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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 objects  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 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 sound  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 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. |
| **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. |
| **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. |
| **Assessment**   Cumulative quiz. Retrieval practice. | | |