The National C of E Junior School

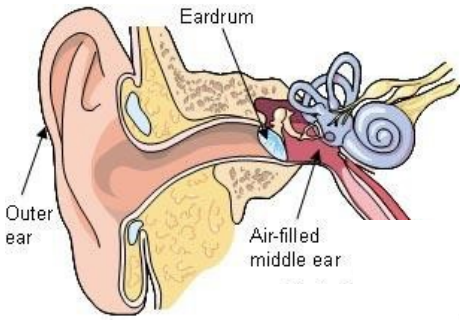
Science Focus:	Sound		Year 4		Summer 1st Half-Term

What? (Key Knowledge)

Sound

What is a sound?	A noise that can be heard by someone.
How is a sound made?	**A sound happens when something vibrates.** **This can be obvious:** Like when a drill is hitting the ground repeatedly which causes a loud noise  **This can be less obvious:** Here the air in the bottle vibrates to produce the noise 

So how do we hear sounds?

How do sounds travel?	Sounds can travel in two ways: • Through the air - like from a TV speaker across the room to your ears • Through an object/material - like stone, brick, water and glass. If someone moves furniture upstairs, the sound can travel through the floor to you.
How do we hear these vibrations?	• The vibrating air hits our ear drums and makes them vibrate.  • The vibration is picked up by our brains and converted to sounds we recognise.

Changing sounds

Volume	• The closer we are to the sound source, the louder the sound will appear to us. • The further away we are from the sound source, the quieter the sound will appear.
	• The more energy in the initial vibration the louder the sound will be. For example, if you tap a hammer on a desk the sound will be quiet, but if you smash a hammer on a desk it would be much louder.
Pitch	The pitch is how high or low a sound is. • The shorter the vibrating object, the higher the pitch of the sound. • The longer the vibrating object, the lower the pitch of the sound. With string instruments, the tighter the string, the higher the pitch of the sound.

What? (Key Vocabulary)

Spelling	Definition/Sentence
Vibrates	Move continuously very quickly
Particles	A small amount of matter.
Material	What something is made from.
Recognise	To see or spot something
Cochlea	A spiral cavity of the inner ear that allows us to hear

Diagrams and Symbols

The pitch of a sound

Higher pitch — Lower pitch

The shorter the object the higher the pitch

Lowest pitched

A

Highest pitched

The shorter the vibrating column of air, the higher the pitch so bottle B will give a higher pitch sound

Prior Knowledge

Sound can be different volumes, high or low.

Sound can be made by different objects.

The National C of E Junior School

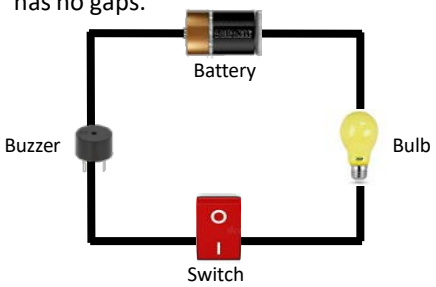
Science Focus:	Electricity	Year 4	Summer 2nd Half-Term

What? (Key Knowledge)

Electricity

What is Electricity?	• Electricity is created by generators which can be powered by gas, coal, oil, wind or solar. • The electrical energy can be converted into other types of energy such as light, heat, movement or sound. • Electricity is dangerous, so be careful when using electrical appliances.
What are common appliances that run on electricity?	 Any appliances that need to be plugged in run on electricity. For example: ⇒ Television ⇒ Computer ⇒ Microwave ⇒ Lights

An electrical circuit

A series circuit (One pathway around the circuit)	• Electricity can flow through the components in a complete electrical circuit. • A circuit always needs a power source, such as a battery, with wires connected to both the positive (+) and negative (-) ends. (A battery is made from a collection of cells connected together). • A circuit can also contain other electrical components, such as bulbs, buzzers or motors, which allow electricity to pass through. • Electricity will only travel around a circuit that is complete. That means it has no gaps. 
What is a switch?	• You can use a switch in a circuit to create a gap in a circuit. This can be used to switch it on and off. • When a switch is open (off), there is a gap in the circuit. Electricity cannot travel around the circuit. • When a switch is closed (on), it makes the circuit complete. Electricity can travel around the circuit.

Electrical Conductors and Electrical Insulators

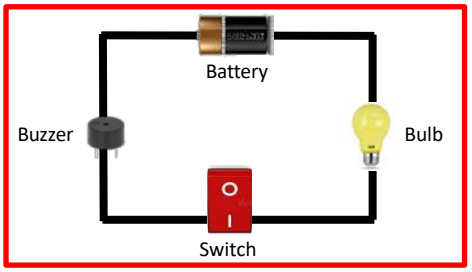
Conductors	• Some materials let electricity pass through them easily. They are known as electrical conductors. • Many metals, such as iron, copper and steel, are good electrical conductors.
Insulators	• Some materials do not allow electricity to pass through them. They are known as electrical insulators. • Wood, glass, plastic and rubber are good electrical insulators. That is why they are used to cover materials that carry electricity.

What? (Key Vocabulary)

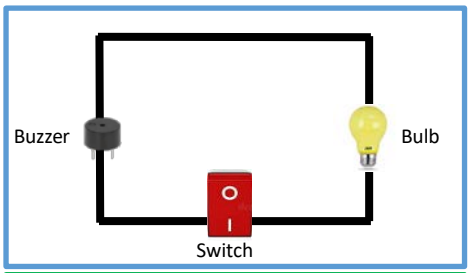
Spelling	Definition/Sentence
Generator	A machine that make electrical energy
Component	A part of something (a part of a circuit)
Circuit	A path through which an electrical current flows
Current	The flow of electrical charge
Connected	Something that is joined or linked

Diagrams and Symbols

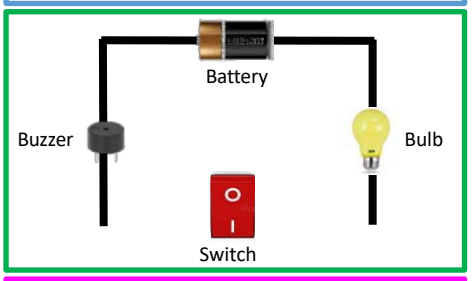
Would the bulb light up?



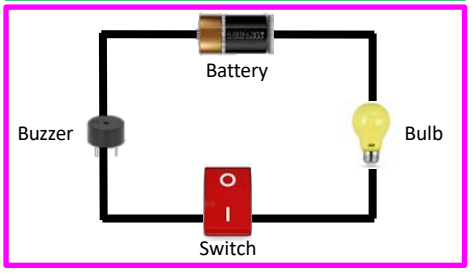
Will the bulb light?
Yes
Why?
The circuit has a battery and a bulb and is complete.



Will the bulb light?
No
Why?
The circuit has no battery to provide the electrical power.



Will the bulb light?
No
Why?
The circuit is not complete.



Will the bulb light?
No
Why?
The switch is in the off (0) position.

Prior Knowledge

- Observing and recording changes
- To begin to understand comparative or fair testing
- To identify common appliances in their household that run on electricity