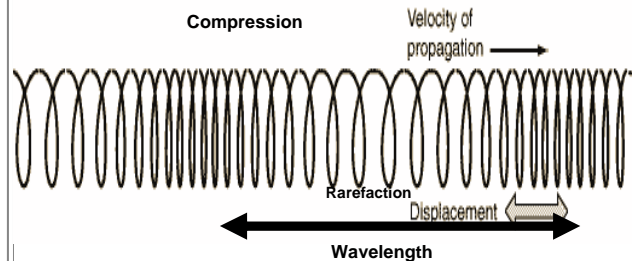
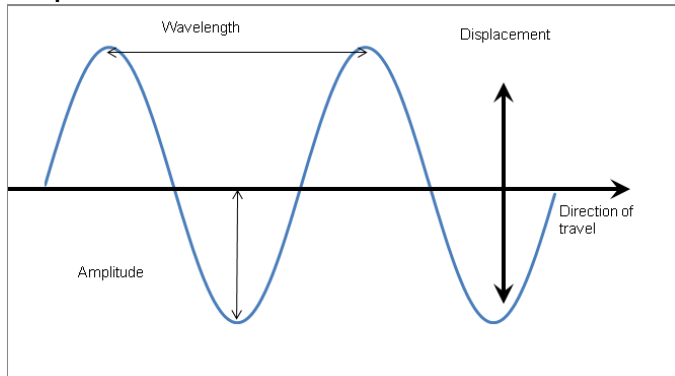


Waves and Light Study Guide KEY

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)?

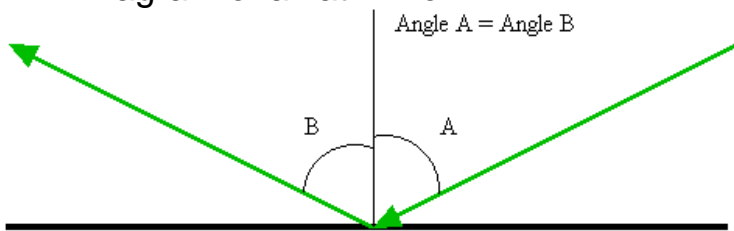
A. Radio waves or gamma rays?

B. Infrared or visible light?

C. X-rays or ultraviolet?

13. Reflected images off of a flat mirror look like: **backwards, right side up, and the same size**

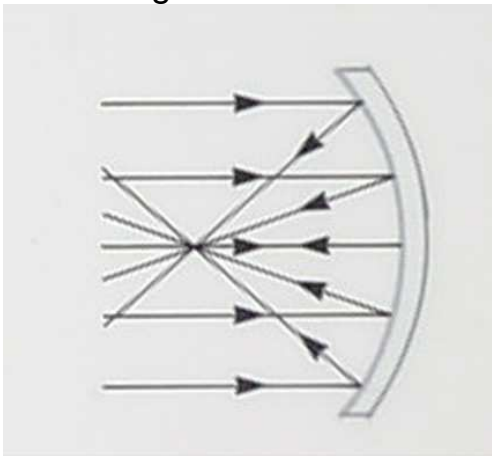
14. Diagram of a flat mirror.



Simple Specular Reflectance

15. Reflected images off a concave mirror look like: **upside down and smaller**

16. Diagram of a concave mirror:



17. reflected images off a convex mirror look like: **right side up, smaller and farther away**

18. Why does the sky look blue? **Because all colors are absorbed except for blue which is reflected**

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

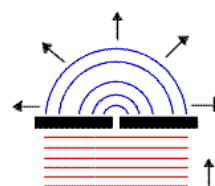
20. Seeing white means that no colors are absorbed; all colors are reflected.

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

22. Define refraction. **The bending of waves caused by the change in their speed when they move from 1 medium to another**



23. Define diffraction. **The bending of waves around a barrier.**



Because of the diffraction effect, waves can emerge through a small opening in a wall as wavelets.