

ST TIDES

To see a colored and clearer version of the printed paper you have along with extra pics needed for #6 onwards, go to <http://www.emsb.qc.ca/laurenhill/science/tidesEasy.pdf>

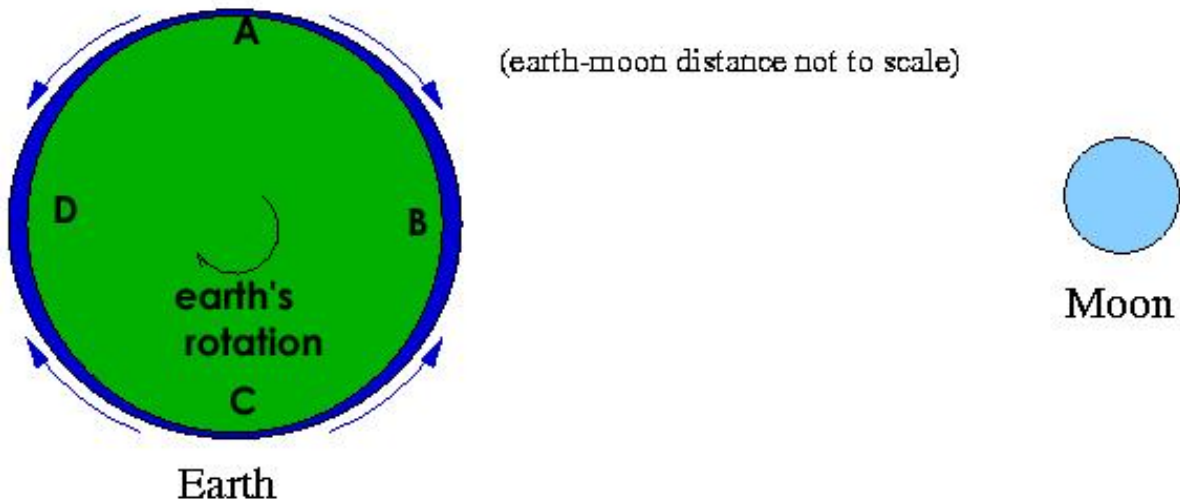
Read the following and answer the questions that follow.

Large masses have a strong pulling effect on nearby objects. It's the reason you don't fly off the earth and the reason you'll find something you drop on the floor.

The tug of war between the earth and especially the moon's gravity (and the sun to a smaller degree) cause tidal bulges to appear. That means ocean levels are not at the same level everywhere on earth, at a given time.

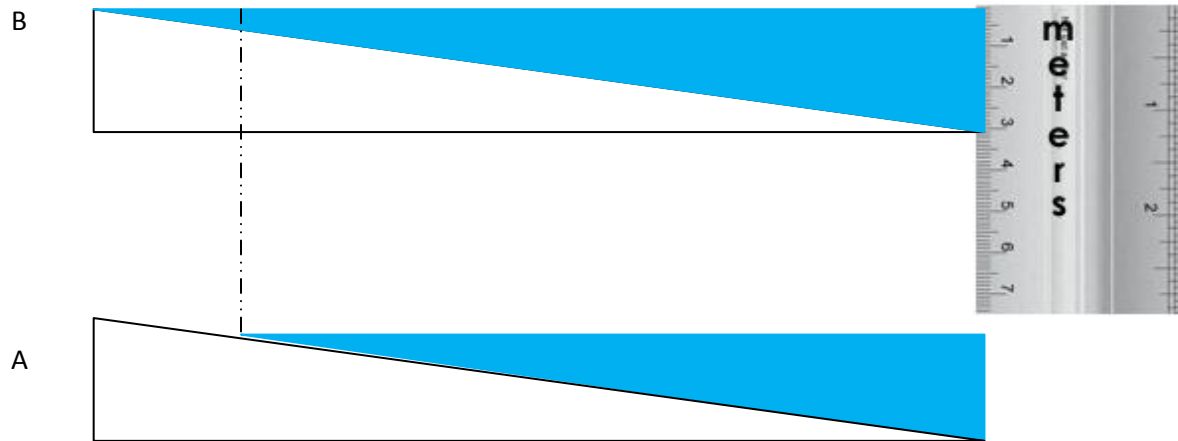
The open oceans on each side of the earth facing the moon are about 1 m higher than those at 90° from it.

1. People seeing water at higher positions witness **high tide**. What letters on the diagram show the location of high tide? _____ and _____

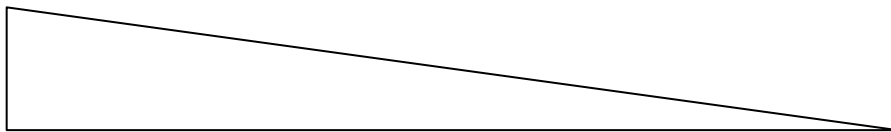


2. People seeing water at lower positions witness **low tide**. What letters on the diagram show the location of low tide? _____ and _____

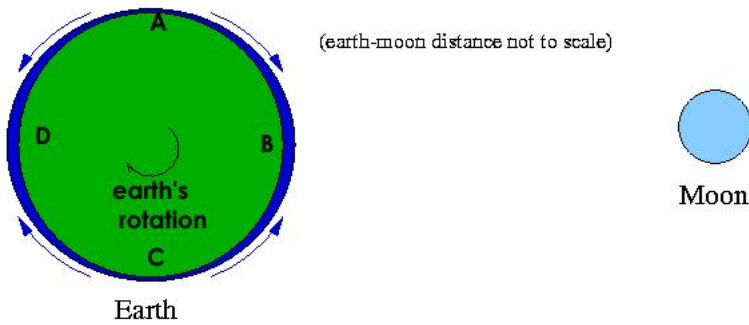
3. If the coastline (beach) where you're standing has a very shallow slope, the differences between low and high tide, will be very dramatic.



- a) Which diagram reveals the coastline at high tide? _____
- b) If you were standing on the beach at the position along the dotted line, how deep would the water be at high tide? _____
- c) Let's say that diagram A wasn't low tide just yet. Redraw the coastline with an even lower level of water.

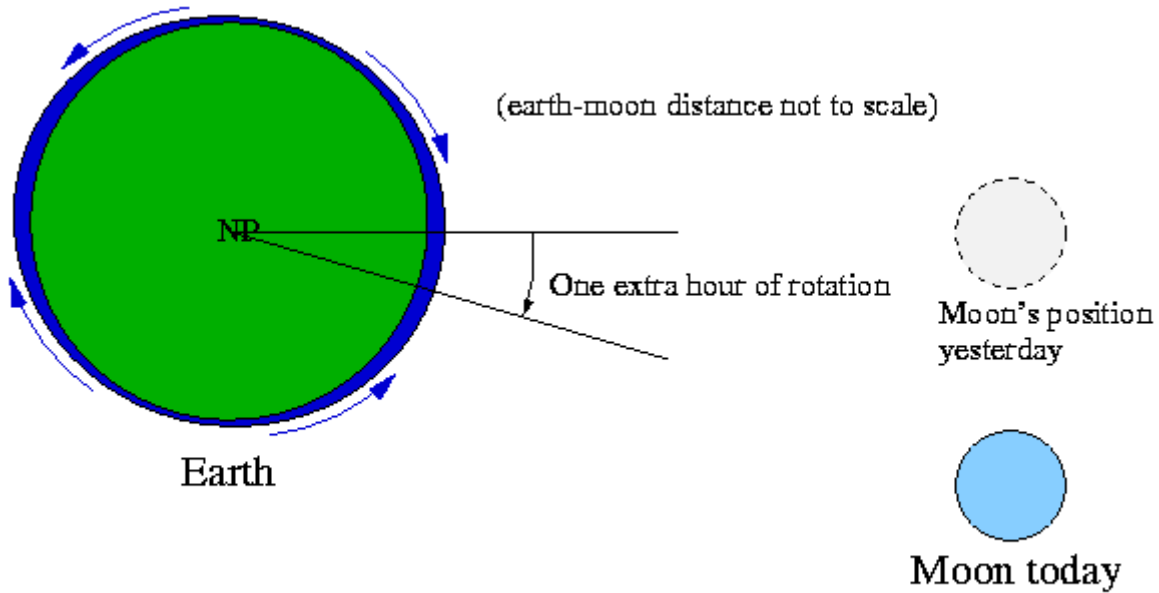


4. As the earth rotates, obviously, you and the water turn with it. But the water facing the moon keeps bulging at the opposite ends, so it's as if the bulges don't move with you.



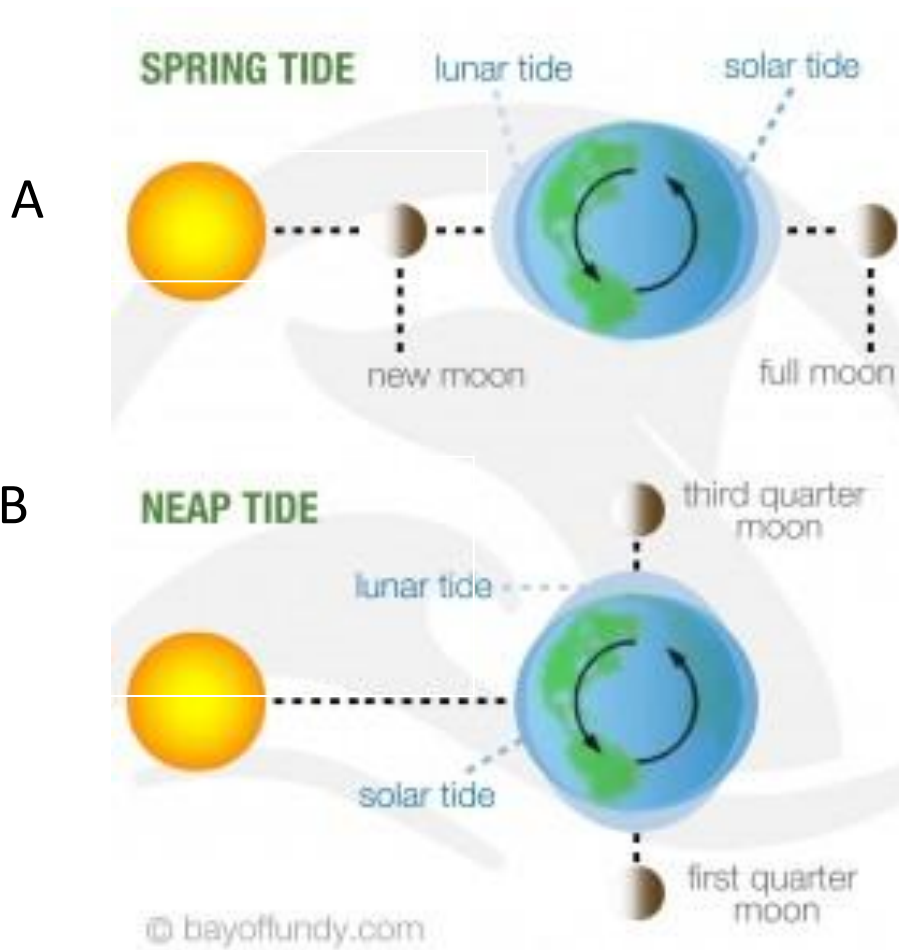
- a) You would expect to move from position A to B in about 6 hours. In other words if it was low tide at 12 PM, it might be high tide at 6 PM. Why 6 hours? Show calculation. _____

- b) In reality, you would probably have to wait not six hours but 6.25 hours. Study the diagram below and explain why. _____



5. The following diagram shows how the sun can make high tides higher and low tides even lower.

a) In which situation(A or B) do you think we experience the highest high tides?_____



6. A) Examine picture 1 from the computerized version of this file. Explain the difference between them. _____

B) If it's 10:15 AM right now and your boat is in the sand as shown on the left, at what time will the water look like the pic on the right? Show work. _____



7. Give the times of the low tides on Monday.
(see next page for bigger graph)

