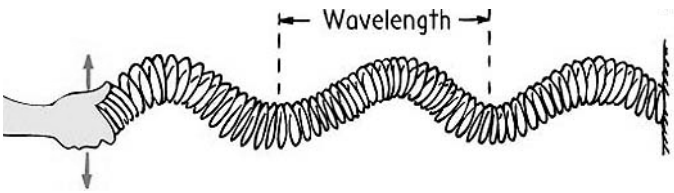
Name: Date: Pd:

Unit 2: Earthquakes

Wave Basics

The diagram below shows wave being created with a slinky. The hand generating this wave moves the slinky up and down.



1. On the diagram above, identify and label the following points:
   a. Crest
   b. Trough
   c. Amplitude

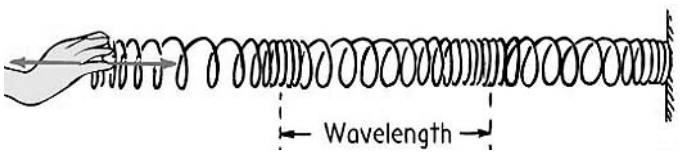
2. A wavelength, λ, is already labeled for you. In your own words, explain what this measurement is.

3. How is this wave created?

4. Which direction does the wave move?

5. This type of wave is called a _____ wave.

The wave below is generated by squeezing a few coils of the slinky together and the letting them go.

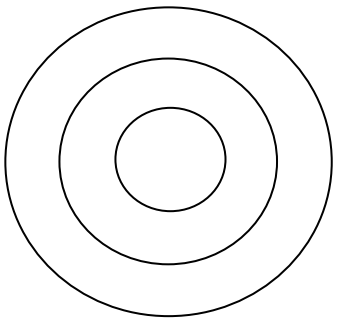


6. Directly on the diagram above, identify and label the following parts of a wave:
   a. Compression
   b. Rarefaction

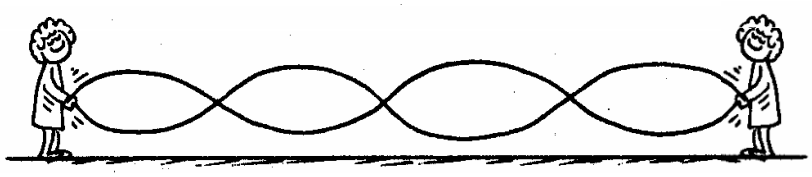
7. This type of wave is called a _____ wave.

Think and Explain:

8. What types of waves are ripples in a pond? Explain.
   On the diagram to the right, label one wavelength, λ.



9. Two students are each holding an end of a slinky spring and are standing 4.0 m apart. It takes 0.50 seconds for a transverse pulse to travel from the student generating the pulse to the student at the opposite end of the spring.



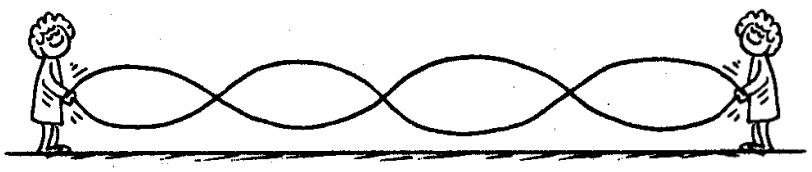
a. How long will it take for the reflected pulse to return to the first student?

b. When a second pulse of twice the original amplitude is sent, will the pulse take more time, less time, or the same time to reach the far end of the spring? Describe your observations.

c. Does it take more or less energy to create a wave with a larger amplitude?

d. The students remain the same distance apart but increase the tension of the spring. Compare the speed of a pulse on the more *stretched* spring to the original speed. Describe your observations.

e. The students move back to their original separation of 5.0 m. The generator produces a *longitudinal* pulse in the spring. How does the speed of this pulse compare to that of the transverse pulse?



10. Draw a wave that has *twice* the wavelength in the space provided.

11. Draw a wave that has *twice* the amplitude in the space provided.