Earth Science Name

Changing Lengths of Days and Nights

Introduction

Your experience tells you that we have longer days in the summer and longer nights in the winter. But exactly how much do day-length and night-length change? How does our experiences compare with those elsewhere in the world? How can we represent the patterns in graphs? Finally, of course, what causes these changes?

Activity

Part 1—How long are day and night today?

A. Go to the US Naval Observatory website http://aa.usno.navy.mil/data/docs/RS_OneDay.php

Follow the prompts (direction steps) to find, for Englewood NJ, the following information:

Lat. _____ Long. _____ Date _____

Sunrise _____ Sunset _____

Day-length _____ hr _____min Night-length _____hr _____min

B. Now return to the USNO website and find similar information for these dates:

March 20

Sunrise _____ Sunset _____

Day-length _____ hr _____min Night-length _____hr _____min

Reason it is special in astronomy? _____

_____

Name for this date? _____

June 20

Sunrise _____ Sunset _____

Day-length _____ hr _____min Night-length _____hr _____min

Reason it is special in astronomy? _____

_____

Name for this date? _____

Sep 20

Sunrise _____ Sunset _____

Day-length _____ hr _____min Night-length _____hr _____min

Reason it is special in astronomy? _____

_____

Name for this date? _____

Dec 20

Sunrise _____ Sunset _____

Day-length _____ hr _____min Night-length _____hr _____min

Reason it is special in astronomy? _____

_____

Name for this date? _____

In the graph below, for these dates plot the number of hours of day-length **as dots in the middle of the box**.

Hrs.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
24												
23												
22												
21												
20												
19												
18												
17												
16												
15												
14												
13												
12												
11												
10												
9												
8												
7												
6												
5												
4												
3												
2												
1												
0												

C. Go back to the USNO website and complete similar calculations for Englewood to find the day-lengths **on the 20th of each month**. Record your data in the table below, and plot all the months as dots in the chart on p. 2.

Location	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Englewood (40 ^{o} N)												

What patterns do you observe?

_____

_____

_____

_____

_____

_____

D. Select another location and use the USNO website to make a similar chart:

Location _____

Lat. _____ Long. _____

Day-length on the 20th of each month

Location	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Plot these values on the chart above, using a different symbol (such as box or circle).

How does the pattern at this location compare with that of Englewood?

_____

_____

_____

_____

_____

_____