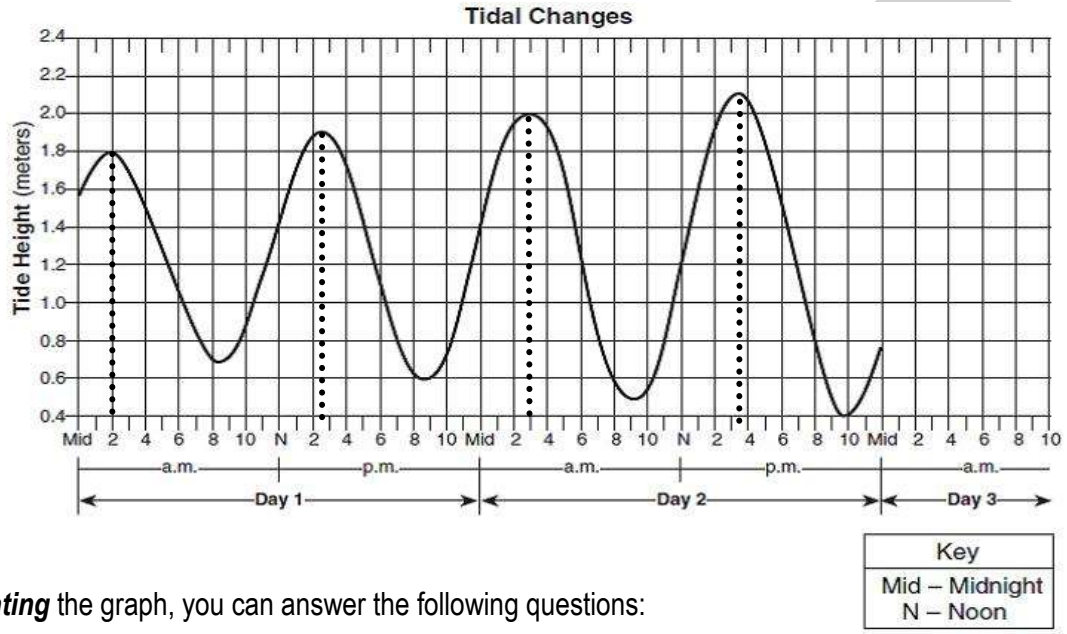
Interpreting and Analyzing Cyclic Change Graphs

Remember, cyclic changes are all about patterns: your job is usually to determine the pattern and then use it to help predict the upcoming maxima or minima. You will do two major tasks when analyzing a cyclic change graph:
First, you will have to ***interpolate*** – estimate a value within a given range of data.
Second, you will have to ***extrapolate*** – predict a value by projecting past the known data.

A good example to analyze would be the changes in the ocean water level because of high and low tides.



By ***interpolating*** the graph, you can answer the following questions:

1. How many high tides are illustrated? **4**

2. What are the times of the high tides? **2:00am, 2:30pm, 3:00am, 3:30pm**

3. What is the time interval between high tides? **12.5 hours**

4. How many low tides are illustrated? **4**

5. Approximately how much time exists between a high tide and the next low tide? **approximately 6hours and 15 minutes**
   It is difficult to tell exactly with this graph, so anything between 6 and 61/2 hours is a good answer

6. What is the approximate change in water height between the high tide and low tide the morning of day 2? 1.5 m
   high tide is 2.0 and low tide is 0.5 – subtract these numbers

By ***extrapolating*** the graph, you can answer the following questions about day 3:

7. At what time will the next high tide occur? **4:00am**
   The last high tide on the graph occurs at 3:30pm.
   Since there are 12.5 hours between high tides, add 12.5 hours onto 3:30pm.

8. What will be the approximate height of the next high tide? **2.2 m**
   every high tide looks like it is 0.1 m higher than the last