# WAVES & SOUND STUDY GUIDE

Name _____

Period _____

Chapter 18: Waves

1. Explain what a wave is in terms of energy.

2. Identify a few examples of wave phenomena.

3. Draw and differentiate between transverse and longitudinal waves.

4. Label and distinguish among these different parts of a wave: amplitude, crest, trough, and wavelength. What is the frequency if the time in the drawing represents 1 second? What is the time period?

Wave

λ = *wavelength*
y = *amplitude*
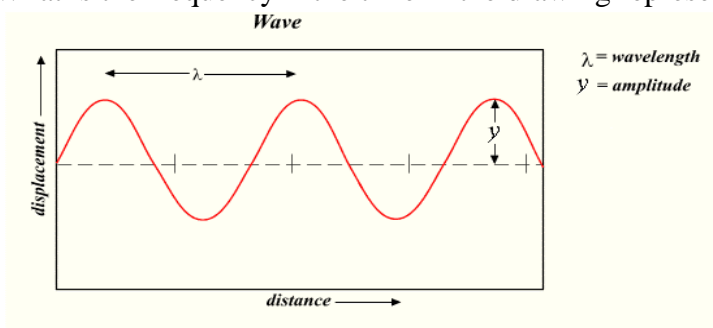
5. What is the time period of a pendulum that takes two seconds to make a complete back-and-forth vibration? What is its frequency?

6. A swinging pendulum has a .15 m length. Calculate its frequency.

7. As the frequency of sound is increased, does the wavelength increase or decrease?

8.   What is wave interference? Distinguish between constructive or destructive interference?
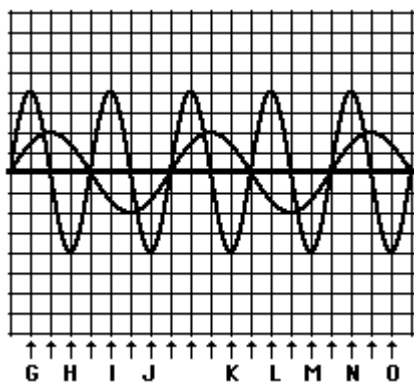
9. Several postions along the medium are labeled with a letter. Categorize each labeled position along the medium as being a postion where either constructive or destructive interference occurs.

G –   H -

I -   J -

K -   L -

N -   O -

10. Describe the Doppler Effect for sound.

11. An ambulance siren is moving towards you at 52 m/s. The siren emits a sound frequency of 480 Hz. What is happening to the perceived frequency as the ambulance moves toward you?

12. How is a sonic boom created?

Chapter 19: Sound

1. Explain how sound waves are produced and transmitted.

2. Describe factors that affect the speed of sound. e.g. phase, temperature, given medium.

3. Calculate the speed of sound in air at 25 ℃.

4. What time is required for sound to travel 5000 m if the temperature of the air is 10 ℃?

5. What determines loudness of a sound waved?

6. Explain how frequency and pitch are related.

7. Identify the frequency range of audible sound.

8. Differentiate between infrasonic and ultrasonic sound waves and give practical applications.

9. Explain the phenomenon of resonance as it relates to sound waves. Give an example.