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| **F:\Learning bugs\Foundation Subjects\Dolly the Fly - Science.jpgLyng Primary School Knowledge Organiser**  |
| **Topic:**  | **Science** **Sound and Vibrations** | Year 4 | Summer |

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**Notable scientists Galileo**

Discovered that light was too fast to measure, so concluded that light travels faster than sound.

**What should I already know?**

* Hearing is one of my five senses.
* Sounds can be combined using musical instruments.
* What the word vibration means.
* Your ears help you hear.
* Space is a vacuum.
* Sounds can be quiet and loud.
* Different musical instruments make different sounds.

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| **What Step On and Goldilocks words will I use?** |
| **Spelling** | **Definition** |
| Amplitude | A measure of the strength of a sound wave |
| Decibel | A unit of measurement- how loud a sound is |
| Distance | A measurement of length between two points |
| Ear | An organ used for hearing |
| Eardrum | A part of the ear which is a thin, tough layer of tissue that is stretch out like a drum skin. It separates the outer ear from the middle and inner ear. Sound waves make the eardrum vibrate. |
| Energy | The power from sources such aselectricity that makes machines work orprovides heat |
| Frequency | A measure of how many times per second the sound wave cycles |
| Medium | Something that makes possible the transfer of energy from one location to another pitch |
| Particle | One of the extremely small parts of matter |
| Pitch | How high or low a sound is |
| Soundproof | To prevent sound from passing |
| Sound waves | Waves invisible waves that travel through air, water, and solid objects as vibrations |
| Source | Where something comes from transmit |
| Transmit | To pass from one place or person to another |
| Vacuum | A space where there is nothing. There are no particles in a vacuum  |
| Vibrations | Invisible waves that quickly move volume |
| Volume | How loud or quiet a sound is |

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| **Investigate!** |
| * Fill identical jars with different volumes of water. Which one creates the highest pitch?
* Which material would make the best sound defender?
* Make musical instruments using different length strings. How do their pitches differ?
* How does sound change based on the distance away from the sound?
* What happens to a drum skin when you hit it with a beater? How does it make a noise?
* What happens to sound when it travels down string? Does the tautness of the string make a difference?
* What is the range of pitch our ears can hear? Does this change based on our age?
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| **Enquiry Questions** |
| * How to describe how sounds are made?
* How sounds are heard through different mediums?
* How does relationships between vibration strength and volume?
* How to describe the relationship between volume and distance?
* How to describe pitch and how to change it?
* How to explain how insulating materials can be used to muffle sound?
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**What will I know by the end of the unit?**

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| What is sound? | * A thing that can be heard.
* The object that makes the sound is called the source.
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| How is sound made? | * When objects vibrate, a sound is made.
* The vibration makes the air around the object vibrate and the air vibrations enter your ear. These are called sound waves.
* If an object is making a sound, a part of it is vibrating, even if you cannot see the vibrations.
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| How does sound travel? | * Sound waves travel through a medium (such as air, water, glass, stone, and brick).
* For example, if somebody is playing music in the room next door, the sound can travel through the bricks in the wall.
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| How do we hear sounds? | * When an object vibrates, the air around it vibrates too. This vibrating air can also be known as sound waves.
* The sound waves travel to the ear and make the eardrums vibrate.
* Messages are sent to the brain which recognises the vibrations as sounds.
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| How do sounds change? | Pitch: • The pitch of a sound is how high or low it is. A squeak of mouse has a high pitch.• A roar of a lion has a low pitch.Volume:• The volume of a sound is how loud or quiet it is. • 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.• A small tap of a hammer is used with small amounts of energy and so creates a quiet noise.• A vibration with lots of energy makes a powerful sound wave and therefore a loud sound.• A powerful, smashing tap of a hammer is used with lots of energy and so creates a loud noise. |
| How do we measure sound? | • Amplitude measures how strong a sound wave is.• Decibels measure how loud a sound is.• Frequency measures the number of times per second that the sound wave cycles. |

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