Sound and Light

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| **Across**  **2.** a phenomenon that occurs when two objects naturally vibrate at the same frequency; the sound produced by one object causes the other object to vibrate  **8.** the increase of an object's apparent size by using lenses or mirrors  **9.** radio detection and ranging, a system that uses reflected radio waves to determine the velocity and location of objects  **10.** a unit or quantum of light; a particle of electromagnetic radiation that has zero rest mass and carries a quantum of energy  **12.** any sound wave with frequencies higher than 20,000 Hz  **14.** in optics, the process of separating a wave (such as white light) of different frequencies into its individual component waves (the different colors)  **16.** a line in space that matches the direction of the flow of radiant energy | **Down**  **1.** an image that is formed by the intersection of light rays; a real image can be projected on a screen (563)  **3.** a longitudinal wave that is caused by vibrations and that travels through a material medium  **4.** a transparent object that refracts light waves such that they converge or diverge to create an image  **5.** slow vibrations of frequencies lower than 20 Hz  **6.** a measure of how high or low a sound is perceived to be, depending on the frequency of the sound wave  **7.** an image from which light rays appear to diverge, even though they are not actually focused there; a virtual image cannot be projected on a screen  **11.** in physical science, the rate at which energy flows through a given area of space  **13.** in optics, a system that consists of two or more plane surfaces of a transparent solid at an angle with each other  **15.** sound navigation and ranging, a system that uses acoustic signals and returned echoes to determine the location of objects or to communicate |