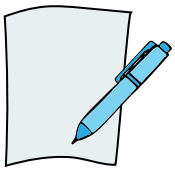
The Science Lab

ACTIVITY SHEET 1: TRACK THE SUN'S RISING & SETTING POSITIONS

You will need:

Stellarium



Paper and pen

What to do:

1. In Stellarium, click on the 'Location Window' on the left panel. Type the location of your town or city next to the search icon and select the correct option. The screen will now show the sky at your location at the current time. Close the location window.
2. Click and drag the screen so that you are facing East (you will see 'E' appear in the centre of the screen).
3. Go back to the left panel and click on the 'Date/time window'. Set the date to March 1 (the year does not matter). Set the time such that the Sun is just above the horizon (just after sunrise). Notice its position. (Has it risen exactly in the East?).
4. Start incrementing the date from March 1 in steps of one day (for example, change the date to March 2, 3, and so on) till you hit March 1 of the following year. Make minor changes to the time after every few dates so that the Sun is roughly just above the horizon. Notice how the direction of sunrise changes over the year.
5. Now click and drag the screen so that you are facing West. (You will see 'W' appear in the centre of the screen).
6. Set the time such that the Sun is just above the horizon (about to set). Notice its position.
7. Start incrementing the date from March 1 in steps of one day (for example, change the date to March 2, 3, and so on) till you hit March 1 of the following year. Make minor changes to the time after every few dates so that the Sun is roughly just above the horizon. Notice how the direction of sunset changes over the year.
8. Use the 'Location Window' to repeat Steps 2–7 at different locations of your choice:

   a) In the Northern Hemisphere

   b) At the Equator

   c) In the Southern Hemisphere

Observe and record:

For each location you try, record your observations in a table like the one on the next page.

Think about and discuss:

Q1. When seen from where you live, how does the position of sunrise change over different months in a year? How would you explain this change?

Q2. When seen from where you live, how does the position of sunset change over different months in a year? How would you explain this change?

Q3. Does the pattern of change in the position of sunrise (or sunset) over a year remain the same when viewed from locations: (a) In the Northern Hemisphere, (b) At the equator, and (c) In the Southern Hemisphere? How would you explain your observation?

Q4. Imagine you could observe the position of sunrise (or sunset) from one of the poles. Would it change over a year? In what way? Can you use Stellarium to test this?

	Your location	Location 2
How many days in a year does the Sun rise due East?		
Which months of the year does the Sun rise due East?		
How many days in a year does the Sun rise North of East?		
Which months of the year does the Sun rise North of East?		
How many days in a year does the Sun rise South of East?		
Which months of the year does the Sun rise South of East?		
How many days in a year does the Sun set due West?		
Which months of the year does the Sun set due West?		
How many days in a year does the Sun set North of West?		
Which months of the year does the Sun set North of West?		
How many days in a year does the Sun set South of West?		
Which months of the year does the Sun set South of West?		

Contributed by:
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