**Waves and Sound Unit Study Guide**

**A proficient student can compare the properties of waves.**

1. What is a wave?
2. How does a wave begin?
3. What are transverse waves? Give some examples.
4. What are longitudinal waves? Give some examples
5. What is the main difference between a transverse wave and longitudinal (or compressional) wave?
6. What are wave crests?
7. What are wave troughs?
8. What is amplitude? How do we measure it? What sound property is affected by amplitude?
9. What is wavelength? How do we measure it?
10. What is frequency? How do we measure it? What sound property is affected by frequency?
11. What is energy?
12. What is a medium?
13. What is a compression?
14. What is a rarefaction?
15. What causes seismic waves?
16. Describe the differences between a P-wave, an S-wave and a Surface wave.
17. What are the 2 classes of waves?
18. What are mechanical waves? Give some examples
19. What are electromagnetic waves? Give some examples
20. What is the major difference between mechanical and electromagnetic waves?
21. What is wave reflection?
22. How are frequency and wavelength related?

**A proficient student can explain the relationship among the rate of vibration, the medium through which vibrations travel, and sound waves.**

1. What is sound?
2. What type of wave is a sound wave?
3. What does the speed of sound depend on?
4. How did Chuck Yeager’s team break the sound barrier?
5. Explain the Doppler Effect.
6. What is echolocation?
7. What units is the amplitude of sound measured in?
8. What units is the frequency of sound measured in?
9. How do sound waves start?
10. How are pitch and frequency related?
11. How are amplitude and volume related?
12. How does the temperature of the medium affect the speed of a sound wave?
13. How does the state of matter affect the speed of a sound wave?
14. What is diffraction?
15. What is another name for a reflected sound wave?
16. Why is it important to protect your ears in loud environments?
17. Describe how we hear, being sure to mention: pinna, auditory canal, hammer, anvil, stirrup, eardrum, cochlea, semicircular canal, Eustachian tube and auditory nerve.