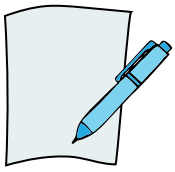
The Science Lab

Azim Premji University

ACTIVITY SHEET III: FIND THE LENGTH OF THE DAY-NIGHT CYCLE

You will need:

Stellarium



Paper and pen

What to do:

1. See **Activity Sheet I** to set observing location, viewing orientation, date and time in Stellarium.
2. Select your observing location (the place where you live, a place you may want to visit, or are curious about).
3. Pause time through the controls on the bottom panel. Do not unpause till the end of the activity.
4. To find the daily period of the Sun, pick a time in the day (say 10:00 AM) on any date.
5. Click on the image of the Sun on screen. The altitude of the Sun gets labeled under Az./Alt, where the two numbers are azimuth (this is not of interest to us) and altitude (this is the quantity of interest to us). The altitude is quoted in degrees: arcminutes: arcseconds. Note down only the degree value in the table on the next page.
6. Increase the time in steps of hours. When the altitude comes close to the value recorded in Step 5 (for example, 10 degree lesser), start increasing the time in steps of minutes. Record the time it takes for the Sun to reappear at the same altitude in the sky.
7. To find the daily period of a star other than the Sun, pick a time of your choice in the night (say 10:00 PM).
8. Click on the image of any star visible in the night sky. Again, you will see the altitude of the star displayed for the time you have chosen. Note it down in the table on the next page. Increase the time as you did in Step 6. Record the time it takes for the star to reappear at the same altitude in the sky.
9. Repeat steps 7 and 8 for a third star of your choice.

Discuss:

Q1. In steps 5-6, you recorded how long it takes for the Sun to reappear at the same altitude in the sky. In steps 7-8, you recorded how long it takes for another star to reappear at the same altitude in the sky. Are these two values the same? If not, what do you think causes this difference?

Q2. If we used the Sun as a reference, what would the length of the day-night cycle on Earth be? How different would this be if we used another star as a reference?

Your location:

	Star 1 (The Sun)	Star 2	Star 3
Name of the star			
Date and time at the start			
Altitude of the star (in degrees)			
Date and time when the star reappears at the same altitude in the sky			
Time taken for the star to reappear at the same altitude in the sky (in hours and minutes)			

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Contributed by:

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