

Worksheet 4: Teacher Version for Lessons:

*-Force of a Tsunami -Wave Propagation—Traveling Tsunami Style -A  
Tsunami's Reach*

1. Hydrostatic force and buoyancy force are both forces that are associated with \_\_\_\_\_.

*Answer: water, waves, or tsunami (air is also correct, but not talked about in this lesson)*

2. The power of a moving object as determined by its mass times its velocity is called \_\_\_\_\_.

*Answer: momentum*

3. If a bicycle and a delivery truck are traveling down the street at the same speed, which will have the larger momentum? Why? \_\_\_\_\_

*Answer: the delivery truck; it has more mass.*

4. Which has a higher density, water or air? \_\_\_\_\_

*Answer: water*

5. Based on what you have learned about momentum, do you think a tsunami wave 0.5-meters high would be able to knock you off your feet? Why or why not?

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*Answer: Yes, because it would have a large momentum (if you look at the numbers in the lesson for comparison, it would actually be similar to being hit by a speeding car).*

6. When water bounces off an obstacle, the process is referred to as \_\_\_\_\_.

*Answer: reflection*

7. When part of a wave passes into shallow water, what happens to that wave? (Select the best answer.)

- ☐ a. Nothing  
☐ b. It bounces off or reflects  
☐ c. It bends or refracts toward the shallower water  
☐ d. It breaks and curls, forming surf  
☐ e. It bends or refracts toward the deeper water

*Answer: c*

8. What accounts for the “funneling” of waves along mid-ocean ridges? (Select the best answer.)

- ☐ a. Reflection
- ☐ b. Refraction
- ☐ c. Buoyancy
- ☐ d. Hydrostatic

force Answer: b

9. Which wave will experience an increase in speed? (Select the best answer.)

- ☐ a. A shallow water wave encountering an ocean ridge
- ☐ b. A shallow water wave traveling from an area near the coast into deeper water
- ☐ c. Neither of these waves will experience changes in their speeds

Answer: b

10. What are tsunamis called when they travel to coasts more than 1000 kilometers from their earthquake source? \_\_\_\_\_

Answer: teletsunamis

11. Which properties of a tsunami are scientists able to model with computer simulations? (Choose all that apply)

- ☐ a. wave heights
- ☐ b. earthquake magnitude
- ☐ c. arrival locations
- ☐ d. wave reflection and refraction
- ☐ e. wave travel time

Answers: a, c, d, and e.

12. What three kinds of information does a wave model need before scientists can use it to predict how a tsunami travels?

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Answer: seafloor terrain or bathymetry, earthquake size or magnitude, earthquake location