**Waves Unit Test – Extra Review (answers are at the bottom)**

1. Be prepared to label a longitudinal wave with compression, rarefaction and wavelength.
2. Be prepared to label a transverse wave with crest, trough, amplitude and wavelength.

**Fill in the blanks:**

1. As the length of a vibrating string decreases, the pitch of the sound produced \_\_\_\_\_\_\_\_\_\_\_\_\_. As the length of a vibrating string increases, the pitch of the sound produced \_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Pitch can be adjusted by changing the \_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_.
3. In stormy weather waves toss boats several meters high this is because of the \_\_\_\_\_\_\_\_\_ of the wave.
4. Noise pollution that can result in pain or hearing loss is about \_\_\_\_\_ decibels.
5. Sound travels fastest through \_\_\_\_\_\_\_\_\_\_\_, slowest through \_\_\_\_\_\_\_\_\_ and not at all through \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_.
6. With the Doppler Effect, as a sound travels towards you the pitch will \_\_\_\_\_\_\_\_\_\_\_ and when it travels away from you the pitch will \_\_\_\_\_\_\_\_\_\_\_\_\_.

**Match the following terms with their units of measurement**

1. Frequency a. m
2. Wave Speed b. m/s
3. Wavelength c. Hz

**Use the following calculation to solve: Wave Speed = Wavelength x frequency**

1. If a wave has a frequency of 100 Hz and a wavelength of 5 meters, what is its speed?
2. A sound wave travelling in water at 1500 m/s has a wavelength of 0.5 m. Determine the frequency of the wave.
3. A sound wave is moving through air. The wave has a wavelength of 2m and a frequency of 512 Hz, what is the speed of the wave?
4. What part of the human body produces your voice?
5. Are there sounds humans cannot hear?

**Match the following**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The bouncing back of a wave after it hits a barrier
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Sound travels as this type of wave

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ As sound waves travel through the air they make molecules….
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Interference of a wave with another wave can cause

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ When a wave changes direction as it passes through a new medium

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The vibration of something caused by a wave of a matching frequency

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The effect of pitch getting lower as a sound source travels away

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ If you want to reduce an echo in a room, used use material that

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The use of bouncing sound waves to locate prey

Reflection Refraction Absorb Doppler Effect Vibrate

Echolocation Resonance Longitudinal Constructive Interference



1. Which of the above waves has the highest frequency? Which has the lowest?
2. If these waves show frequency in one second, match the following frequencies with the waves above (they are approximate).
3. 10 Hz
4. 6 Hz
5. 3 Hz

**Waves Unit Test – Extra Review (answers)**

1. Be prepared to label a longitudinal wave with compression, rarefaction and wavelength.
2. Be prepared to label a transverse wave with crest, trough, amplitude and wavelength.

**Fill in the blanks:**

1. As the length of a vibrating string decreases, the pitch of the sound produced \_increases\_\_\_\_\_. As the length of a vibrating string increases, the pitch of the sound produced \_decreases\_\_\_\_\_.
2. Pitch can be adjusted by changing the \_tightness\_\_\_\_, \_length\_\_\_\_\_\_\_, and \_thickness\_\_\_\_\_\_.
3. In stormy weather waves toss boats several meters high this is because of the \_amplitude\_\_\_\_ of the wave.
4. Noise pollution that can result in pain or hearing loss is about \_\_120\_\_\_ decibels.
5. Sound travels fastest through \_solids\_\_\_\_\_, slowest through \_gas\_\_\_ and not at all through \_\_empty\_\_\_ \_space\_\_\_\_\_\_\_\_\_\_.
6. With the Doppler Effect, as a sound travels towards you the pitch will \_increase\_\_\_ and when it travels away from you the pitch will \_\_decrease\_\_\_\_\_\_\_.

**Match the following terms with their units of measurement**

1. Frequency (Hz) a. m
2. Wave Speed (m/s) b. m/s
3. Wavelength (m) c. Hz

**Use the following calculation to solve: Wave Speed = Wavelength x frequency**

1. If a wave has a frequency of 100 Hz and a wavelength of 5 meters, what is its speed?

100 Hz x 5 m = 500 m/s

1. A sound wave travelling in water at 1500 m/s has a wavelength of 0.5 m. Determine the frequency of the wave.

1500 m/s / 0.5 m = 3,000 Hz

1. A sound wave is moving through air. The wave has a wavelength of 2m and a frequency of 512 Hz, what is the speed of the wave?

2 m x 512 Hz = 1,024 m/s

1. What part of the human body produces your voice? Vocal Chords
2. Are there sounds humans cannot hear? Yes, we can only hear around 0-160 dbs, there are sounds higher and lower we can’t hear

**Match the following**

\_Reflection\_\_\_\_\_\_\_\_\_\_\_ The bouncing back of a wave after it hits a barrier
\_Longitudinal\_\_\_\_\_\_\_\_\_ Sound travels as this type of wave

\_Vibrate\_\_\_\_\_\_\_\_\_\_\_\_\_ As sound waves travel through the air they make molecules….
\_Constructive Interference\_\_ Interference of a wave with another wave can cause

\_Refraction\_\_\_\_\_\_\_\_\_\_\_ When a wave changes direction as it passes through a new medium

\_Resonance \_\_\_\_\_\_\_\_\_\_ The vibration of something caused by a wave of a matching frequency

\_Doppler Effect\_\_\_\_\_\_\_\_ The effect of pitch getting lower as a sound source travels away

\_Absorb\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ If you want to reduce an echo in a room, used use material that

\_Echolocation\_\_\_\_\_\_\_\_\_\_ The use of bouncing sound waves to locate prey

Reflection Refraction Absorb Doppler Effect Vibrate

Echolocation Resonance Longitudinal Constructive Interference



1. Which of the above waves has the highest frequency? Which has the lowest?
Wave C has the highest frequency, wave A has the lowest
2. If these waves show frequency in one second, match the following frequencies with the waves above (they are approximate).
3. 10 Hz - This is wave C
4. 6 Hz – This is wave B
5. 3 Hz – This is wave A