**EM Waves, Light, and Sound Test Review Answers** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| **Question** | **Answer** |
| What do all waves transfer? | *energy* |
| Draw a wave and label these parts: crest, trough, wavelength, amplitude | *Image result for labeled wave* |
| How is wavelength measured in a longitudinal wave? | *two adjacent compressions or rarefactions* |
| How are the waves on the electromagnetic spectrum arranged? | *By lowest frequency/longest wavelength to highest frequency/shortest wavelength* |
| List the electromagnetic spectrum in order from lowest frequency/longest wavelength to highest frequency/shortest wavelength? | *Radio waves, microwaves, infrared, visible, ultraviolet, X-rays, and gamma-rays* |
| How are electromagnetic waves different from each other? | *Different frequency/wavelength* |
| When visible light is absorbed by matter what happens to it? | *It converts to thermal energy (heat)* |
| How does color affect the absorption of visible light? | *The darker the color, the more it absorbs* |
| What part of the electromagnetic spectrum can be broken into seven colors? | *Visible light* |
| Name the color of visible light in order from shortest wavelength to longest wavelength. | *ROYGBIV* |
| When all seven colors of visible light are present, what color is the visible light? | *white* |
| How do we see specific colors of visible light? | *The color we see is being reflected but the rest are being absorbed* |
| What is the relationship between frequency and wavelength? | *low frequency/long wavelength*  *highest frequency/shortest wavelength* |
| How does a sound wave get started? | *A vibration* |
| What type of wave is a sound wave? | *Longitudinal and mechanical* |
| Through what state of matter do sound waves travel the fastest? Slowest? | *Fastest – solid slowest - gas* |
| What factors affect how fast sound waves travel? | *Temperature, density/ state of matter/different mediums* |
| How is the volume (loudness) of a sound changed? | *Increasing intensity/amplitude* |
| How is an echo produced? | *It is a reflection of a sound wave; it bounces back* |
| How does 265 Hz compare to 512 Hz? | *256 Hz would be a longer wavelength, lower pitch, lower frequency* |
| How many decibels is the volume of normal conversation? | *60 hertz* |
| At what decibel level can hearing be damaged? | *90 with long exposure* |
| How are frequency and pitch related? | *Higher frequency = higher pitch*  *lower frequency = lower pitch* |
| Why is there no sound in space? | *Sound is a mechanical wave; it needs a medium to travel through* |