

Name: _____

Class Period: _____

Date: _____

INTRODUCTION TO TIDES

OBJECTIVE

The objective of this activity is to introduce students to basic terminology used in reference to tides.

PROCEDURE

1. Launch Internet Explorer or Netscape. Type in the following address: <http://co-ops.nos.noaa.gov/>. Add this page to your favorites. We will be coming back to the main page later in the exercise.
2. You have now entered the Center for Operational Oceanographic Products and Services (CO-OPS) Website. Click on the word "Predictions."
3. Click on "Click HERE for 2004 Tidal Predictions."
4. Click on the state of Texas. You will find a list of stations in Texas where tides are predicted. The sites are listed from the Louisiana border to the U.S./Mexico border.
5. Select the predictions for Galveston Pleasure Pier. You will find a page with Galveston Pleasure Pier tidal predictions for the entire year. All heights are in feet referenced to Mean Lower Low Water (MLLW) and are listed in Local Standard Time or Local Daylight Time (for Texans, this is Central Standard or Central Daylight Time). Below is an example of data from this site. The time of each tide is followed by the height of the tide (H=High Tide, L=Low Tide).

January

Date	Day	Time	Height	Time	Height	Time	Height
1/1/03	Wed	07:35AM LST	-1.5 L	04:27PM LST	2.1 H		
1/2/03	Thu	08:24AM LST	-1.5 L	05:16PM LST	2.0 H		
1/3/03	Fri	09:12AM LST	-1.5 L	06:01PM LST	2.0 H		
1/4/03	Sat	10:00AM LST	-1.4 L	06:41PM LST	1.8 H	11:16PM LST	1.4 L
1/5/03	Sun	01:41AM LST	1.5 H	10:45AM LST	-1.0 L	07:15PM LST	1.7 H
1/6/03	Mon	12:05AM LST	1.2 L	02:46AM LST	1.4 H	11:28AM LST	-0.8 L
1/7/03	Tue	01:12AM LST	1.0 L	04:06AM LST	1.2 H	12:08PM LST	-0.4 L
1/8/03	Wed	02:18AM LST	0.8 L	05:51AM LST	0.9 H	12:45PM LST	0.0 L

6. Look at the current month. Can you determine when neap and spring tides occur? What is the maximum and minimum tidal range?
7. Now find a lunar calendar. Did the dates you selected for neap and spring tides correspond with the appropriate phases of the moon?
8. Choose another month. Using Excel or graph paper plot high and low tides. Can you determine when neap and spring tides occur?
9. Let's look at actual water-level data compared with predicted values. Return to the main CO-OPS Webpage. Click on Tides OnLine.
10. On the left-hand side of the screen click on "State Maps" under "Select Stations By." Again select the state of Texas. Let's continue looking at Galveston Pleasure Pier. Place your cursor over the words Galveston Pleasure Pier, and click the left mouse button.
11. The red x's on the top graph represent actual water-level observations and the blue line represents predicted values. Write down the time of the latest water-level observation, the observed height, and the predicted height. There are other graphs with meteorological observations from this location. If observed and predicted values are not the same, what other factors do you think can affect the level of tides?

Critical Thinking Question

Thinking back to the previous learning experiences about tropical cyclones effects on beaches and waves, what effects do you think tide level at landfall of a tropical storm or hurricane has?