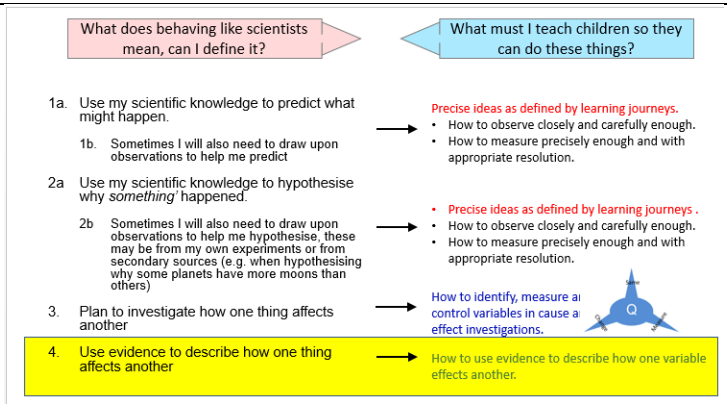
Learning journey	Science	Sound	Year 6 Autumn 2	

Building on prior learning	Theme overview	Preparing for future learning	Vocabulary
This is the first time that the children will have learned about sound. There is no direct link to KS1.	• Describing sounds as pitch and volume, • Sound travels as vibration through a variety of materials • Pitch and volume are determined by how the material vibrates:	In KS3 children will learn about frequencies of sound waves, measured in hertz (Hz); echoes, reflection and absorption of sound They will learn that sound needs a medium to travel, the speed of sound in air, in water, in solids is different. Sound produced by vibrations of objects, Sound can be detected in loud speakers, detected by their effects on microphones diaphragms and the ear drum; sound waves are longitudinal They will learn about auditory range of humans and animals.	• Sound, volume (soft and loud), high pitch, low pitch • Vibration, frequency, amplitude. • Insulation

NC coverage and HWJS skills development	Knowledge organisers
National Curriculum Coverage: • Identify how sounds are made, associating some of them with something vibrating • Recognise that vibrations from sounds travel through a medium to the ear • Find patterns between the pitch of a sound and features of the object that produced it • Find patterns between the volume of a sound and the strength of the vibrations that • produced it • Recognise that sounds get fainter as the distance from the sound source increases **HWJS skills development** Details of the skills that will be taught within the unit. These should match up with the skills progression documentation	**Chapter 1: Describing sounds** •Sounds can be made in many different ways and individual sounds have the properties of pitch and volume. •When a sound is made it immediately spreads out in all directions. As it travels its volume decreases but its pitch remains the same. **Chapter 2: How sounds are made and travel.** •Sound is made when an object is made to vibrate (move backwards and forwards or up and down). •As the material vibrates it makes whatever it is in contact with vibrate, including air. As the air vibrates it makes whatever it is in contact with vibrate also, which might be a wall or even your eardrum. Sound moves through materials vibrating making other materials they are in contact with vibrate. **Chapter 3: Why does pitch and volume change?** •Pitch and volume are determined by how the material vibrates: ➢ Pitch is determined by how fast an object vibrates, i.e. the frequency of vibration. The higher the frequency the higher the pitch.



A Model of Skills Progression.

1. Pose problems that require the application of knowledge being taught.
2. Deconstruct the problem to define what a child must understand and be able to do to tackle the problem (including what they need to observe and measure), teach these skills and knowledge ***at that point.***
3. As children progress through the curriculum they will tackle problems using new ideas, and when the problem requires with closer observation and more precise measurement.

Good enough progression is being able to tackle these problems

Children gather evidence to describe the relationship between variables (cause and effect) by identifying what must be changed, what measured and what must be kept the same.

In Year 5 &6, using evidence to describe how one thing affects another is key. Children should be taught how to describe patterns and give a ***judgement*** on how sure they are. Key features of this are:

- Recognise that conclusions may be uncertain due to difficulties controlling and measuring variables accurately.
- That measurement always introduces some error. Understand that repeating experiments helps to identify what the true value is and that data points far from the mean are likely to be inaccurate and should be discounted.

➢ Volume is determined by how big the movement of each vibration is (the amplitude of vibration). The bigger the amplitude the higher the volume.

•Smaller objects and tighter strings and surfaces tend to vibrate with a higher frequency.

• Adapting experiments to produce more precise conclusions when the question requires it, especially when seeking to find maximum, minimum or specific values				
Connections / deepening understanding How is the understanding of this area deepened in other areas of the curriculum? What links are there in the other subjects in the curriculum?	**RADE** Are the rights of the child relevant in this area of study - do they get referred to in the work?	**Assessment** By the end of the unit the children will be able to … Details of the objectives that they will have covered within this unit of work		
English – Formal report writing, explanation. Links to 'Wonder' English unit – reading unit on deafness. Maths – Measuring and plotting line and scatter graphs. Music - Vibration, pitch and volume made by instruments and voice. How pitch determines notes. Volume increases size of vibration.	Links to English unit on the book 'Wonder' and rights of child with disabilities for fair access.	Sounds can be made in different ways and have properties of pitch and volume. Sound waves spread in all directions. As sound travels, volume decreases but pitch stays the same	Sound is made when objects vibrate. Sound moves through materials, making other materials they are in contact with vibrate.	Pitch and volume are determined by how a material vibrates. Smaller objects and tighter strings/surfaces vibrate with a higher frequency.

Assessment recording for the unit - checking the level of pitch of the work

Key skill(s)/ knowledge to be assessed by the end of the unit	**Lower attaining**	**Middle attaining**	**Higher attaining**
Details of the key knowledge that the children will have at the end of the unit	Description of level of knowledge that a child who at this stage	Description of level of knowledge that a child who at this stage	Description of level of knowledge that a child who at this stage
Sounds can be made in different ways and have properties of pitch and volume. Sound waves spread in all directions. As sound travels, volume decreases but pitch stays the same Sound is made when objects vibrate. Sound moves through materials, making other materials they are in contact with vibrate	Sound travels in waves from a source. Sound has different properties – pitch and volume. Sound is made when objects vibrate. They can describe vibrations that they have felt and/or seen. Pitch is the note – high or low. They can link these ideas to	Sound travels in waves from a source. Sound has different properties – pitch and volume. Pitch determines the highs and lows of the sound When a sound is made it immediately spreads out in all directions. As it travels its volume decreases but its pitch remains the same. Sound is made when objects vibrate. They can describe vibrations that they have felt and/or seen. (move backwards and forwards or up and down).	Sound travels in waves from a source. Sound has different properties – pitch and volume. Pitch determines the highs and lows of the sound When a sound is made it immediately spreads out in all directions. As it travels its volume decreases but its pitch remains the same. Sound is made when objects vibrate. They can describe vibrations that they have felt and/or seen. (move backwards and forwards or up and down). They begin to plot these as predictive diagrams or graphs to show comparisons

Pitch and volume are determined by how a material vibrates. Smaller objects and tighter strings/surfaces vibrate with a higher frequency.	instruments that they have used in music lessons.	As the material vibrates it makes whatever it is in contact with vibrate, including air. As the air vibrates it makes whatever it is in contact with vibrate also, which might be a wall or even your eardrum. Sound moves through materials vibrating making other materials they are in contact with vibrate. Pitch is the note – high or low. They can link these ideas to instruments that they have used in music lessons. They can begin to describe that Pitch is determined by how fast an object vibrates, i.e. the frequency of vibration. The higher the frequency the higher the pitch. They can begin to describe that Volume is determined by how big the movement of each vibration is (the amplitude of vibration). The bigger the amplitude the higher the volume.	As the material vibrates it makes whatever it is in contact with vibrate, including air. As the air vibrates it makes whatever it is in contact with vibrate also, which might be a wall or even your eardrum. Sound moves through materials vibrating making other materials they are in contact with vibrate. They can also notice that Smaller objects and tighter strings and surfaces tend to vibrate with a higher frequency. They can produce simple sketch graphs that predict and explain this. They can draw simple conclusions about what happens to vibration and frequency as the string shortens or tightens. They are able to adapt experiments to test their own ideas relating to this. Pitch is the note – high or low. They can link these ideas to instruments that they have used in music lessons and draw annotated sketches They can begin to describe that Pitch is determined by how fast an object vibrates, i.e. the frequency of vibration. The higher the frequency the higher the pitch. They can begin to describe that Volume is determined by how big the movement of each vibration is (the amplitude of vibration). The bigger the amplitude the higher the volume. Children decide how they are going to adapt an experiment to determine how the amount of water affects other variables in the investigation (pitch and volume).They can make reasoned predictions (including the use of predictive diagrams and graphs) to explain what they think will happen. They can log results, describe patterns in results, use evidence to describe how one variable effects another and begin to make judgements on the accuracy of any patterns seen.

NB: The assessments are completed for two reasons – to enable the class teacher and in turn the subject leader to evaluate the pitch of the learning within the unit in order to consider any necessary updates and for the class teacher to report to parents on the attainment of pupils in the end of year reports

Health and Safety/Key Safety Points	• Cross infection from shared equipment - Milton should be used to disinfect if using equipment which will be placed by the mouth or ear. • Possible damage to hearing from excessive sounds close to the ear – this should be discussed with children when experimenting. • Possible injuries caused when materials are stretched, flexed or plucked – use materials that are unlikely to fracture during exploration.