Dear Educator,

This file offers views of some of the worksheets in our "Learn About Sound" thematic unit. The cover for an eWorkbook is shown followed by the preview pages.

The "Learn About Sound" unit offers 19 pages.

Learn About Sound

Sound

Sound Moves In Waves

- **Sound is a wave.**
- **Sound is an up and down (oscillating) pressure.**
- **Sound can be sensed by organs, like ears, or skin.**
- **Sound moves through a medium, or material.**

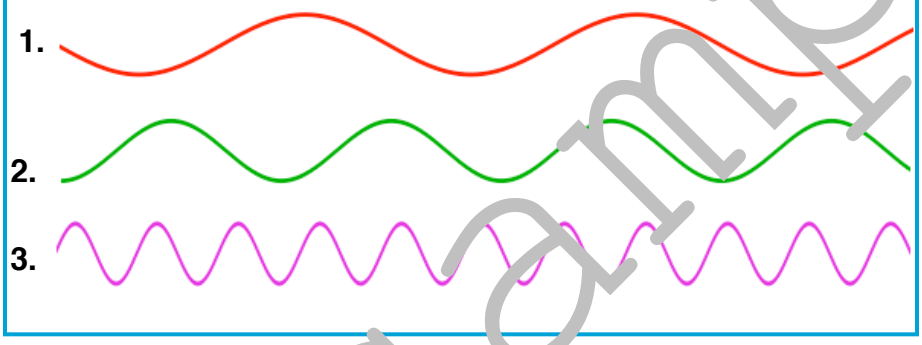
Let's understand sound as a wave. Think of a wave you have seen on the water. Does the wave move up and down? Sound moves just like this. Each different sound wave is unique, since it is made by a unique physical event. Let us take a sound wave caused by the call of a bird.

The bird call produces a sound. This is felt as a movement of pressure on the air. This pressure vibrates the air. The bird call moves through the air as a wave. If you could see it, the wave would look live a curvy, horizontal line. The tops of the curvy line are called the crests of the wave, and the bottoms of the curvy line are called the troughs of the wave.

This curvy line has several characteristics, called properties. It has a **wavelength**, **frequency**, and **amplitude**. The wavelength is the horizontal distance from the top of one crest, to the top of the one next to it. Or it can be measured as the distance from the bottom of one crest, to the bottom of the crest next to it.

Answer the questions by writing the correct number on the line.

1. Wavelength : Which wave shows the crests furthest apart? _____
2. Frequency: Which wave shows the waves closest together? _____



The frequency is the number of waves that will pass a given point in a certain amount of time (usually one second). This is being shown by how close together the crests are. Some look like a tight spring, and others look like a slinky pulled far apart. The amplitude is how high the wave is from crest to trough. Some waves look very high, like an opera singer would make, and some look small, like perhaps a mouse would make.

Draw a sound wave with a high amplitude, and draw one with a low amplitude.

Sound

Hearing Aids

When people cannot hear well, they may use a hearing aid. A hearing aid is a small electronic device that rests in or behind the ear to magnify or change the sound so the listener can hear it. Since people may have difficulty hearing at either end of the audible range, the hearing aid may change the sound higher or lower so as to be more easily heard in the inner ear.

Hearing aids were not always so "high tech". The earliest hearing aid was called an ear trumpet. The ear trumpet was developed in the early 1600's, and looked like a trumpet, made of wood, metal, or horn. The narrow end was placed in the listener's ear. The broad end of the trumpet caught and magnified sound. The magnified sound hit the ear drum harder producing a nerve signal which the listener could interpret. The person used the ear trumpet only when needed, rather than wearing it all day, as modern hearing aids are worn.

Ludwig von Beethoven, the famous composer of classical music, used an ear trumpet in the early 1800's, before he went completely deaf. In modern times, use of the ear trumpet is rare in developed countries. However, hearing impaired people in parts of the world who do not have access to modern electronic hearing aids, still use the ear trumpet.

Find a picture of an ear trumpet in a book or on the Internet. Draw a picture of it.

If you were hearing impaired, which device would you prefer to use and why?

_____

_____

_____

_____

Sound

Percussion Criss Cross

Can you fit these words into the criss cross?
Use a pencil so you can erase if you need to.

stethoscope	frequency	radiologist	acoustics
mechanical	ultrasound	vibration	sonar