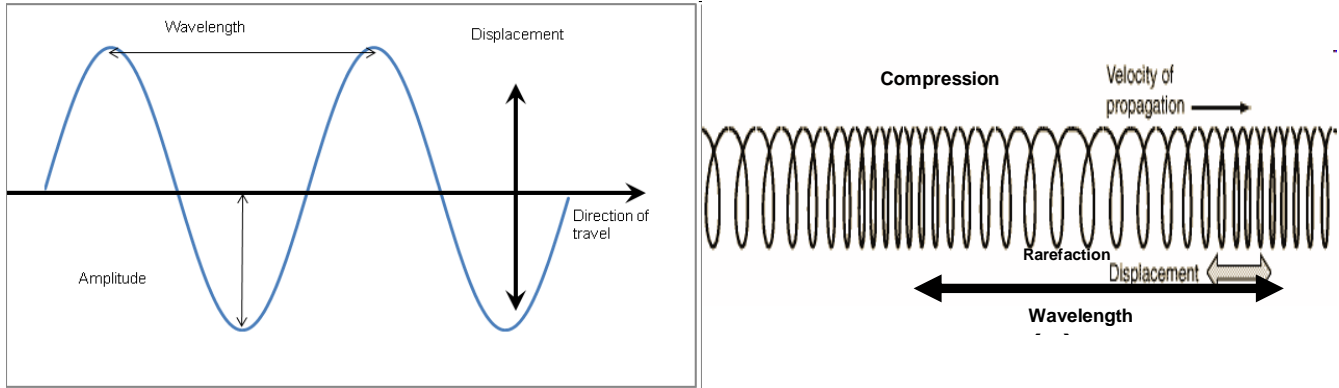


Waves and Light Study Guide KEY

1. Define Waves:

The transfer of energy from one place to another

2. What are the two types of waves? Draw a diagram of each wave and label the parts to the waves.



3. The higher the amplitude the greater the sound volume and the brighter the light

4. The shorter the wavelength, the higher the frequency

5. The higher the frequency the higher the pitch

6. Define electromagnetic waves.

They are transverse waves produced by the motion of electrically charged particles

7. List the electromagnetic waves in order from shorter wavelength (higher frequency) to longer wavelength (lower frequency).

Gamma ray, X-ray, Ultraviolet, Visible light, Infrared, Short Radio, Microwaves, Long radio

8. The shorter the wavelength, the higher the frequency. Also the longer the wavelength the lower the frequency.

9. Define Visible Spectrum:

The portion of the electromagnetic spectrum that we can see

10. List the colors of ROYGBIV

Red, orange, yellow, green, blue, indigo, violet

11. As you move from left to right on the spectrum, does the wavelength increase or decrease?
Increase

12. Which value has the longer wavelength (shorter frequency)?

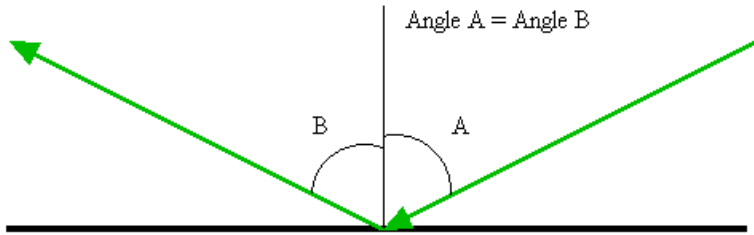
A. Radio waves or gamma rays?

B. Infrared or visible light?

C. X-rays or ultraviolet?

13. What is the law of reflection?

Angle of incidence = Angle of reflection



Simple Specular Reflectance

14. What is Snell's Law of Reflection? **Light bends in a different medium and it relates to the index of refraction of one medium X the angle of incidence = Index of refraction of another medium X the angle of refraction.**



15. Why does the sky look blue? **Because all of the colors in the spectrum are absorbed except blue.**

16. Seeing black means that all colors are absorbed; no color is reflected.

17. Seeing white means that no colors are absorbed; all colors are reflected.

18. Why should people wear white or light colors on hot sunny days? **Because light colored clothes reflect heat. They don't absorb heat.**

19. Define Refraction: The bending of light (light may increase or decrease speed) as it passes from one medium to another.

20. Sound and light travel at different speeds through different states of matter. List the order from slowest to fastest for sound waves and light waves.

Sound waves: gas, liquid, solid

Light waves: solid, liquid, gas