Worksheet 2: Teacher Version for Lessons:
-When Tsunamis Strike
-Wave Detection

1. Will a tsunami always cause the water to recede first as it reaches shore? Why or why not?

_____
_____
_____

Answer: No, if the wave crest arrives first, the water will not recede, but instead it will rush in.

2. The term describing ho w far a tsunami reaches h orizontally inland is
_____. *Answer: inundation*

3. The term for how high on the shore a tsunami reaches is _____.
Answer: runup

4. List two reasons a coastal area is not yet safe once a tsunami wave has reached its maximum distance inland.

_____
_____
Possible answers: Retreating waves are full of debris. A tsunam i is often more than one wave.

5. Would a tsunami wave be good for surfing? Why or why not?

_____
_____
_____

Answer: No. Possible reasons: You will die. Tsunami waves typically are not steep and do not break a nd curl. The outgoing wave will be full of debris.

6. True or False. Feeling a strong earthquake near the coast is n ot enough to be concerned about a potential tsunami. Why or why not?

_____

Answer: Fa lse. A strong earthquake near a coast can trigger a local tsunami that could arrive within minutes.

7. What type of instruments help scientists measure changes in water heights, including tides, near a coast?

_____

Answer: sea-level gauges

8. In the open ocean, sea level is measured based on what physical quantity? Hint: this quantity is a measure of force divided by area. _____

Answer: pressure

9. As you dive down deeper into the ocean, how does the water pressure pushing on you change?

_____

Answer: It increases

10. Which of the following statements are true? (Please check the correct answers.)

_____ a. Tide changes occur over longer time periods than sea level changes associated with tsunamis.

_____ b. Tides and tsunamis have the same cause.

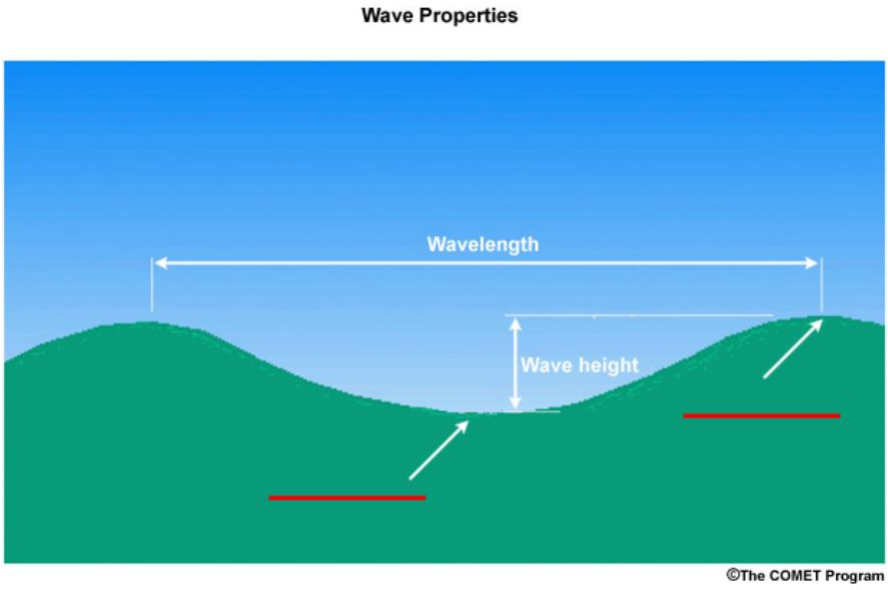
_____ c. Tsunamis are huge tidal waves.

_____ d. Tide changes occur over shorter time periods than sea level changes associated with tsunamis.

_____ e. Sea level gauges measure changes from both tides and tsunamis.

Answer: a and e are true.

11. Fill in the missing wav e component labels shown in this diagram.



Answers: leftmost label: trough, rightmost label: crest

12. Name two types of instruments that can measure wave heights in the deep ocean.

_____ _____

Answers: DART buoy/bottom pressure recorder, satellite/altimeter

13. What happens to the pressure recorded as a wave crest passes over a sensor on the ocean bottom?

_____

_____

Answer: it increases or goes up

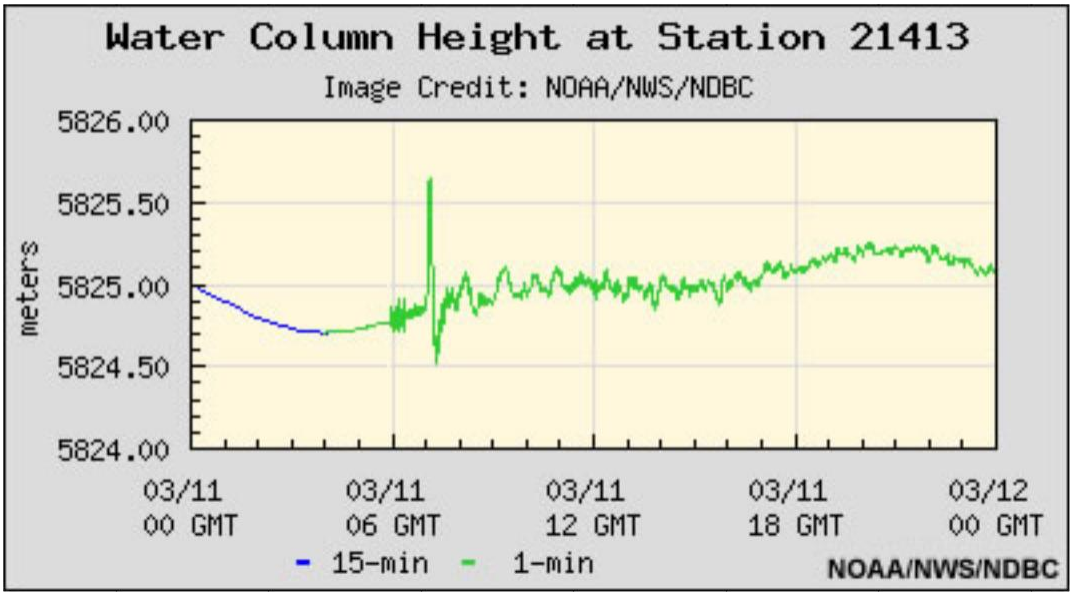
14. What happens to the pressure recorded as a wave trough passes over a sensor on the ocean bottom?

_____

_____

Answer: it decreases or goes down

15. What is the maximum wave height of the tsunami, as measured outside of the normal tide signal, at this buoy southwest of the coast of Japan? (Use the graph to estimate the w ave height, and select the correct answer below.)



___ a. 0.5 meters

___ b. 0.7 meters

___ c. 1.0 meter

___ d. 1.2 meters

Answer: d, 5825.70 - 5824.50 = 1.2 meters