

# St Bernard's Catholic Primary School- Science

## Topic: Sound and Vibration

## Year 4

### What will I know by the end of the unit?

<b>What is a sound?</b>	A thing that can be heard. The object that makes the sound is called the source.
<b>How is a sound made?</b>	<ul style="list-style-type: none"><li>• When objects vibrate, a sound is made.</li><li>• The vibration makes the air around the object vibrate and the air vibrations enter your ear. These are called sound waves.</li><li>• If an object is making a sound, a part of it is vibrating, even if you cannot see the vibrations.</li></ul>
<b>How do sounds travel?</b>	<ul style="list-style-type: none"><li>• Sound waves travel through a medium (such as air, water, glass, stone, and brick).</li><li>• For example, if somebody is playing music in the room next door, the sound can travel through the bricks in the wall.</li></ul>
<b>How do we hear sounds?</b>	<ul style="list-style-type: none"><li>• When an object vibrates, the air around it vibrates too. This vibrating air can also be known as sound waves.</li><li>• The sound waves travel to the ear and make the eardrums vibrate.</li><li>• Messages are sent to the brain which recognises the vibrations as sounds.</li></ul>
<b>How do sounds change?</b>	<p><u>Pitch:</u></p> <ul style="list-style-type: none"><li>• The pitch of a sound is how high or low it is.</li><li>• A squeak of mouse has a high pitch.</li><li>• A roar of a lion has a low pitch.</li></ul> <p><u>Volume:</u></p> <ul style="list-style-type: none"><li>• The volume of a sound is how loud or quiet it is.</li><li>• When a sound is created by a little amount of energy, a weak sound wave is created which doesn't travel far. This makes a quiet sound.</li><li>• A small tap of a hammer is used with small amounts of energy and so creates a quiet noise.</li><li>• A vibration with lots of energy makes a powerful sound wave and therefore a loud sound.</li><li>• A powerful, smashing tap of a hammer is used with lots of energy and so creates a loud noise</li></ul>
<b>How do we measure sound?</b>	<ul style="list-style-type: none"><li>• Amplitude measures how strong a sound wave is.</li><li>• Decibels measure how loud a sound is.</li><li>• Frequency measures the number of times per second that the sound wave cycles.</li></ul>

### What should I already know?

- Hearing is one of my five senses.
- Sounds can be combined using musical instruments.

### Vocabulary

- **Amplitude**- a measure of the strength of a sound wave
- **Decibel**- a measure of how loud a sound is
- **Frequency**- a measure of how many times per second the sound wave cycles
- **Pitch**- how high or low a sound is
- **Sound Waves**- invisible waves that travel through air, water, and solid objects as vibrations
- **Vibrations**- invisible waves that move quickly
- **Volume**- how loud or quiet a sound is

### Investigate

- Make musical instruments using different length strings. How do their pitches differ?
- Fill identical jars with different volumes of water. Which makes the highest pitch?

### Working Scientifically

- Ask relevant questions
- Compare fair tests
- Make careful observations
- Report on findings of investigations and draw conclusions
- Use evidence to answer questions