

Study Guide Review

Waves Unit

Draw a wave and label all of its parts.

Word Bank:

Crest(s)	Trough(s)	Frequency	Wavelength	Amplitude
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1. Points A & E: _____

2. The Distance from Point C to Point G: _____

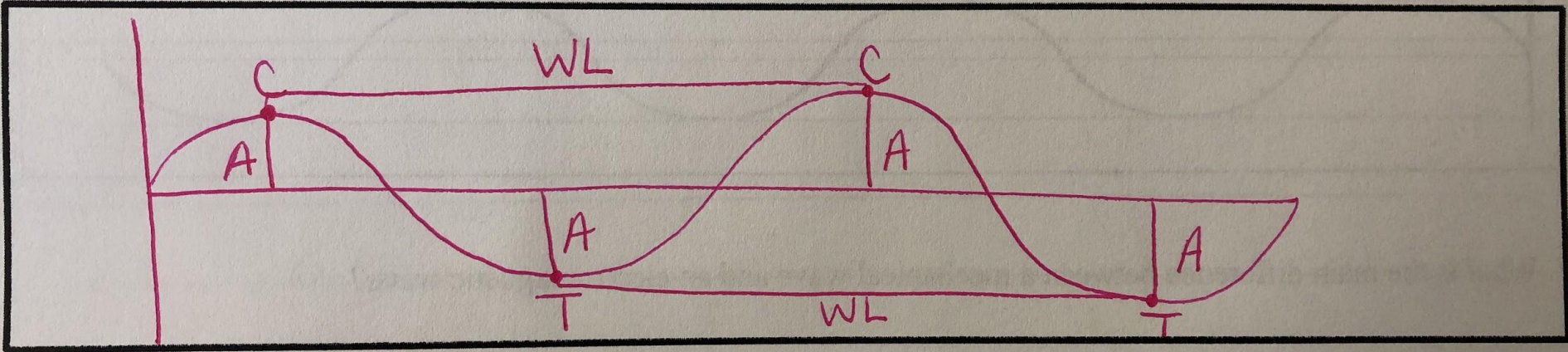
3. The Distance from the resting line to point C: _____

4. Points C & G: _____

5. The number of waves in 10 seconds: _____

C T A WL

1. In the box below draw a wave and label all its parts: crests, troughs, amplitude, & wavelength.



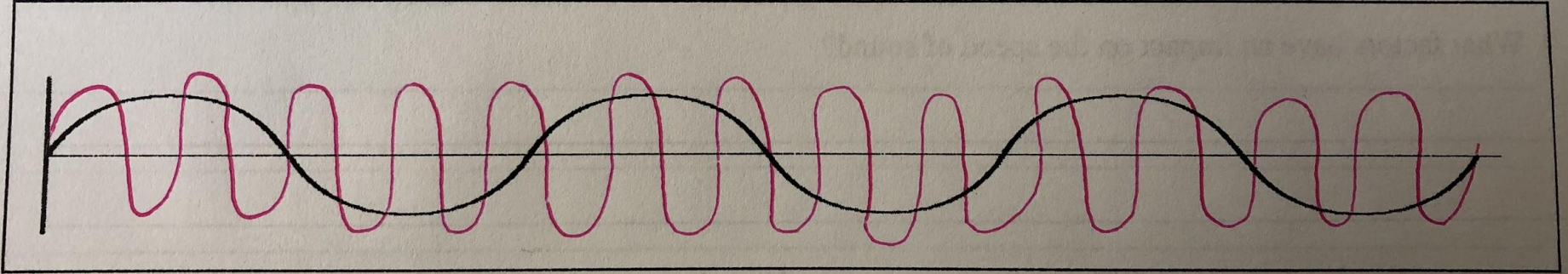
2. Explain the difference between a transverse and longitudinal wave.

Transverse: particles vibrate up & down, which is perpendicular to the movement of the energy (energy is moving horizontally).

Longitudinal: particles vibrate back & forth; which is parallel to the movement of the energy (energy is moving horizontally).

3. Draw a wave with a GREATER Frequency!

3. Draw a wave with a greater frequency.



4. What part of a wave affects the pitch of the sound you hear?

Pitch = Frequency

High Pitch; High Frequency

Low Pitch; Low Frequency

5. What part of a wave affects the loudness of the sound you hear?

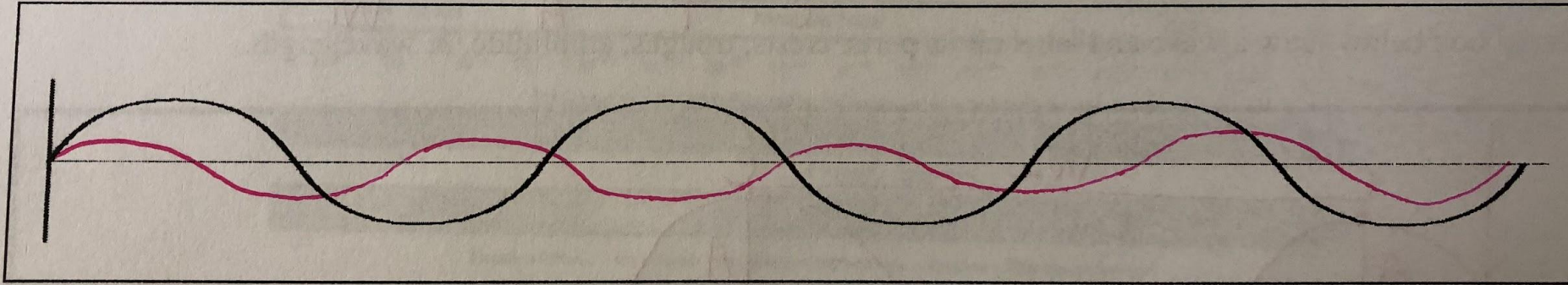
Loudness = Amplitude

Loud Sound = High Amplitude

Soft Sound = Low Amplitude

6. Draw a wave with a smaller Amplitude.

6. Draw a wave with a smaller amplitude.



7. What is the main difference between a mechanical and electromagnetic wave?

Mechanical- requires a medium to travel through.

Electromagnetic- can travel through empty space; no medium needed; a vacuum.

8. How does frequency of a wave affect the wavelength of a wave?

Greater Frequency = smaller wavelength

Lesser Frequency = longer wavelength

9. What factors have an impact on the speed of sound?

The Medium the sound is traveling through and the temperature.

10. How is the speed of sound different from the speed of light?

The speed of sound is much slower than the speed of light.

Speed of Sound 343 m/s when temp is 20 degrees Celsius.

Speed of Light 300 million m/s.

11. Explain why we see the color red when we look at a stop sign.

All other colors are being absorbed and Red is being reflected.

We know the color is Red because we have been taught when we see that specific frequency that in English it is known as Red.

12. What causes an object to be black in color;
What causes an object to be white in color?

Black- All the waves of the various colors/frequencies are being absorbed.

White- All the waves of the various colors/frequencies are being reflected.

13. What is the only part of the Electromagnetic Spectrum that humans can see?

Humans can only see visible light.

14. List visible light in order from longest wavelength to shortest wavelength.

Red, Orange, Yellow, Green, Blue, Indigo, Violet

15. Explain what happens when a sound wave is reflected, transmitted, and absorbed.

Reflected- the sound wave bounces off of the object it hit. It is reflected back as an echo.

Transmitted- the sound wave travels through the object it hit. The sound can be heard on the other side of the object.

Absorbed- the sound wave is taken in by the object it hit.

16. What is the difference between the different types of waves on the Electromagnetic Spectrum?

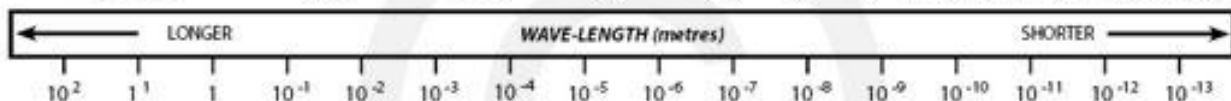
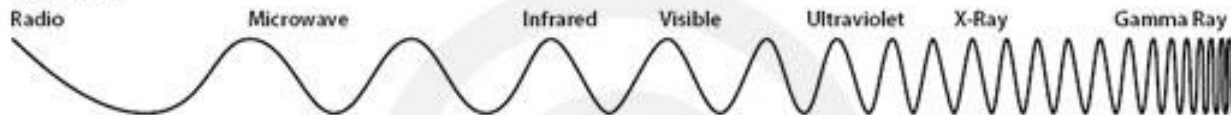
All the waves on the Electromagnetic Spectrum have a different frequency, wavelength, & energy. The waves at the beginning of the spectrum have low frequency, long wavelengths, & a low amount of energy. Waves at the end of the spectrum have a high frequency, short wavelengths, & a high amount of energy.

THE ELECTRO MAGNETIC SPECTRUM

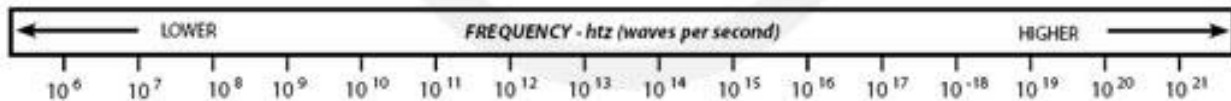
1 metre = 100cm 1 cm = 10mm 1 millimetre = 1000 microns 1 micron = 1000 nanometres (nm) - one nanometer is one billionth of a metre

$10^{-5} = 0.00001$ $10^5 = 100,000$

WAVE (type)



APPROXIMATE equivalent size to:



17. Which type of wave on the Elec. Spec. has the greatest frequency?

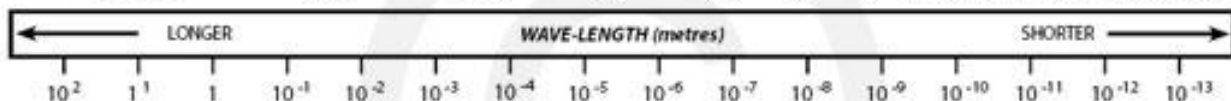
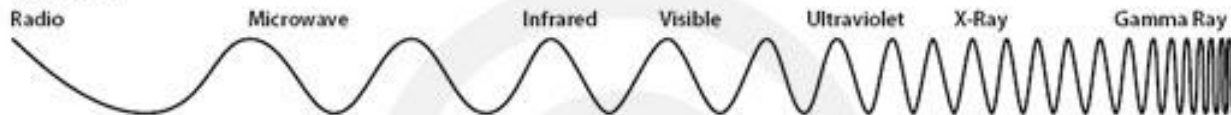
Gamma Rays

THE ELECTRO MAGNETIC SPECTRUM

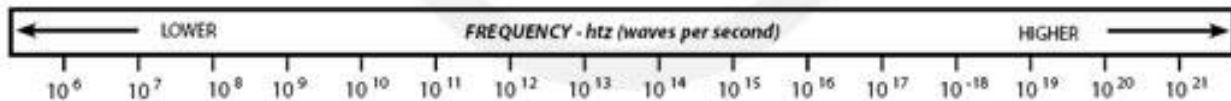
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WAVE (type)



APPROXIMATE equivalent size to:



18. Which type of wave on the Elec. Spec. has the least amount of energy?

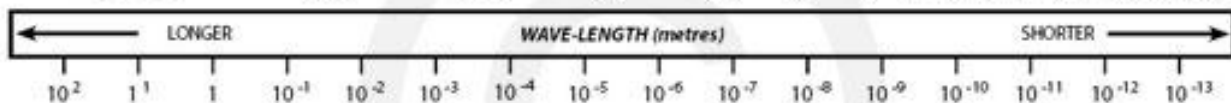
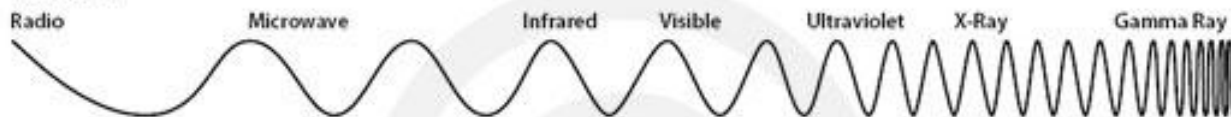
Radio Waves

THE ELECTRO MAGNETIC SPECTRUM

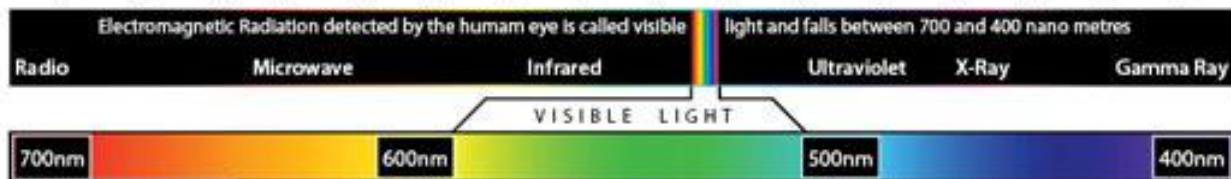
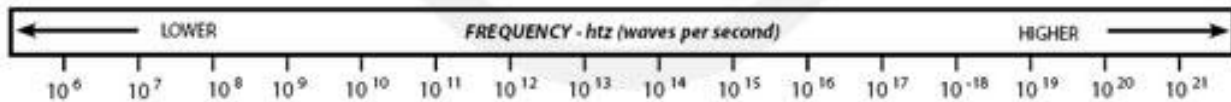
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WAVE (type)



APPROXIMATE equivalent size to:



19. What is refraction?

When light moves from one medium to the next it changes speed. This change in speed caused the light waves to bend.