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

**M/J Physical Science Adv.**

**Wave Energy Study Guide**

***Respond to the following prompts on your own sheet of notebook paper.***

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. What causes us to see color?
12. Explain the term, “white light”.
13. 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?
14. You are visiting an aquarium and looking at fish swim along the glass in a large tank. You notice that as you watch the fish swim to the far side of the tank, their image becomes distorted by the glass. Explain what is happening to cause the distorted images of the fish.
15. Describe an electromagnetic wave.
16. Draw an example of what an electromagnetic wave looks like.
17. Compare the seven types of electromagnetic waves based on wavelength.
18. Which type of electromagnetic wave has the most energy?
19. Which type of electromagnetic wave has the least energy?
20. Which type of electromagnetic wave is most associated with “heat” radiation?
21. Which type of electromagnetic wave is used for weather radar?
22. What type of electromagnetic wave is visible to bees and allows certain flowering plants an evolutionary advantage because of their ability to reflect this type of light?
23. Which type of electromagnetic wave is associated with nuclear decay (radioactivity)?
24. Which type of electromagnetic wave has a wavelength longer than a football field?
25. Which type of electromagnetic wave allows us to “see through” substances based on their density?
26. How much of the electromagnetic spectrum is actually visible to humans?
27. Where is visible light located within the electromagnetic spectrum?