

# Moon and Tides

Name \_\_\_\_\_

*Kallie visited Rhode Island for a beach vacation. Excited to be near the water for the very first time, she set her beach chair right at the water's edge. She was surprised when the lifeguard came over and said "You'd better move your stuff back. High tide is going to be wicked high today." "Why?" Kallie asked. "I dunno, I heard the moon does something" the lifeguard replied. Curious, Kallie looked for information about the moon and tides for Rhode Island to see if she could figure out why the tide was going to be extra high today. She found the following information:*

Day	High or Low Tide?	Tide Time	Height (ft)	Moon Phase
July 21	high	1:11 AM	2.5	quarter
	low	7:17 AM	0.4	
	high	1:19 PM	2.2	
	low	7:37 PM	0.2	
July 28	low	1:27 AM	-0.4	full
	high	8:03 AM	3.6	
	low	2:38 PM	-0.3	
	high	8:20PM	3.2	

- 1a. How many high tides occur every day?
- 1b. How many low tides occur every day?
- 1c. Which day shows the most extreme tides (higher high tides and lower low tides)?
- 1d. Which moon phase appears to be related to the highest high and the lowest low tide?

*Kallie decided to look for more days with extreme tides and days with full and new moons to see if she could find the link between them. This is what she found:*

Spring Tides	Neap Tides	Quarter Moons (Q)	New Moons (N)	Full Moons (F)
May 3 May 17 May 31 June 15 June 29 July 14 July 28 August 13 August 27 September 12 September 26 October 11 October 25	May 10 May 24 June 8 June 22 July 6 July 21 August 5 August 20 September 4 September 19 October 3 October 19	May 10 May 24 June 8 June 22 July 6 July 21 August 5 August 20 September 4 September 19 October 3 October 19	May 3 May 31 June 29 July 28 August 27 September 26 October 25	May 17 June 15 July 14 August 13 September 12 October 11

2. Use this information to add the following information to the next page's calendars:

- Write "F" in the boxes of full moon days.
- Write "N" in the boxes of new moon days.
- Write "Q" in the boxes of quarter moon (either first or last quarter) days.
- Put a red box around the calendar days when there are spring tides.
- Put a blue box around the calendar days when there are neap tides.

May						
				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

August						
					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						

June						
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					

September						
	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				

July						
		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						
			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	

**Analysis**

- How often do sets of **spring tides** occur? What **moon phases** do they appear to be associated with? Use evidence from your calendars to support your answer.
- How often do sets of **neap tides** occur? What **moon phases** do they appear to be associated with? Use evidence from your calendars to support your answer.
- Complete the CER grid to answer the question “*Are extreme tides related to moon phases?*”

My Claim	My Evidence	My Reasoning