**LS 4.4 Reading Guide** (Sound Waves) Item # \_\_\_\_\_\_\_\_\_\_\_

1. How does sound travel from one place to another? (What type of wave?)
2. Explain how longitudinal waves move.
3. What types of mediums can sound travel through?
4. When a wave moves through a \_\_\_\_\_\_\_\_\_\_\_\_\_\_, it does \_\_\_\_\_\_\_\_\_ carry the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the medium with it.
5. Explain how sound waves start and how they travel.
6. What is the speed of sound at room temperature?
7. Explain why there are different speeds of sound?
8. Explain how sound travels through all the states of matter. USE YOUR OWN WORDS!
   1. Solid
   2. Liquids
   3. Gas
9. Explain why sound would travel through HOT materials FASTER than colder materials?

**Relating Characteristics of Sound to Wave Characteristics**

1. Describe pitch.
2. How is pitch (a sound characteristic) related to a sound wave’s characteristic?
3. What is the frequency of a high pitch? Of a low pitch?
4. The human ear can sound frequencies from \_\_\_\_\_\_\_\_\_ Hz (hertz) up to about \_\_\_\_\_\_\_\_\_\_\_ Hz.
5. The following animals can hear higher or lower than an average human?

Bat Dolphin Dog Elephant

1. Does the frequency of the wave affect the speed of a sound wave? Why or why not?
2. The \_\_\_\_\_\_\_\_\_\_\_\_ the wavelength, the \_\_\_\_\_\_\_\_\_\_\_\_ the frequency (high pitch) and compressions pass be each second so the distance between each compression is \_\_\_\_\_\_\_\_\_\_\_\_\_.
3. The \_\_\_\_\_\_\_\_\_\_ the wavelength, the \_\_\_\_\_\_\_\_\_\_\_\_\_ frequency (low pitch).
4. Which of the two longitudinal waves (page 173) has a higher frequency? How do you know?
5. Sound energy and sound intensity depends on how \_\_\_\_\_\_\_\_\_\_\_\_ the source is. (Remember decibel scale)
6. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the sound, the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the energy.
7. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the wave was related to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the rope. The same is true for sound. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the \_\_\_\_\_\_\_\_\_ wave, the greater the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ carried by the wave.

Why do you hear echoes?

Answer the Stop and Think Questions (#1-4) below or on the back.