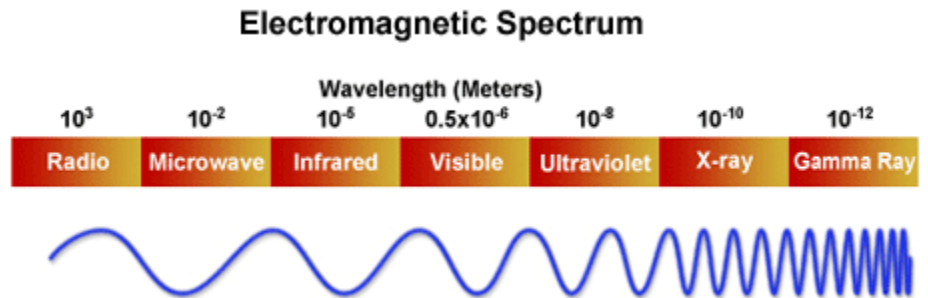


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1. Describe the differences between mechanical waves and electromagnetic waves? (S8P4a)
2. What feature best distinguishes one form of electromagnetic energy from another? (S8P4a)

3. Using the Electromagnetic Spectrum diagram to the right, which electromagnetic wave transfers the most energy? (S8P4a)



4. Define the following:

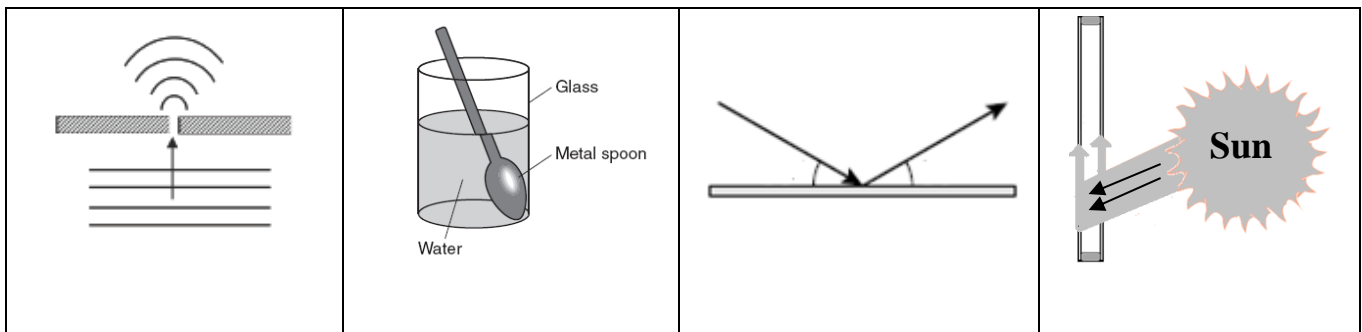
Reflection:

Refraction:

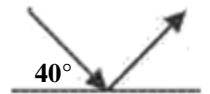
Diffraction:

Absorption:

5. Identify the following images as Reflection, Refraction, Diffraction, or Absorption.



6. If the light ray hits a mirror at a 40° angle, what angle will the ray of light be reflected? Why? (S8P4b)



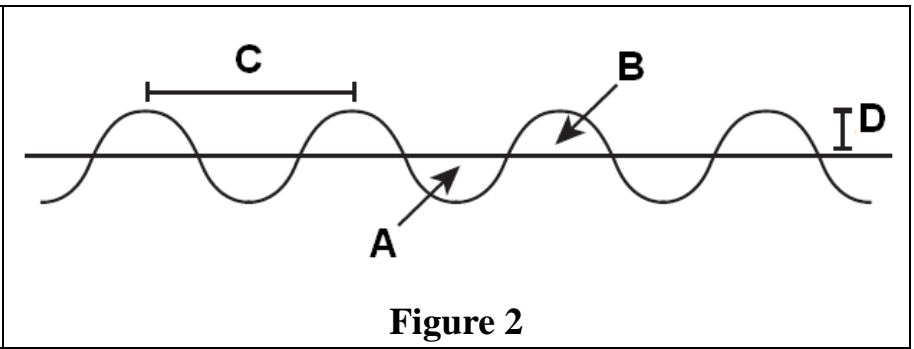
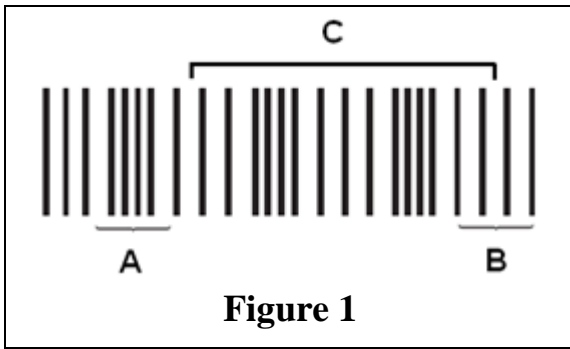
7. Sound waves cannot carry energy through _____.

8. Vibrating matter is likely to create _____.

9. How do dark colored objects compare to light colored objects?

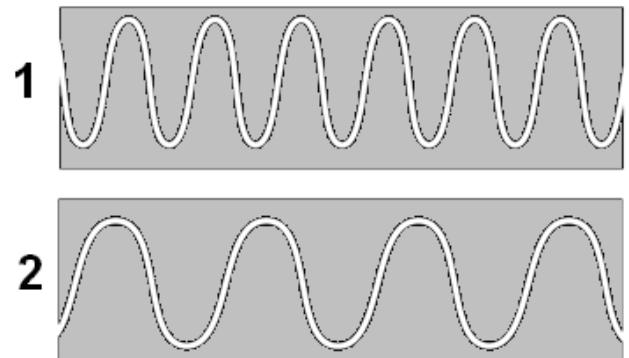
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Use Figure 1 and Figure 2 above to answer questions

10. Which wave(s) is a transverse wave?
11. Which wave(s) is a compressional wave?
12. Which wave(s) is an electromagnetic wave?
13. Which wave(s) could use a medium to transfer energy?
14. Which letter in Figure 1 and Figure 2 identifies the wavelength of a wave?
15. In Figure 2, what do letters A and B measure?
16. If Figure 2 was a sound wave, which letter would change when the pitch of the sound changes?
17. Which property of a wave is related to the loudness of a sound?
18. High Energy = _____ (low, high) Amplitude
19. High Energy = _____ (low, high) Frequency
20. High Energy = _____ (short, long) wavelength
21. Which wave to the right has the highest pitch?
22. Which wave to the right has the highest frequency?
23. Explain how objects appear to have color.
24. Pick any object in the room. Explain the pathway of light that allows you to see the object.



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25. Explain why you can see lightning before you hear thunder.
26. Sort the following according to how fast sound will travel through the medium: liquid, solid, gas. Give examples of each type of medium
27. Based on your answer to question 26, explain why sound travels fastest through the particular medium.
28. When an object is struck and sound is produced, explain the direction of the sound wave.
29. Sonar uses sound waves to measure the distance between objects underwater. What behavior of sound waves explains how sonar is used?
30. Describe the characteristics of white light.

31. Blowing through a straw will produce a sound. Which straw to the right will make the highest pitch? Explain.



Figure 1

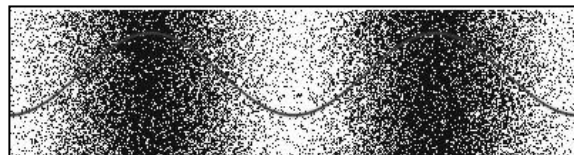


Figure 2

32. Which figure above is the loudest? Explain.
33. Which figure above has the highest pitch? Explain.
34. Which figure above is carrying the most energy? Explain.
35. Which figure above has the highest frequency? Explain.

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Each picture below shows a ray of light interacting with a different surface. One surface is a shiny metal, one surface is clear plastic, and one surface is painted black.

Ray of Light



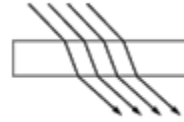
Surface A

Ray of Light



Surface B

Ray of Light



Surface C

36. Identify which Rays of Light illustrate Refraction, Reflection and Absorption.

37. Identify the surfaces as shiny metal, clear plastic, or painted black. Explain your answer for each.