Tune It Up

Sound

Grades 1 - 4

Investigate how sound is made and changed to make music! Use your understanding of sound to develop and play your own instrument.

Background Information

Sound is a vibration, a quick, regular, back-and-forth movement that travels through a medium, which could be a solid, liquid or gas. Sounds start with energetic movements like plucking a guitar string, hitting a drum, or blowing into a recorder. Events like these cause nearby air particles to vibrate. These vibrating particles bump into and vibrate other nearby particles, causing a chain reaction of sound (vibration) moving through a medium (air). This vibration, or sound wave, is how sound travels.

Sounds change based on how close those vibrations, or waves, are to each other (see the diagram on page 3). Slow vibrations with long waves spaced far apart create low sounds, or a low pitch. A fast vibration with short, tightly spaced waves creates a high pitch sound. How fast a sound travels depends on the medium or material it travels through. Sounds also change by becoming louder or softer. Louder sounds come from bigger vibrations, or sound waves with higher peaks and lower valleys. If you hit a drum with lots of force, more energy is transferred to the drum, helping it to vibrate more of the surrounding air. The resulting sound wave will be more intense and will sound louder to your ear than if you played it gently.

Understanding how sound is made and how it can be changed can help you explore sound in new ways. Combine a variety of materials to produce different pitches and volumes to develop your own instrument! Before you jump in, think about what your favourite instrument and sounds are and whether you could recreate these with things around you.

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Materials

- Something to help you produce a vibration such as elastic bands, string, a container lid, sticks, or beads.
- Materials for the sound to travel through in different ways such as a coffee tin, tissue box, or water.
- Scissors, tape.

Instructions

1. To get started, ask questions about what things around you could make noise.
2. Locate or find various things that you can make noise with. Try to find a variety of sounds with different pitches and volumes. How do they compare to the things that don't make much noise? How could you change or control the sounds you are making? How do the changes that you are able or unable to make relate to what you know about sound?
3. Demonstrate what you've found by using your instrument and showing off the sounds you can make!

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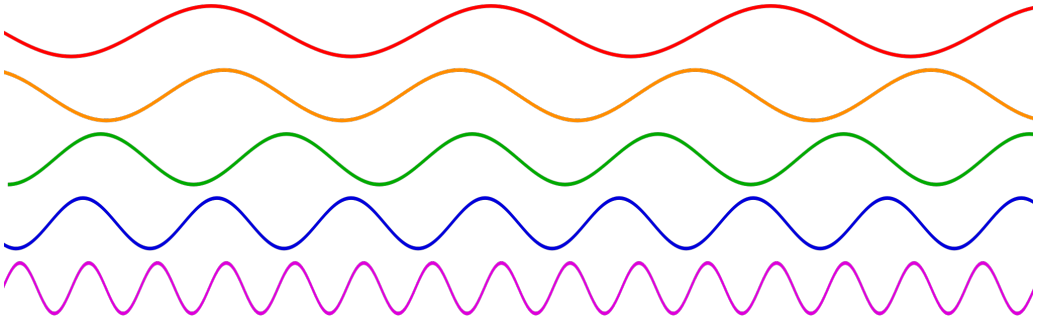
Diagram



Low Pitch

Medium Pitch

High Pitch

The top wave is a low pitch sound with the peaks of the wave farther apart (a slower vibration). The bottom wave is a high pitch sound with peaks closer together (a faster vibration).

Things to Consider

- Try out a variety of materials to see what sounds they produce before you start to develop your instrument.
- Don’t forget that there may be other people nearby who are sensitive to noise!

Questions for Reflection & Activity Extensions

- Can you develop enough instruments to make your own band?
- Compose a song using the instruments you’ve made.
- See how your instrument sounds when the noise is travelling through a different medium.
- Are there any other ways to experience sound? For example, are there any times when you can feel or see soundwaves?