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Waves,sound,and light

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| **Across**  **3.** which a system oscillates when not subjected to a continuous or repeated external force.  **6.** series above a fundamental note and may be heard with it.  **7.** common unit of frequency is the hertz (Hz), corresponding to one crest per second.  **13.** he process in which two or more light, sound, or electromagnetic waves of the same frequency combine to reinforce or cancel each other  **14.** an electromagnetic wave of a frequency between about 104 and 1011 or 1012 Hz, as used for long-distance communication  **15.** typically accompanied by interference between the wave forms produced.  **21.** stream of such photons used for their penetrating power in radiography, radiology, radiotherapy, and scientific research.  **22.** he range of wavelengths or frequencies over which electromagnetic radiation extends.  **24.** the maximum extent of a vibration or oscillation, measured from the position of equilibrium.  **27.** is the characteristic of a sound that is primarily a psycho-physiological correlate of physical strength (amplitude).  **28.** a sound is determined by the rate of vibration, or frequency, of the sound wave.  **29.** a typical example: "the science or art of ordering tones or sounds in succession, in combination, and in temporal relationships  **30.**  involve the transport of energy without the transport of matte  **31.**  light rays which are longer than light but shorter than radio waves. Electromagnetic radiation with a wavelength between  **32.** The change in direction of a wave, such as a light or sound wave, away from a boundary the wave encounters.  **33.** penetrating electromagnetic radiation of a kind arising from the radioactive decay of atomic nuclei.  **34.**  is a region in a longitudinal wave where the particles are closest together.  **35.** one of the waves that are propagated by simultaneous periodic variations of electric and magnetic field intensity  **36.** system of satellites, computers, and receivers that is able to determine the latitude and longitude of a receiver on Earth by calculating the time difference for signals from different satellites to reach the receiver. | **Down**  **1.** hat are propagated by simultaneous periodic variations of electric and magnetic field intensity  **2.** ncrease in amplitude of oscillation of an electric  **4.** prolongaprolongation of a sound; resonance.  **5.** ncrease in amplitude of oscillation of an electric  **8.** the range of wavelengths  **9.** distance between one peak or crest of a wave and the next peak or crest.  **10.** a form of electromagnetic (EM) radiation, as are radio waves, infrared radiation, ultraviolet radiation, X-rays and microwaves.  **11.** in the part of the electromagnetic spectrum where wavelengths are just shorter than those of ordinary, visible violet light but longer than those of x-rays.  **12.** s a wave that is an oscillation of matter, and therefore transfers energy through a medium.  **16.** energy that travels by waves or particles, particularly electromagnetic radiation such as heat or x-rays.  **17.** an increase (or decrease) in the frequency of sound, light, or other waves as the source and observer move toward (or away from) each other  **18.** that is a part of the harmonic series above a fundamental note and may be heard with it.  **19.** oscillates perpendicular to the axis along which the wave travels  **20.** a sound or series of sounds caused by the reflection of sound waves from a surface back to the listener.  **23.** vibrates in response to sound waves; the tympanic membrane.  **25.** a high-frequency electromagnetic wave modulated in amplitude or frequency to convey a signal.  **26.** is a lens that possesses at least one surface that curves inwards |