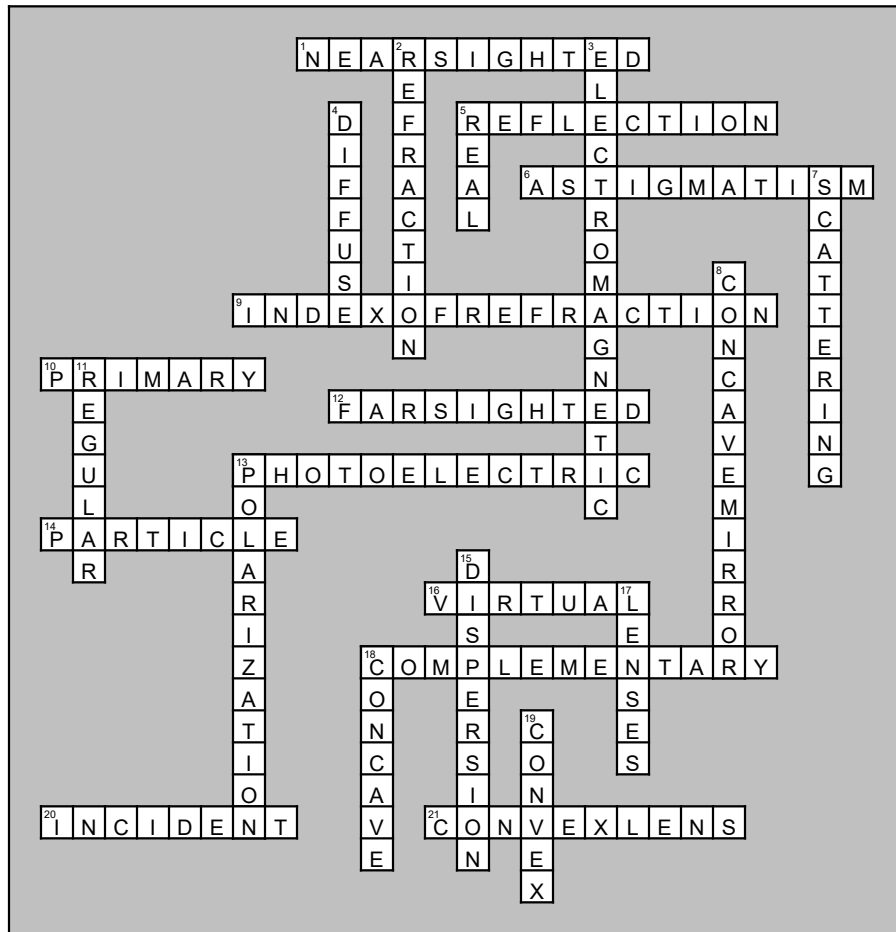


Crossword



Across

1. Vision impairment when incident light from distant objects is converged in front of the retina, yielding blurred vision. Corrected by concave lens. e.g. Myopia.
5. Total internal ____ occurs when light is incident upon a more dense medium and the angle causes it to reflect instead of slow down into the next medium (as in refraction). e.g. rainbow from water drops, light pipes.
9. Show optical density. The greater the index, the slower light travels in a medium.
10. Colors of light that when mixed evenly make white: red, green, blue. These make all other colors of light.
12. Vision caused by light not focusing on the retina. Corrected by convex lenses. e.g. Hyperopia.
13. Effect from the transfer of energy from light to an electron embedded in a metal. Used in electric eyes, remote control devices, sound tracks, photocells, solar panels.
14. Light can behave as a wave or a _____. e.g. the photoelectric effect demonstrates this property of light.
16. The kind of image produced by concave lenses or convex mirrors in which NO light rays converge to a focus. Images are behind the mirror or on the same side of the lens as the object.
18. When two colors are mixed and form white light. e.g. red + cyan; yellow + blue; magenta + green.
20. The ray or angle of incoming light.
21. Forms real images when the object is far enough away from the lens. Type of lens that can magnify a virtual image when the object is placed between the focal point and the lens.

Down

2. Light slows down or speeds up based on the medium (e.g. air, water, glass, diamond) that it travels through. It appears to "bend." e.g. mirage.
3. Waves (radiation) that needs no particles to travel or propagate. Radio, microwave, infrared, visible light, ultraviolet, x-ray, gamma rays.
4. Reflection from a non-smooth surface so the reflected rays do not form a clear image. e.g. light reflecting off sand paper or cloth.
5. The kind of image produced by lenses when actual light rays converge to a focus. Made by concave mirrors and convex lenses.
7. Light is redirected as it passes through a medium. e.g. ski appears blue on a clear day despite actually being clear. e.g. sun appears red at sunset or sunrise.
8. Light rays reflect off the surface to a focal point; forms real images or virtual (when object is inside focal point).
11. Specular reflection off a smooth surface that yields a clear image and easily shows the law of reflection ($i = r$).
13. Light gets aligned in particular planes by passing through a filter or in reflecting. e.g. digital clocks or scoreboards use this to display.
15. Light is separated into its component frequencies (colors) when passing through a prism. e.g. the rainbow shows this.
17. Prisms or transparent materials capable of taking parallel rays of incident light and converging them to a point or diverging them from a point.
18. As a lens, it is thinner at the center than edges. As a mirror, reflection occurs off the inside of the curve.
19. As a lens it is thicker in the middle than at its ends. As a mirror, reflection is off the outside of the curve.