

HOLT PHYSICS

MODULE 12

Frequency and Wavelength

Fill each blank below with the word or phrase that completes the statement.

1. Light behaves as a _____ wave.
2. Any isolated segment of a transverse wave oscillates in a direction that is _____ to the _____ of the wave.
3. The movement of an isolated segment of a transverse wave is a form of _____.
4. In the stapler example, simple harmonic motion is due to the _____.
5. In a _____ wave, the motion of isolated segments of the wave is parallel to the wave's motion.
6. _____ are an example of a longitudinal wave.
7. Sound waves are created when _____.
8. Differentiate between a crest and a trough of a wave.

9. A _____ is formed when the medium through which the wave moves becomes densely packed.
10. Compressions and _____ alternate in _____ waves.

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11. Wavelength in a longitudinal wave equals the distance between two _____ or two _____.

12. The distance between two successive troughs describes the _____ for a _____ wave.

13. Wavelength, measured in _____, is a length measurement, while the _____ of a wave is a time measurement.

14. Describe the relationship between period and frequency.

15. What equation would one use to find the speed of a wave if its period is known? _____

16. As the frequency of a sound decreases, an observer will hear its _____ decreasing.

17. Classify each of the following waves as transverse or longitudinal.

- a. wave generated by a drop of water falling on the surface of a quiet pond
- b. a shock wave from a sonic boom

18. A tuning fork produces a sound with a frequency of 256 Hz. What is the period of the sound wave?

19. Suppose a trough of a water wave is separated from the successive crest by 2.5 m. If 33 crests pass a single point in 30.0 s, find the speed of the wave.