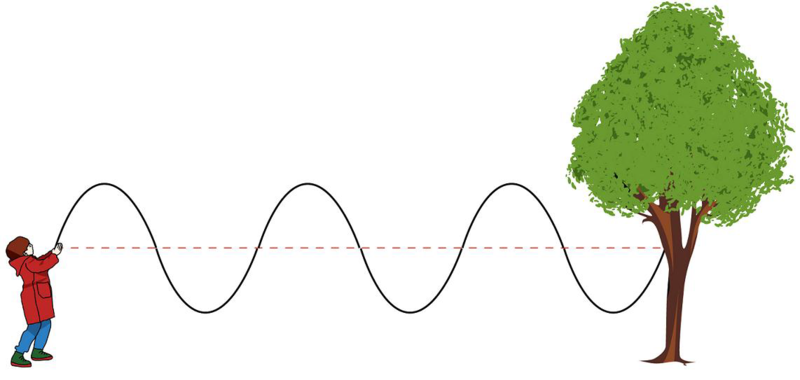
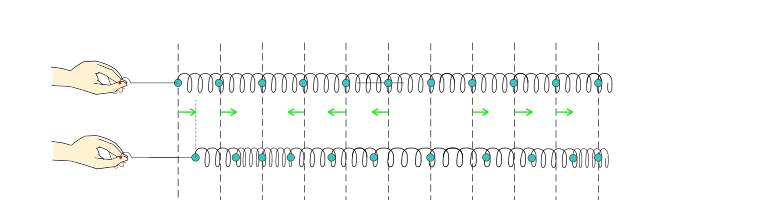
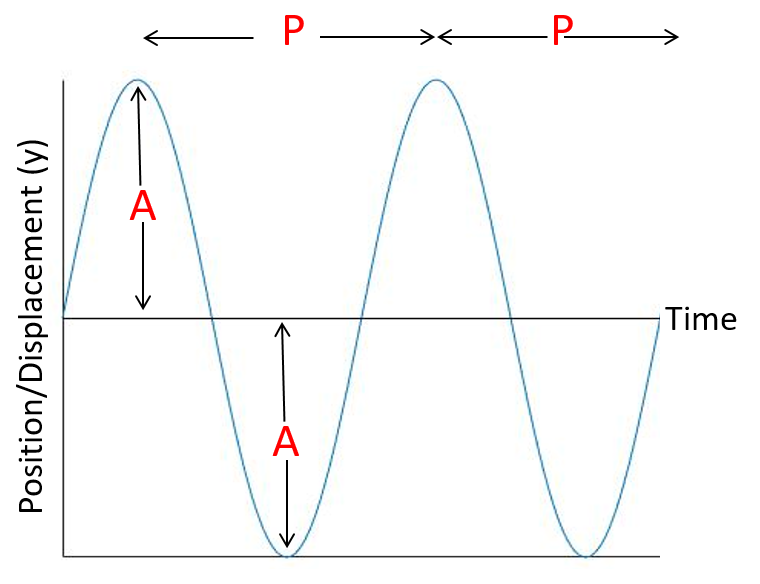
**Physics of Sound Quiz Answer Key**

1. **Label the transverse wave and the longitudinal wave.**

🡹 transverse wave 🡻 longitudinal wave

1. **Draw a transverse wave with axes of displacement and time.**
   1. **Label the amplitude.**
   2. **Label the period.**
2. **Calculate the speed of a wave with amplitude of 2 meters, frequency of 200 Hz,   
   and wavelength of 4 meters.**

200 Hz x 4 meters = v

v = 800 meters/second because Hz = 1/s

1. **What is the difference between sound and noise?**

Sound consists of vibrations that travel through air or other media that can be heard when they reach the ear. Noise is unwanted or unpleasant sound, and is subjective.

1. **How does sound move through different media?**

Sound travels through media by vibrating molecules in the matter. Closely packed molecules, like in solids, transfer sound faster than loosely packed molecules, like in liquids and gases.

1. **Speakers, 1 meter away, produce a sound intensity of 0.01 W/m2.   
   Calculate the sound intensity level of the speakers.**

= 10 log (.01 W/m2 ÷ 10-12 W/m2)

= 100 dB

*Image sources:*

Transverse wave (boy, rope, tree): 2010 CK-12 Foundation, Wikimedia Commons CC BY-SA 3.0 <https://commons.wikimedia.org/wiki/File:Wave_in_a_rope.png>

Longitudinal wave (hands, springs): 2015 Wikimedia Commons CC0 1.0 universal public domain dedication <https://commons.wikimedia.org/wiki/File:Longitudinal_wave_jp.svg>

Graph: 2016 Kent Kurashima, ITL Program, College of Engineering and Applied Science, University of Colorado Boulder (author)