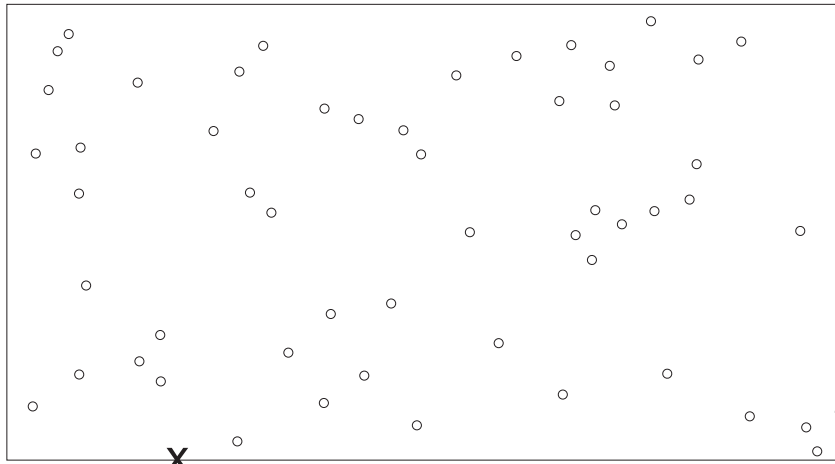


Lost Student Scenario K

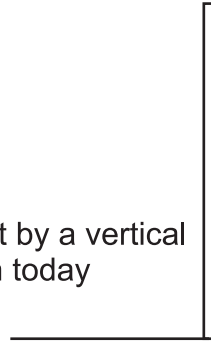
The scenario... You wake up alone on a small, unidentifiable island with no memory of how you got there, the current date, or even the season. You do have a pretty good idea of what the year might be. Using vines, sticks, and dirt, you generate the data on the back of this paper. The knowledge you gain from your contraptions provides useful information about your situation, and it allows you to plan an escape from the island. As it turns out, once you figure out the date, you realize that there will soon be a lunar eclipse. This knowledge allows you to impress the island natives by “making the moon go dark.” After your demonstration they are much more willing to give you the tools you need to build a raft and return home to Essex, VT.

1. What is your island’s latitude?
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90
2. What is your island’s longitude?
0-15W 15-30W 30-45W 45-60W 60-75W 75-90W 90-105W 105-120W 120-135W
135-150W 150-165W 165-180W
0-15E 15-30E 30-45E 45-60E 60-75E 75-90E 90-105E 105-120E 120-135E
135-150E 150-165E 165-180E
3. Which way will you need to travel in order to get to Essex the fastest? Eastward Westward
4. Which solstice is coming next? Summer Winter
5. What is the current angle of sunlight at noon?
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90
6. What is the approximate current tilt of the Earth’s axis (in degrees toward the sun, for the Northern Hemisphere)?
0 +5 +10 +15 +20 +25 -5 -10 -15 -20 -25
7. What is today’s date? Make a thin, dark mark at the correct date on the timeline below.
1/1 2/1 3/1 4/1 5/1 6/1 7/1 8/1 9/1 10/1 11/1 12/1 1/1
8. What is the current season?
Winter Spring Summer Fall
9. How many hours of daylight will you have today? Make a thin, dark line on the timeline.
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
10. At your latitude, will your current season be particularly wet, particularly dry, or neither?
Wet Dry Neither
11. Do you have prevailing winds that blow in the general direction of Essex?
Yes No
12. What is the present moon phase?
Full New Waxing (1st)Quarter Waning (3rd) Quarter
Waxing gibbous Waning Gibbous Waxing Crescent Waning Crescent
13. Approximately how many weeks will you have to wait until there is a spring tide?
0 ½ 1 1 ½ 2 2 ½ 3 3 ½ 4
14. By monitoring the tides over a period of several weeks, you’ve noticed that high and low tides are shifted **4 hours forward** by the friction of the rotating Earth. What is the approximate time of high tide, today?
4AM/PM 7AM/PM 10AM/PM 1AM/PM
15. You think there is a lunar eclipse some time during the next month. If you’re right, in how many weeks will the eclipse occur?
0 ½ 1 1 ½ 2 2 ½ 3 3 ½ 4

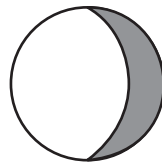
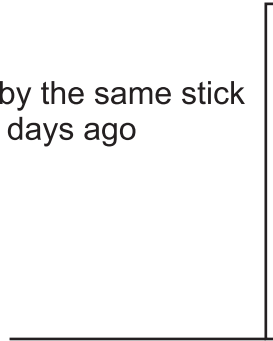


X
The night sky. The "x" represents the position of your eye ball.

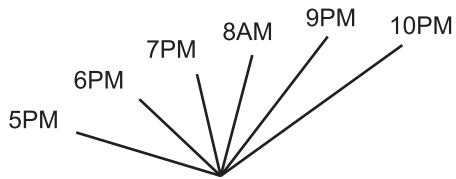
Shadow cast by a vertical stick at noon today



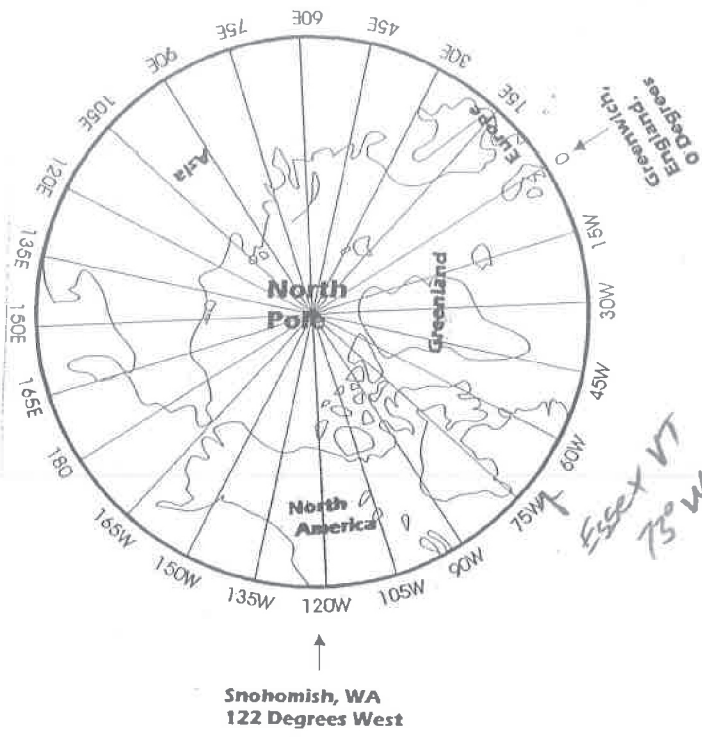
Shadow cast by the same stick at noon a few days ago



The Moon, Today



Shadows cast by a vertical stick
(Times in Essex are shown)



Time Versus Axial Tilt

