Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Pd: \_\_\_ Ast: \_\_\_\_\_

**Physical Science Hon.: Wave Energy Study Guide**

***On a sheet of notebook paper, respond to the following prompts:***

1. What is the difference between a transverse wave and a longitudinal wave?
2. Draw a transverse wave and label the crest, trough, wavelength, amplitude, and origin.
3. Compare a sound wave and a light wave. How are they similar/different?
4. For a sound wave, what would be the result of changing the wavelength (or the frequency)? What would be the result of changing the amplitude?
5. What is reflection?
6. Explain the Law of Reflection.
7. Give an example from the demonstrations where you observed reflection (*you may draw a diagram if you wish*).
8. What is refraction?
9. What causes refraction?
10. Give an example from the demonstrations where you observed refraction (*you may draw a diagram if you wish*).
11. A prism bends white light into a rainbow. What scientific principle is responsible for bending the light? Why is the white light separated into colors as it bends?
12. Explain the term, “white light”.
13. What causes us to see color?
14. Describe what wave frequency means.
15. It takes 15 seconds for 60 waves to pass a given point. What is the frequency of the wave?
16. How can you calculate the speed of a wave?
17. 10 waves pass by in a time of 0.5 seconds. If the wavelength is 2 meters, how fast is the wave travelling?
18. What is special about the speed of light in a vacuum?
19. Explain how our perception of sound and light depends on the motion of the source or observer even though the sound/light waves are moving at a constant speed. What is this concept called?
20. Give an example of the Doppler effect affecting your perception of sound. Explain how the Doppler effect is used by astronomers to understand more about our universe.