

Name _____

Light's Dual Nature: Particle and Wave in Perfect Harmony

Open-Ended Response Answer Key

1. Answers may vary but should include a simple explanation of wave-particle duality, such as "it's like how a ball can bounce like a solid object but also ripple like a wave in water." Everyday examples might include throwing a ball and observing its bounce and skipping stones on water.
2. Wave-particle duality has led to advancements in technology such as lasers, fiber-optic communication, and quantum computing. These technologies have transformed industries, enabling precise medical procedures, high-speed internet, and powerful computing capabilities.
3. Artists can explore the concept of wave-particle duality through abstract and experimental art forms. They can create artworks that play with the duality of light, incorporating both particle-like and wave-like elements to challenge viewers' perceptions.
4. Wave-particle duality challenges our classical understanding of the universe by suggesting that all matter and energy exhibit both particle and wave characteristics. It raises philosophical questions about the fundamental nature of reality and the role of human perception in understanding the world around us.

