

## High Tide, Low Tide

Go to [St. Simons Island Tide Table](#) to gather your data. Use your data to answer the following questions.

1. What is the time interval between two successive high tides?
2. How many high tides are there per day?
3. How many low tides are there per day?
4. Pick one high tide, and find the next low tide that day. How long did it take for the tide to go out?
5. Pick one low tide, and find the next high tide that day. How long did it take for the tide to come in?
  - a. Are the two times the same?
  - b. Which takes longer?
  - c. Why?
6. Graph the level of the high tides in feet for a month.

Complete this graph using a spreadsheet document. Use your mouse to select and copy the tidal data (high tide level in feet) for one month. Paste the data into the spreadsheet document. Make a graph of the level of the high tides. You may make a scatter plot, column plot or line plot. Plot the days of the month along the bottom of the chart (x axis), and the tide level along the vertical axis (y axis). What kind of patterns do these data reveal?

7. Tides are cyclical and closely follow the phases of the moon. During the new and full moons, the distance between the high and low tides increases, which means that high tides get higher and low tides get lower.
  - a. From your graph, pick the date that has the highest high tide.
  - b. What phase of the moon is associated with this high tide?
  - c. From your graph, pick the date at the second highest peak of high tide.
  - d. What phase of the moon is associated with this high tide?
  - e. From your graph, pick the date that has the lowest high tide.
  - f. What phase of the moon is associated with this high tide?
  - g. From your graph, pick the date that has the second-lowest trough on the curve for the lowest high tide.
  - h. What phase of the moon is associated with this high tide?
8. The alignment of the Sun, Moon and Earth affects how high the tides will be.
  - a. Sketch the alignment of the Sun, Moon and Earth at new moon.
  - b. Sketch the alignment of the Sun, Moon and Earth at full moon.
  - c. From your sketches, which lunar phase would you expect to be associated with the highest tides?
  - d. Is this what you observed with your data?
  - e. Sketch the alignment of the Sun, Moon and Earth at first quarter moon or last (third) quarter moon.
  - f. Explain why this alignment results in lower high tides than at full moon or new moon.

Adapted from <http://gpc.edu/~pgore/Earth&Space/GPS/tide-activity.html>