

Name \_\_\_\_\_

## Waving Hello to Wavelength: How it Shapes a Wave's World

### Open-Ended Response Questions

1. Imagine you are a scientist studying ocean waves. How would you use your knowledge of wavelength to predict the behavior of waves in different weather conditions, such as calm seas versus a stormy sea?
2. In the world of technology, optical fibers use different wavelengths of light to transmit data. Explain why shorter wavelengths are preferred for high-speed data transmission and how this technology benefits our daily lives.
3. Consider the realm of musical instruments. Explain how varying the length of a string or tube in an instrument can produce different pitches of sound, taking into account the concept of wavelength.
4. Reflect on the colors of visible light and their respective wavelengths. Discuss how this information is applied in various fields, such as art, photography, or even traffic signals.

