Investigating Tides and the Phases of the Moon

I. INTRODUCTION
It has been known for thousands of years that ocean tides are somehow linked to the phases of the moon. In this investigation you will explore the relationship between moon and tide.

II. MATERIALS
**graph paper
colored pencils
calculator (optional)
reference sources**

III. PROCEDURES
1. Prepare a data sheet with two columns of numbers. In the left hand column list THE DATE using each day listed on the attached tide calendar graph (courtesy of Tidelines, Inc). In the right hand column list the TOTAL TIDE RANGE for each date. HINT: the "total tide range" for each date is calculated by determining the number of feet (to the nearest tenth) between the HHW and LLW point.

2. Next, using a full sheet of your own graph paper, make a line graph of your tide range data. Plot time on the X-axis that total tide range in feet (to the nearest tenth) on the Y-axis.

3. Use colored pencils or highlighters to label the portions of your graph that correspond to:
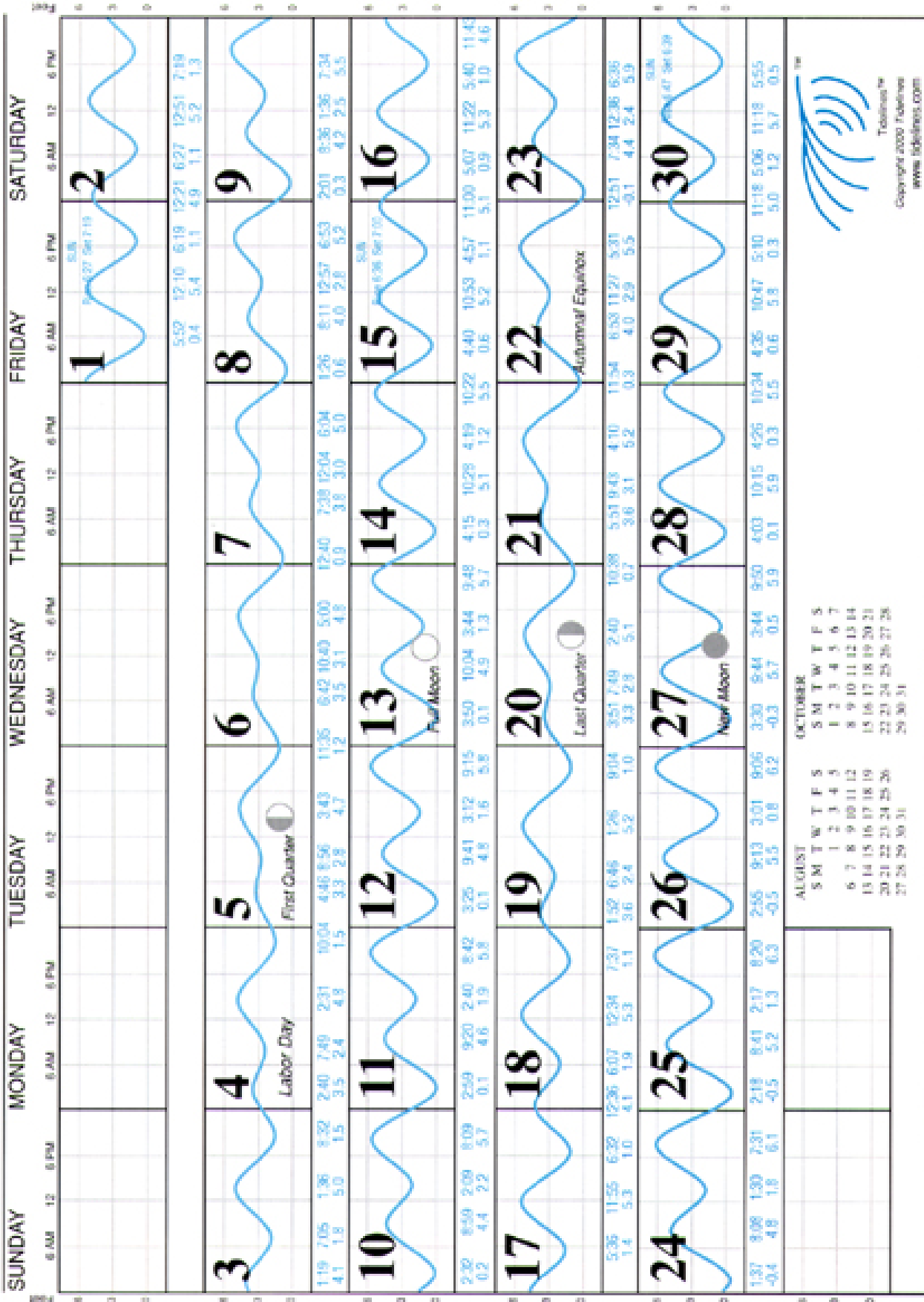   a) full moon   b) new moon c) first quarter moon   d) last quarter moon

V. ANALYSIS OF DATA
A. Use your textbook and/or outside reference books. Make a series of 4 simple diagrams which explain how and why each of the four moon phases appear to look like they do to us here on Earth.

B. After studying your graph of tide range data write a simple hypothesis which explains the relationship between tide range and phase of the moon.

C. From your analysis of moon phases (in question A) and their relationship to tide range (in question B), now put together another diagram which illustrates how and why the moon and its phases effect the range of ocean tides.

D. If you were living ten thousand years ago, perhaps as a member of a Chumash village, how might you be able to predict the best day of the month to collect shellfish from the low tide zone at the beach? Explain.

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UCLA OceanGLOBE

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SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
					1	2
3	4 *Labor Day*	5 *First Quarter*	6	7	8	9
10	11	12	13 *Full Moon*	14	15	16
17	18	19	20 *Last Quarter*	21	22 *Autumnal Equinox*	23
24	25	26	27 *New Moon*	28	29	30

AUGUST
S M T W T F S
 1 2 3 4 5
6 7 8 9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30 31

OCTOBER
S M T W T F S
1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29 30 31