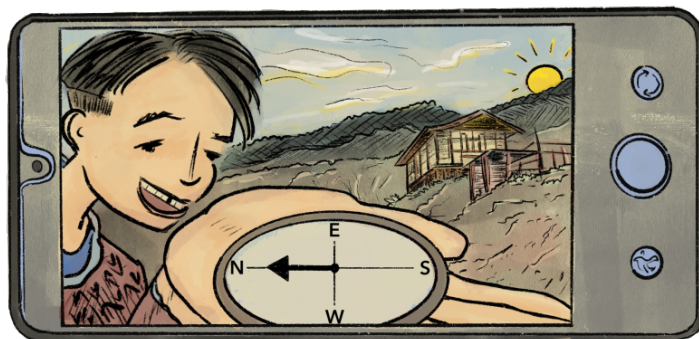


Kaviya and her family moved to Thoothukudi, Tamil Nadu in September. She has been messaging her old classmate Dawa in Gangtok, Sikkim.



In Thoothukudi, I can see the sunrise over the beach every morning. It has not been rising from exactly East! Is the sun rising exactly in the East in Gangtok?

I just watched the sunrise over the mountains today. I checked on a compass: the sun didn't rise exactly in the East in Gangtok either!

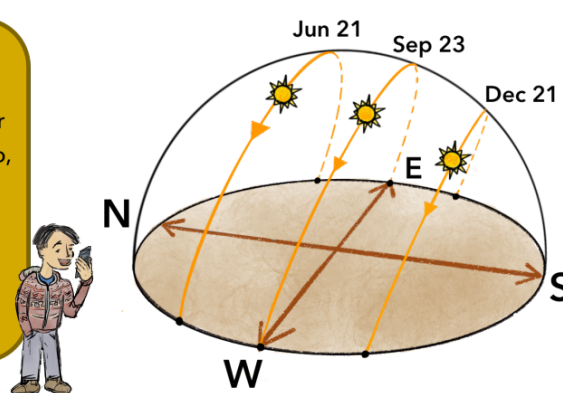


I also noticed that the position of the sunrise changes a little every day. Have you noticed that in Gangtok?

Interesting! Let's both observe the sunrise once a week for the next few months and see what happens.



From September to December, the sunrise was further and further South in Gangtok. Also, the days are getting shorter and the nights are getting longer. Is that what you see in Thoothukudi too?

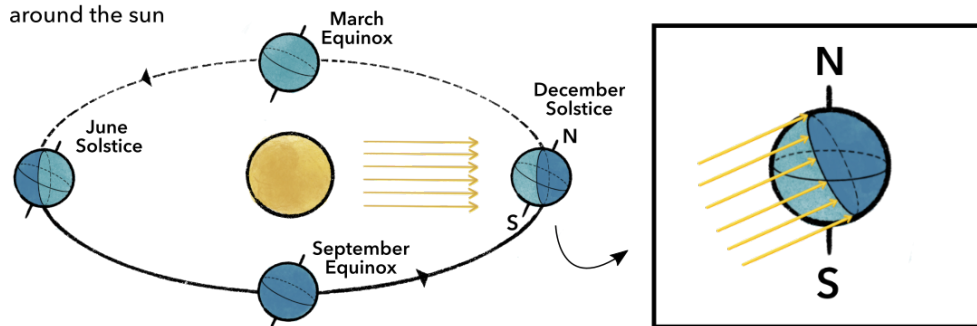


Yes, from September to December the sunrise was further and further South in Thoothukudi also!



From 21 June to 21 December, the sun appears to move southward, this is called Dakshinayan. From 21 December to 21 June, the sun appears to move northwards, this is called Uttarayan.

The sun rises exactly in the east and sets exactly in the west only on the equinoxes (20 March and 23 September). On any other day, the sunrise and sunset points are equally away from the east and west. This happens because of the tilt of the earth's axis and the revolution of the earth around the sun.



During the December solstice, the southern hemisphere faces the sun, so at sunrise and sunset, the sun's rays will come from the south. The June solstice is the northernmost sunrise and sunset. The December solstice is the southernmost sunrise and sunset. This is true for any place on Earth.

The December Solstice is on 21 December. I will observe the southernmost sunrise in Thoothukudi.



And I will observe the southernmost sunrise in Gangtok on 21 December. Let's see how far south the sun rises!

You can all do this too! Observe the sunrise or sunset on 21 December: this will be the southernmost sunrise or sunset of the year. You can find more information and experiments about the December solstice here: <https://astron-soc.in/outreach/activities/shadows-decem-solstice/>