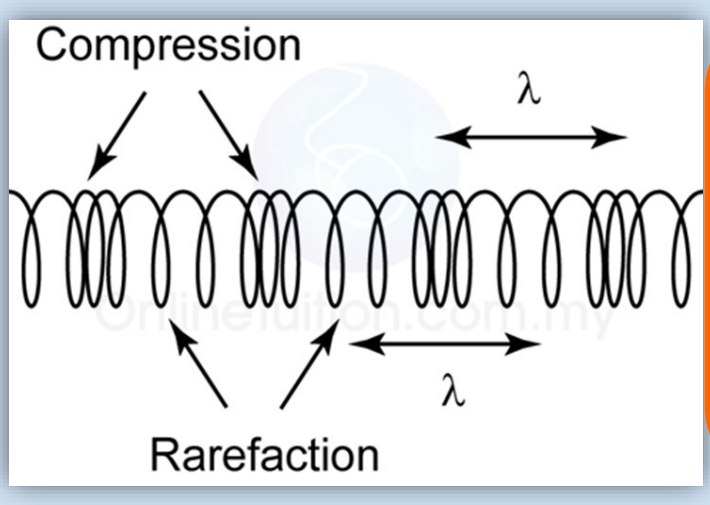
Exploring Sound Waves With a Slinky!

Did you know that sound requires physical matter in order to travel? Grab a slinky to demonstrate! As you play, the loops of the slinky shifting together and apart are a great illustration of how physical particles transfer sound energy from one particle to the next, bringing sound to you ear.

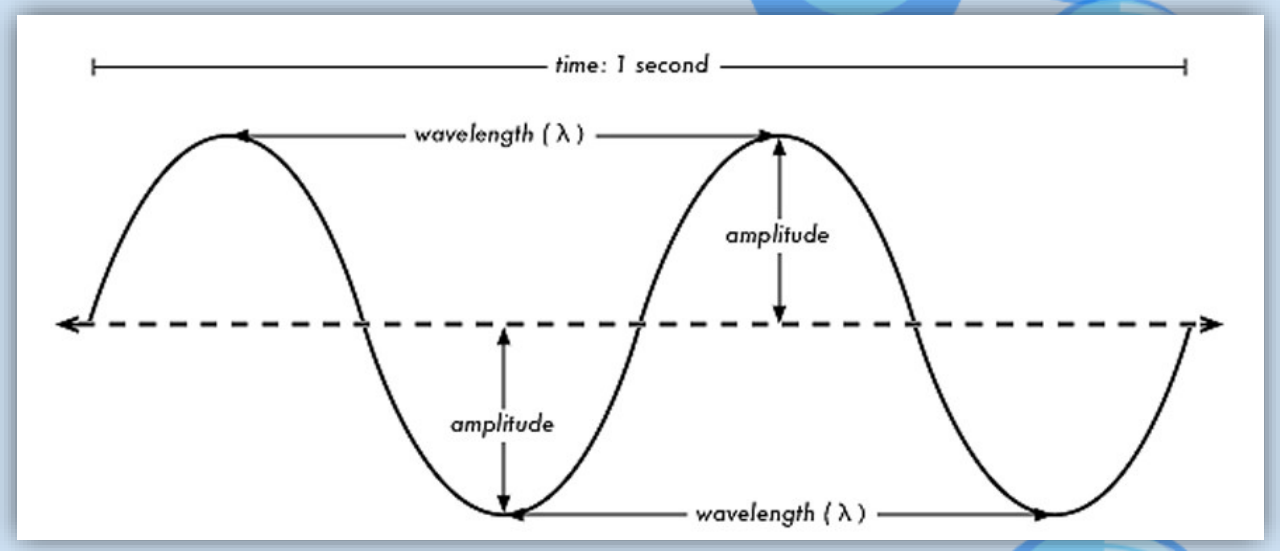
Not only can a slinky demonstrate the transfer of sound, but the space between loops illustrate what types of sound you might hear!



The areas of Compression are the high pitch sounds, and the areas of Rarefaction are the low pitch sounds.

What else can a slinky show us? Think about each loop in your slinky as a wave of sound. If you stretch a loop of the slinky, the wave becomes longer. For sound, this **Wavelength** can be measured!

A slinky can also show us a sound's Frequency. **Frequency** is a measure of how many waves appear in the space of one second. Would you say a stretched slinky shows a greater or lesser frequency?



Finally, a slinky can show us a little about the volume of a sound. We've already measured the length of a wave, but the height of a wave is what determines a sound's loudness or softness. A wave's height is measured as **Amplitude.** A wave with a larger amplitude is louder than a wave with a smaller amplitude. Can a slinky show changes in amplitude?

Think about it! If sound energy needs physical matter to transfer it from one place to the next, is there sound you can hear in space? Is it easier and faster for sound energy to transfer where there are lots of particles packed in a solid, or few particles spread through a gas?

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