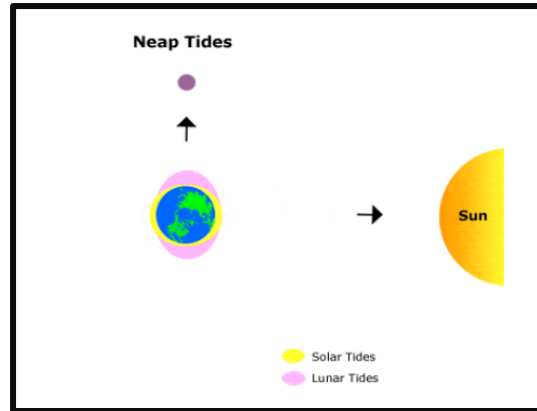
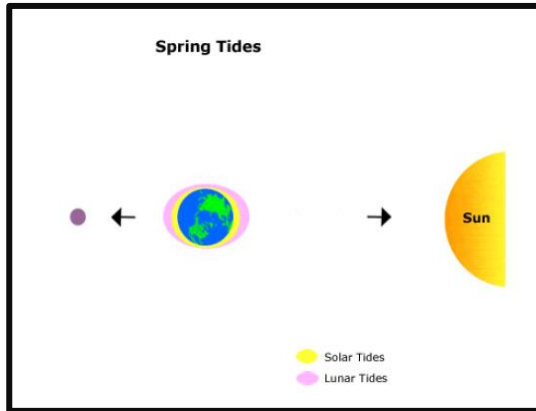


Charting the Tides Worksheet KEY

Name: _____

Section 1: Sketching Spring and Neap Tides

Draw the correct position of the Moon and Sun for a spring tide and a neap tide:



Section 3: Analyzing Tidal Data

1. Pick one day on the tidal chart and write down both high tides and both low tides that are predicted that day as well as the time they are to occur (include AM or PM).
For the following answers, the January 2018 Tidal Chart from Beaufort, NC was used.

Date: _____ *January 10, 2018* _____

High Tide

Low Tide

Time: 2:29 AM Height (ft): 2.9

Time: 8:56 AM Height (ft): 0.2

Time: 2:42 PM Height (ft): 2.5

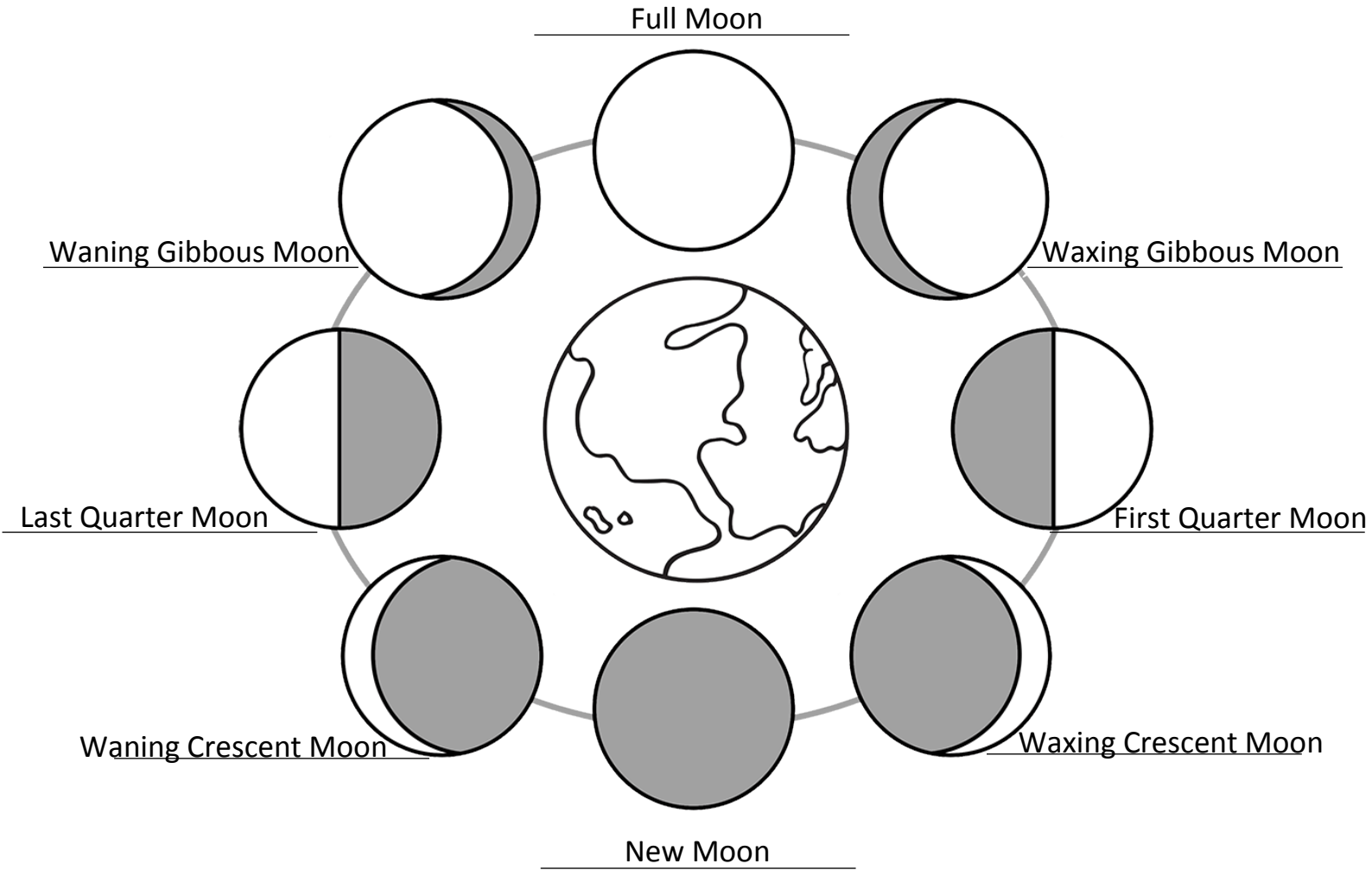
Time: 9:07 PM Height (ft): -0.1

Answers for this question will vary depending on what day the student chooses.

2. What is the highest predicted tide on the chart and what day does it occur?
4.1 feet on January 2, 2018
3. What is the lowest predicted tide on the chart and what day does it occur?
-0.9 feet on January 2, 2018
4. What is the tidal range predicted for the time period on the tidal chart? Hint: Subtract the lowest tide from the highest tide.
 $4.1 - (-0.9) = 5$ feet
- 5) What phase was the moon on the day you selected for question #1?
Last Quarter Moon - Answers for this question will vary depending on what day the student chooses.

Section 2: Phases of the Moon

Labels the different phases of the moon and shape the icing on your Mini Oreos to match the different phases.



SUN

Phases of the Moon:

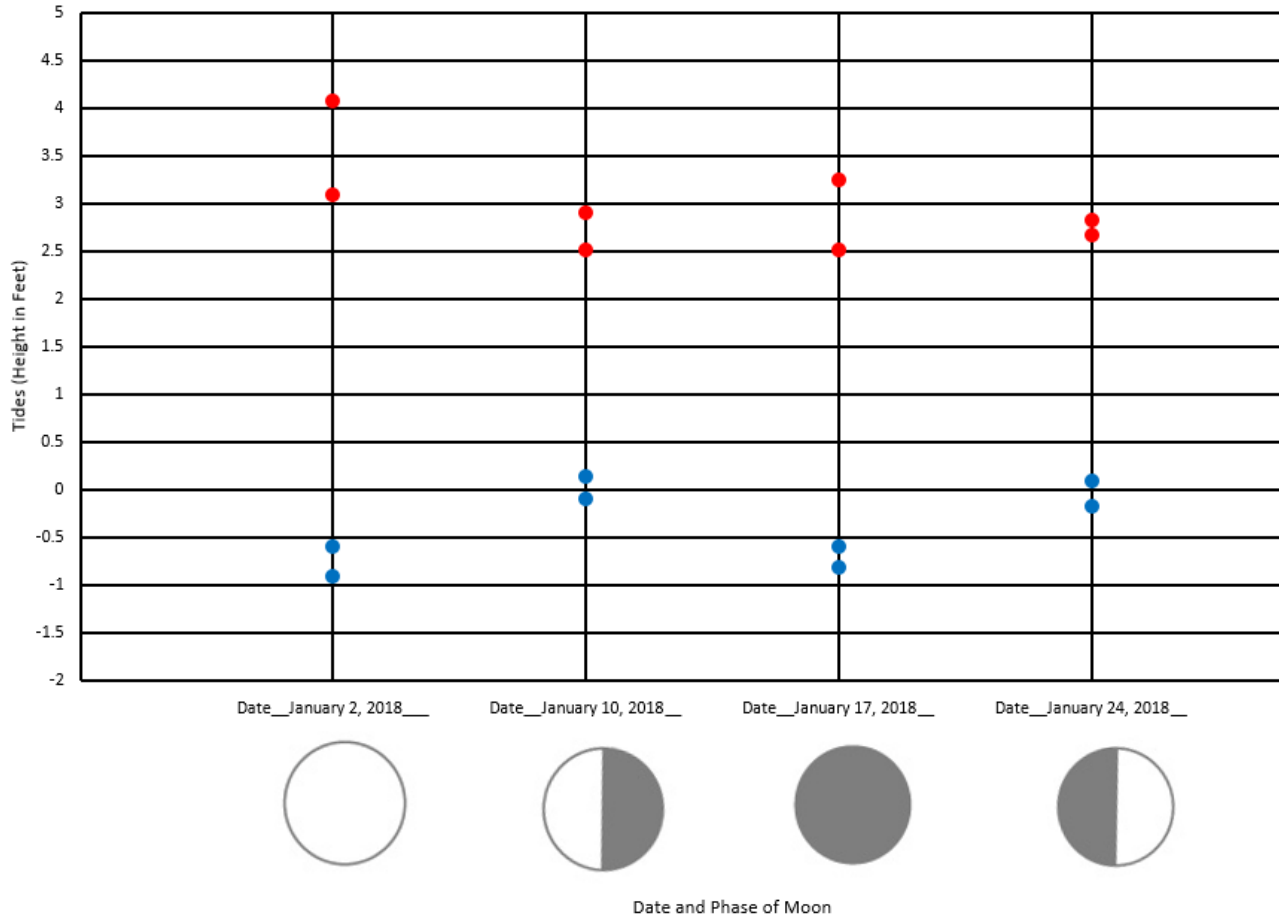
New Moon	Waning Gibbous Moon
Waxing Crescent Moon	Last Quarter Moon
First Quarter Moon	Waning Crescent Moon
Full Moon	Waxing Gibbous Moon

Section 4: Charting Tidal Data

Pick four days on the tidal chart: a day with a Full Moon, a day with a Last Quarter Moon, a day with New Moon and a day with a First Quarter Moon. In the graph below, plot both low tides and both high tides on each of the four days. Color in the moons with the correct phases for the dates you choose. You may want to color low tide dots in blue and high tide dots in red.

For the following answers, the January 2018 Tidal Chart from Beaufort, NC was used. Answers for this activity will vary depending on what days the student chooses.

Tides During Different Phases of the Moon



1) What day did the highest tide occur?

January 2, 2018

2) What day did the lowest tide occur?

January 2, 2018

3) Which phase of the moon produced the largest tidal range? Hint: Remember range is the difference between the highest and the lowest tides.

Full Moon

- 4) Explain why you are seeing differences in tidal ranges during different phases of the moon. Hint: Think about Spring Tides and Neap Tides!

During spring tides (New and Full Moons), there are larger tidal ranges because the Sun, Moon and Earth are all in alignment and the solar tide has an additive effect on the lunar tide. This creates higher high tides, and lower low tides. During neap tides (First and Last Quarter Moons), the Sun and Moon are at right angles to each other and the solar tide has an opposing effect on the lunar tide. This creates more moderate high and low tides.