

## Visible Light Quiz Answer Key PDF

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**What is the range of wavelengths for visible light?**

- A. 10 nm to 100 nm
- B. 380 nm to 750 nm ✓**
- C. 1000 nm to 1500 nm
- D. 2000 nm to 3000 nm

**How does the wavelength of light affect the color we perceive?**

**The wavelength of light determines its color; longer wavelengths appear red, while shorter wavelengths appear violet.**

**What is the speed of light in a vacuum?**

- A. 150,000 km/s
- B. 200,000 km/s
- C. 299,792 km/s ✓**
- D. 500,000 km/s

**Describe how a rainbow is formed in the atmosphere.**

**A rainbow is formed when sunlight enters a raindrop, bends (refracts), reflects off the inside surface of the droplet, and then exits the droplet, bending again. This process disperses the light into its component colors, creating a circular arc of colors in the sky.**

**Which color of visible light has the longest wavelength?**

- A. Red ✓**
- B. Green
- C. Blue

D. Violet

**Which part of the eye is primarily responsible for detecting light?**

- A. Cornea
- B. Lens
- C. Retina ✓**
- D. Iris

**Discuss how refraction is utilized in corrective lenses for vision.**

**Refraction is used in corrective lenses to bend light rays so they focus properly on the retina, correcting vision problems like myopia or hyperopia.**

**Explain the process by which the human eye converts light into electrical signals.**

**Light enters the eye, is focused by the lens onto the retina, where photoreceptor cells convert it into electrical signals sent to the brain via the optic nerve.**

**Which of the following devices use lenses to manipulate light? (Select all that apply)**

- A. Microscope ✓**
- B. Telescopes ✓**
- C. Camera ✓**
- D. Speaker

**What natural phenomenon is caused by the refraction and dispersion of light in water droplets?**

- A. Mirage
- B. Rainbow ✓**
- C. Aurora
- D. Eclipse

**What happens to light when it passes through a prism?**

- A. It is absorbed
- B. It is reflected

**C. It is refracted ✓**

D. It is scattered

**Which type of light bulb is known for its energy efficiency and long lifespan?**

A. Incandescent

B. Halogen

C. Fluorescent

**D. LED ✓**

**Which of the following are true about visible light? (Select all that apply)**

**A. It is a type of electromagnetic radiation. ✓**

**B. It can be seen by the human eye. ✓**

C. It has a wavelength longer than infrared light.

D. It travels slower than sound.

**Which cells in the human eye are responsible for color vision?**

A. Rods

**B. Cones ✓**

C. Retinal ganglion cells

D. Photoreceptors

**Explain why visible light is essential for human vision.**

**Visible light is essential for human vision because it is the range of electromagnetic radiation that the human eye can detect, allowing us to perceive colors and shapes.**

**Describe how the wave-particle duality of light is demonstrated in everyday phenomena.**

**Wave-particle duality is demonstrated in phenomena such as diffraction and interference (wave behavior) and the photoelectric effect (particle behavior).**

**Which natural phenomena are caused by the interaction of light with the atmosphere? (Select all that apply)**

- A. Rainbows ✓**
- B. Thunder
- C. Mirages ✓**
- D. Blue sky ✓**

**Which properties are exhibited by visible light? (Select all that apply)**

- A. Reflection ✓**
- B. Refraction ✓**
- C. Absorption ✓**
- D. Nuclear decay

**When light interacts with a surface, which of the following can occur? (Select all that apply)**

- A. Reflection ✓**
- B. Refraction ✓**
- C. Absorption ✓**
- D. Emission

**Which colors are part of the visible spectrum? (Select all that apply)**

- A. Red ✓**
- B. Cyan
- C. Green ✓**
- D. Indigo ✓**