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| **ADVENT TERM****SCIENCE – Year 4 - Medium Term Planning – PHYSICS: SOUND** |
| **LESSON  1**  | **LESSON  2**  | **LESSON  3**  |
| **LEARNING INTENTION:** To know that sounds are made by vibrations.Skills:Observing and exploring the vibrations made by a range of objectsAim: Develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them. | **LEARNING INTENTION:** To know that sounds travel through a medium to the ear.Skills: Investigate and explore with different objects and surfaces to see which provides the best insulation against soundAim:  Develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them. | **LEARNING INTENTION:** To know that the features of an object effect the pitch of the sound made.Skills: Investigate and explore with different instruments.Aim: Develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them.  |
| **Key Vocabulary:**Vibrations, sound waves, pinna, ear canal, eardrum, ossicles, inner ear, cochlea, cochlear nerve, brain, signals | **Key Vocabulary:**Vibrations, sound waves, medium, wavelength | **Key Vocabulary:**Pitch, high, low, hertz, vibrations, speed, fast, slow |
| **Recap & retrieval:** | **Recall & retrieval:*** Sound is energy produced by vibrations made by a sound source.
 | **Recall & retrieval:*** Sound is energy produced by vibrations made by a sound source.
* Sound waves travel through a medium, such as air or water, to the ear.
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| **Key Knowledge:** **Child:*** Sound is energy produced by vibrations made by a sound source.
* These vibrations travel as a sound wave.

**Teacher:** * When an instrument is played, the air around or inside it vibrates.
* Sound waves travel through a medium and enter the ear, where they are turned into electrical signals that travel to the brain and are interpreted as sound.
 | **Key Knowledge:** **Child:** * Sound waves travel through a medium, such as air or water, to the ear.
* Where there is no medium for sound waves to travel through, such as in space, there is no sound

**Teacher:*** These vibrations travel as a sound wave.
* The ear drums vibrate in a similar way to the original source of the vibration, allowing us to hear many different sounds.
* Sound waves can be represented by a wavy line in a sound wave diagram.
* Volume is represented by the size of the peaks and troughs; large peaks and troughs represent a loud volume and small peaks and troughs represent a quiet volume.
* Pitch is represented by the distance between each peak, called the wavelength.
* A long wavelength represents a low-pitched sound, and a short wavelength represents a high-pitched sound.
 | **Key Knowledge:** **Child:*** The pitch of a sound is how high or low it is.
* Fast vibrations produce high-pitched sounds, such as the sound of a whistle.
* Slow vibrations produce low-pitched sounds, such as the sound of a bass drum.

**Teacher:*** Pitch is measured in units called hertz (Hz). Humans can hear between 20 and 20,000 Hz but dogs can hear higher-pitched sounds.
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| **ADVENT TERM****SCIENCE – Year 4 - Medium Term Planning – PHYSICS: SOUND** |
| **LESSON  4**  | **LESSON  5**  | **LESSON  6**  |
| **LEARNING INTENTION:** To know that the strength of the vibration is related to the volume of the sound.Skills: Compare and find patterns in the volume of a sound, using a range of equipment, such as musical instruments.Aim:  Develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them.  | **LEARNING INTENTION:** To know that the volume of a sound is affected by distance.Skills: Compare how the volume of a sound changes at different distances from the source. Aim:  Develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them. | **LEARNING INTENTION:**  To know that Alexander Graham Bell was an inventor.Skills: Research and understand the link between Alexander Graham Bell inventing the phone and how it links to sound. Aim: Are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.  |
| **Key Vocabulary:** Volume, decibels, force, vibrations, energy, louder, quieter, muffle, absorb | **Key Vocabulary:** distance, nearer, further, volume, louder, quieter | **Key Vocabulary:** Decibel, invention, telephone,  |
| **Recall & retrieval:*** Sound is energy produced by vibrations made by a sound source.
* Sound waves travel through a medium, such as air or water, to the ear.
* Fast vibrations produce high-pitched sounds
 | **Recall & retrieval:*** Sound is energy produced by vibrations made by a sound source.
* Sound waves travel through a medium, such as air or water, to the ear.
* Fast vibrations produce high-pitched sounds
* The larger the force of energy put into the sound source, the louder the volume.
 | **Recall & retrieval:*** Sound is energy produced by vibrations made by a sound source.
* Sound waves travel through a medium, such as air or water, to the ear.
* Fast vibrations produce high-pitched sounds
* The larger the force of energy put into the sound source, the louder the volume.
* The nearer the sound source, the louder the volume.
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| **Key Knowledge:** **Child:*** The volume of a sound is how loud it is.
* The larger the force of energy put into the sound source, the louder the volume.
* The smaller the force, the quieter the volume.

**Teacher:*** It is measured in units called decibels (dB).
* Putting less energy into a sound source creates smaller sound waves, meaning the sound will be quieter.
* Sound can be muffled by inserting a material into the sound wave's path that absorbs sound waves.
 | **Key Knowledge:****Child:*** Distance affects volume.
* The nearer the sound source, the louder the volume.
* The further away the sound source, the quieter the volume.

**Teacher:*** Sound waves travel from the sound source in all directions.
* The sound waves become smaller as the energy dissipates and the sound becomes gradually quieter.
 | **Key Knowledge:** **Child:*** Named after the inventor Alexander Graham Bell, a decibel (dBA) is the unit used to express the intensity of sound.
* Alexander Graham Bell was given the patent for his invention of the telephone on 7th March 1876.

**Teacher:*** Alexander Bell was born in Edinburgh on 3 March 1847.
* Sound and speech were part of Bell’s life from a young age. Both his father and grandfather were well-known teachers of elocution and speech training.
* Young Bell attempted to make working models of ear and vocal chords, aiming to create a mechanical speech device.
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| **Assessment**  Cumulative quiz. Retrieval practice. |