

Theme Overview

Year	4	Term	Spring 1
Theme	Sound and Electricity	Big Question	How do we hear music?
<p>Focus of unit and scope of unit: This unit focuses on the science of sound and electricity. The children will learn how sound travels and how they hear sound and will have the opportunity to investigate sounds using data logging. The children will learn about electrical circuits and what is needed for a successful circuit and apply this knowledge to create their own musical instrument using a lever mechanism to activate a switch to sound a buzzer. The children will learn about a variety of musicians that have been instrumental in the development of music.</p>			
Caring	Creative	Critical	SMSC/Equalities/British Values
<p>The children will understand that we use electricity in our everyday lives and that we need to conserve power. They will understand that electricity can be dangerous and how to stay safe.</p> <p>They will understand that music and sound is important and how we are able to hear and enjoy this.</p>	<p>The children will design their own lever mechanism and use it to create an aesthetically pleasing musical instrument, refining ideas as they go.</p> <p>Children will compose and improvise their own music and begin to use notation to record their ideas. They will perform with others</p>	<p>The children will have the opportunity to make predictions and test scientific ideas and draw and present conclusions using Venn diagrams and Bar Charts.</p> <p>They will follow step by step instructions to make a lever and understand the importance of mechanisms in everyday life.</p>	<p>The children will learn about famous musicians including those from different cultures and with disabilities.</p> <p>Children will work together, respecting each other's ideas. They will learn about the dangers of electricity and how to keep safe.</p> <p>Children will have the opportunity to reflect on own and other's preferences of music and musical styles.</p>
Big Start		Big Finish	Experience
Music feelings sheet		Class concert to show information on music and musical instruments.	Musician Visit

Year 4	Spring Term 1: How do we hear music?		
Sequence of Learning	Previous Learning		Next Steps in Learning
	<p>Children have previously made observations and used these to draw conclusions. In KS1 they will have identified how they hear sound and that sound gets quieter when it is further away.</p> <p>The children already know that some appliances need power and that electricity can be dangerous..</p>		<p>The children will move onto making increasing complex circuits in Year 6 and being able to record these using a broader range of circuit diagrams.</p> <p>They will move into looking at how light travels and making links between how light and sound travel together.</p> <p>Children move into planning increasing complex investigations and identifying variables, as well as choosing the most appropriate way of presenting results.</p>
Knowledge and Skills	Planning an Investigation	Carrying Out an Investigation	
	<ul style="list-style-type: none"> <i>I ask relevant questions and use different types of scientific enquiries to answer them.</i> <i>I can set up simple practical enquiries, comparative or fair tests.</i> <i>I decide what observations and measurements to make and what equipment to use</i> 	<ul style="list-style-type: none"> <i>I use a range of equipment (including thermometers).</i> <i>I make systematic and careful observations and take accurate measurements using standard units.</i> <i>I use information sources provided to find things out.</i> <i>I record results in tables I have started to independently draw.</i> 	
	Presenting Evidence and Drawing Conclusions		<ul style="list-style-type: none"> <i>I present my data in a variety of ways using e.g. Venn diagrams, bar charts, simple scatter graphs and keys.</i> <i>I can make conclusions and I make predictions for new values.</i> <i>I communicate what I have found out using straightforward scientific ideas and I report my findings using oral and written explanations and display.</i>
Substantive Knowledge		Famous Scientists	
<p>Sound</p> <ul style="list-style-type: none"> <i>Know how sound is made.</i> <i>Know how sound travels from a source to our ears.</i> <i>Know how sounds are made, associating some of them with vibrating.</i> <i>Know the correlation between pitch and the object producing a sound.</i> <i>Know the correlation between the volume of a sound and the strength of the vibrations that produced it.</i> <i>Know what happens to a sound as it travels away from its source.</i> <p>Electricity</p> <ul style="list-style-type: none"> <i>Identify and name appliances that require electricity to function.</i> <i>Construct a series circuit.</i> <i>Identify and name the components in a series circuit (including cells, wires, bulbs, switches, buzzers).</i> <i>Know how to draw a circuit diagram.</i> <i>Predict and test whether a lamp will light in a circuit.</i> <i>Know the function of a switch in a circuit.</i> <i>Know the difference between a conductor and an insulator, giving examples of each.</i> 		<p>Robert Boyle (1627- 1691)</p> <p>2. Ernst Mach (1838-1916). Described how shock waves are formed.</p> <p>3. Heinrich Hertz (1857-94). The unit of frequency used for all kinds of waves and vibrations is named after him. One Hertz is equal to one vibration per second.</p>	
Vocabulary	Cell Bulb Series Circuit Components	Vibrate Circuit diagram Wires switch	Voltage Buzzer Insulator Conductor Sound waves

Design Technology

Year 4	Spring Term: Electrical Instrument		
Sequence of Learning	Previous Learning		Next Steps in Learning
	<p>Prior Learning In year 1the children learned about basic levers and sliders and had the opportunity to experiment with examples and make their own. In Year 2 they built upon this by adding to their mechanism understanding by learning about wheels and axles. This unit will be their third time learning about mechanisms and exploring both the engineering and also the design aspects.</p>		<p>The children will move on to creating a circuit to move a motor and link to a mechanism to turn an axel in Year 5.</p> <p>The children will create more independent detailed step by step plan and come up with their own success criteria that includes the success of the mechanism and the aesthetic appeal.</p>
Knowledge and Skills	Design	Make	Evaluate
	<ul style="list-style-type: none"> • <i>Create a design to a simple success criterion.</i> • <i>Generate more than one idea for how to create a product.</i> • <i>Gather information to help design a successful product (i.e. by asking others' views and exploring similar products).</i> • <i>Produce a plan and explain it.</i> • <i>Suggest improvements to develop and refine a planned idea.</i> 	<ul style="list-style-type: none"> • <i>Use a range of tools and equipment with increasing accuracy.</i> • <i>Independently measure, mark out, join, assemble materials and components with increasing accuracy.</i> • <i>Persevere and adapt my work when my original ideas do not work.</i> 	<ul style="list-style-type: none"> • <i>Evaluate and suggest simple improvements for my designs.</i> • <i>Evaluate products for both their purpose and appearance.</i> • <i>Explain how I have improved my original design.</i>
	Cooking & Nutrition / Construction & Structures / Textiles / Mechanisms		Famous Designers
	<p>Create a simple lever switch to sound buzzer for simple circuit.</p> <ul style="list-style-type: none"> • <i>Follow a design brief to make a lever switch, neatly and with a focus on accuracy.</i> • <i>Make mechanisms and/or structures using sliders, pivots and folds to produce movement to connect a simple circuit and sound a buzzer.</i> • <i>Use layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result</i> 		<p>Archimedes (287 - 212 B.C.) Archimedes was a Greek philosopher, mathematician and inventor, who wrote about geometry and mechanics. He was born in Syracuse, Sicily, and educated in Alexandria, Egypt. Archimedes defined the principle of the lever and invented the compound pulley.</p>
Vocabulary	<p>Mechanism-a device used to create movement.. Lever- a rigid bar that moves around a pivot</p> <p>fixed pivot-</p>		