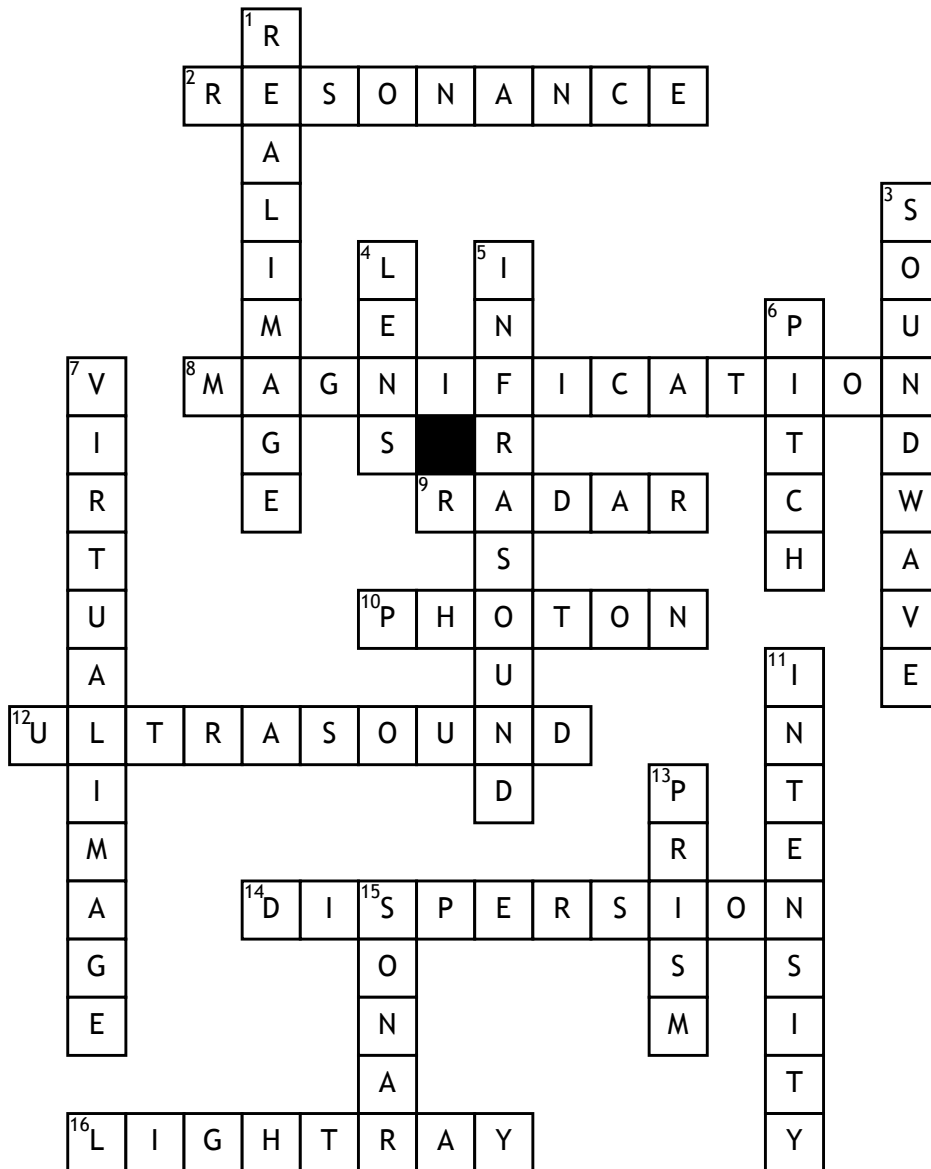


# Sound and Light



## 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