

Light Waves Quiz Answer Key PDF

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Which scientist is known for the prism experiments that demonstrated the spectrum of visible light?

- A. Albert Einstein
- B. James Clerk Maxwell
- C. Isaac Newton ✓**
- D. Niels Bohr

What phenomenon explains the bending of light as it passes from air into water?

- A. Reflection
- B. Refraction ✓**
- C. Diffraction
- D. Interference

Which of the following are part of the electromagnetic spectrum? (Select all that apply)

- A. Gamma rays ✓**
- B. X-rays ✓**
- C. Sound waves
- D. Infrared ✓**

What device is used to measure the intensity of light?

- A. Spectrometer
- B. Photometer ✓**
- C. Oscilloscope
- D. Thermometer

What are the effects of light diffraction? (Select all that apply)

A. Light spreads around obstacles ✓

B. Light bends at interfaces

C. Light changes speed

D. Light forms interference patterns ✓

Which applications utilize light waves? (Select all that apply)

A. Fiber optics ✓

B. Lasers ✓

C. Nuclear reactors

D. Spectroscopy ✓

Which of the following are properties of light waves? (Select all that apply)

A. Wavelength ✓

B. Frequency ✓

C. Mass

D. Amplitude ✓

What is the range of wavelengths for visible light?

A. 100-400 nm

B. 400-700 nm ✓

C. 700-1000 nm

D. 1000-1300 nm

What type of wave is a light wave?

A. Longitudinal

B. Transverse ✓

C. Mechanical

D. Surface

Which color of visible light has the shortest wavelength?

A. Red

B. Green

C. Blue

D. Violet ✓

Which phenomena can occur when light interacts with matter? (Select all that apply)

A. Absorption ✓

B. Reflection ✓

C. Transmission ✓

D. Evaporation

Which property of light is related to its brightness?

A. Wavelength

B. Frequency

C. Amplitude ✓

D. Polarization

What is the approximate speed of light in a vacuum?

A. 150,000 km/s

B. 300,000 km/s ✓

C. 450,000 km/s

D. 600,000 km/s

Which statements about wave-particle duality are true? (Select all that apply)

A. Light behaves only as a wave

B. Light behaves only as a particle

C. Light exhibits both wave-like and particle-like properties ✓

D. This concept is fundamental in quantum mechanics ✓