

Name _____

Riding the Wave: Exploring the Main Properties of Waves

Open-Ended Response Answer Key

1. To identify which one is a wave and which one is not, you can consider the properties of waves. Ocean waves exhibit a repeating pattern with peaks and troughs and move horizontally. A seagull flying is not a wave but a living creature in motion. It does not exhibit the same repeating pattern as waves.
2. One practical application of waves is in medical ultrasound imaging. Understanding the properties of waves, such as frequency and speed, is essential for creating detailed images of the inside of the human body. Ultrasound waves are sent into the body, and their reflection and refraction properties provide valuable information about organs and tissues.
3. Transverse waves have particles of the medium moving perpendicular to the wave's direction, while longitudinal waves have particles moving parallel to the wave's direction. Transverse waves are like shaking a rope up and down, while longitudinal waves are like compressing and expanding a slinky.
4. The speed of sound waves can change when traveling through different mediums due to variations in the medium's properties, such as density and elasticity. Sound travels faster through denser and more elastic mediums, like water, compared to less dense and less elastic mediums, like air. This is because the particles in denser materials are closer together and can transmit vibrations more quickly.

