

Computing

Programming

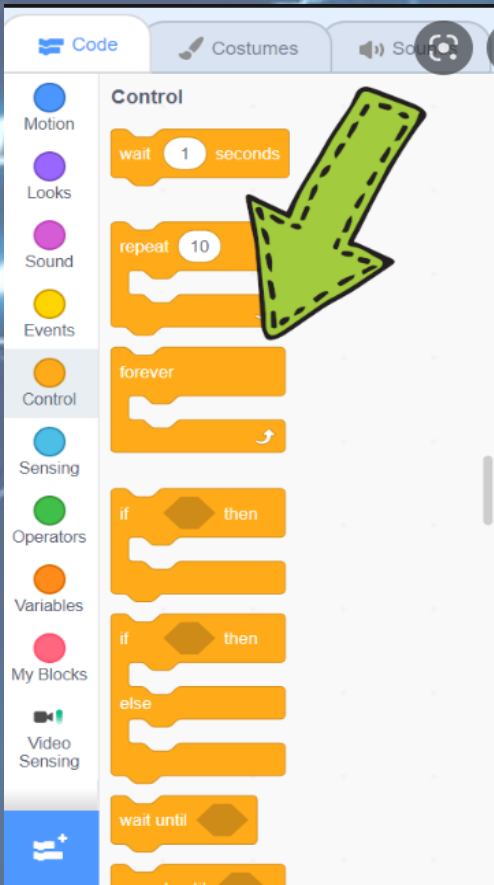
Use diagrams to represent an algorithm (flowchart)

Use forever loops in a program

Create a program using a range of events/inputs to control what happens.

Use selection in algorithms

("If...then...")



Year 4 - Eureka!



DRIVE

D - determination to make the world a better place.
I - how those from the past have influenced us, building on the knowledge of others.
I - innovations in Science and Technology

Design and Technology

Electrical Systems
Design and make a steady hand game using knowledge of circuits from Science Electricity.



Toton
Bispham Drive
Junior School
Ad esse optimum

Music

Stop! - a rap about bullying

Recommended Websites

Useful Websites

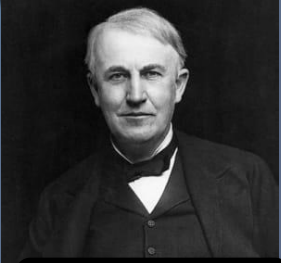
- [Code.org](#)
- [The Sound Collector by Roger McGough](#)
- [Sound Meter App](#)

Scratch Junior - (You can make a free account using your Google account)

Influential Scientists



Helen Keller



Thomas Edison



Sound

Year 4

Key Vocabulary

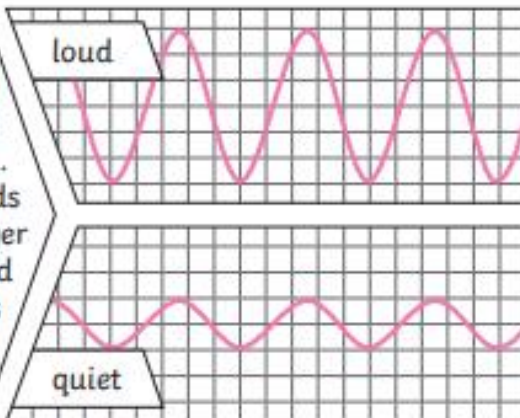
vibration	A movement backwards and forwards.
sound wave	Vibrations travelling from a sound source.
volume	The loudness of a sound.
amplitude	The size of a vibration . A larger amplitude = a louder sound.
pitch	How low or high a sound is.

Key Knowledge

Sound is a type of energy. Sounds are created by **vibrations**. The louder the sound, the bigger the **vibration**.



The size of the **vibration** is called the **amplitude**. Louder sounds have a larger **amplitude**, and quieter sounds have a smaller **amplitude**.



Pitch is a measure of how high or low a sound is. A whistle being blown creates a high-**pitched** sound. A rumble of thunder is an example of a low-**pitched** sound.



You can change the **pitch** of a sound in different ways depending on the type of instrument you are playing.

For example, if you are playing a xylophone, striking the smaller bars with the beater causes faster **vibrations** and so a higher **pitched** note. Striking the larger bars causes slower **vibrations** and produces a lower note.





Key Vocabulary

ear	An organ used for hearing.
particles	Solids, liquids and gases are made of particles . They are so small we are unable to see them.
distance	A measurement of length between two points.
soundproof	To prevent sound from passing.
absorb sound	To take in sound energy. Absorbent materials have the effect of muffling sound.
vacuum	A space where there is nothing. There are no particles in a vacuum.
eardrum	A part of the ear which is a thin, tough layer of tissue that is stretched out like a drum skin. It separates the outer ear from the middle and inner ear . Sound waves make the eardrum vibrate .

Key Knowledge

Sound can travel through solids, liquids and gases. Sound travels as a **wave**, **vibrating** the **particles** in the medium it is travelling in. Sound cannot travel through a vacuum.

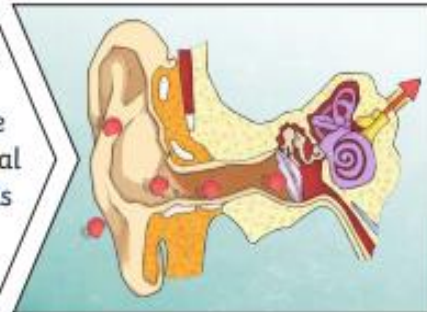
When you hit the drum, the drum skin **vibrates**. This makes the air **particles** closest to the drum start to **vibrate** as well.



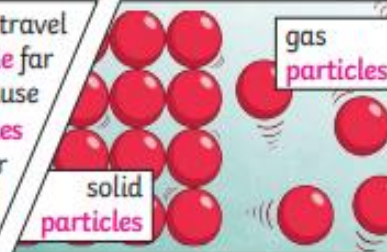
The **vibrations** then pass to the next air **particle**, then the next, then the next. This carries on until the air **particles** closest to your ear **vibrate**, passing the **vibrations** into your **ear**.



Inside your **ear**, the **vibrations** hit the **eardrum** and are then passed to the middle and then the inner **ear**. They are then changed into electrical signals and sent to your brain. Your brain tells you that you are hearing a sound.



Sound energy can travel from **particle to particle** far easier in a solid because the **vibrating particles** are closer together than in other states of matter.



If you throw a stone in a pond, it will produce ripples. As the ripples spread out across the pond, they become smaller. When sound **vibrations** spread out over a **distance**, the sound becomes quieter, just like ripples in a pond.





Electricity

Key Vocabulary

circuit

A pathway that **electricity** can flow around. It includes wires and a power supply and may include bulbs, switches or buzzers.

There are two types of electric current.

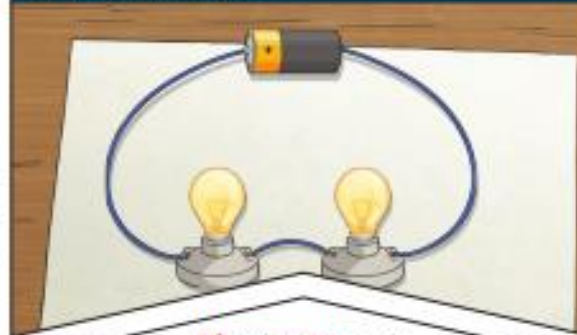
Mains electricity: power stations send an electric charge through wires to transformers and pylons. Then, underground wires carry the electricity into our homes via wires in the walls and out through plug sockets.



Battery electricity: **batteries** store chemicals which produce an electric current. Eventually, even rechargeable **batteries** will stop producing an electric current.



Key Knowledge



Electricity can only flow around a complete **circuit** that has no gaps. There must be wires connected to both the positive and negative end of the power supply/**battery**.

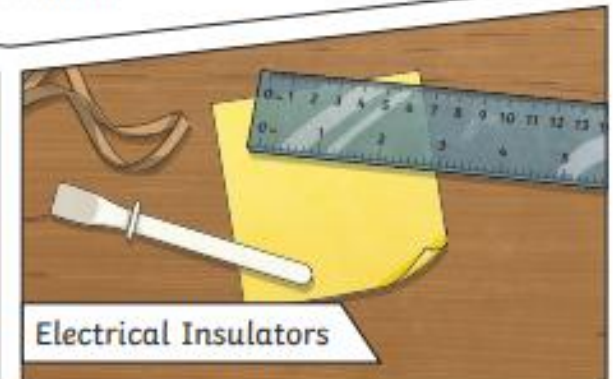
Switches can be used to open or close a **circuit**. When off, a switch 'breaks' the **circuit** to stop the flow of **electricity**. When on, a switch 'completes' the circuit and allows the **electricity** to flow.



A conductor of **electricity** is a material that will allow **electricity** to flow through it. Metals are good conductors. Materials that are electrical insulators do not allow **electricity** to flow through them. Wood, plastic and glass are good insulators



Electrical Conductors



Electrical Insulators



Key Vocabulary

electricity	The flow of an electric current through a material, e.g. from a power source through wires to an appliance .
generate	To make or produce.
renewable	A source of electricity that will not run out. These include solar, nuclear, geothermal, hydro and wind.
non-renewable	This source of energy will eventually run out and so will no longer be able to be used to make electricity . These include fossil fuels – coal, oil and natural gas.
appliances	A piece of equipment or a device designed to perform a particular job, such as a washing machine or mobile phone.
battery	A device that stores electrical energy as a chemical.

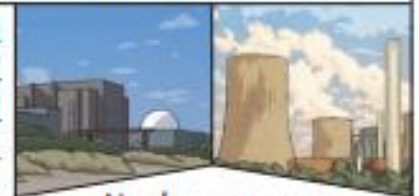
Key Knowledge

Lightning and static **electricity** are examples of **electricity** occurring naturally but for us to use **electricity** to power **appliances**, we need to make it.

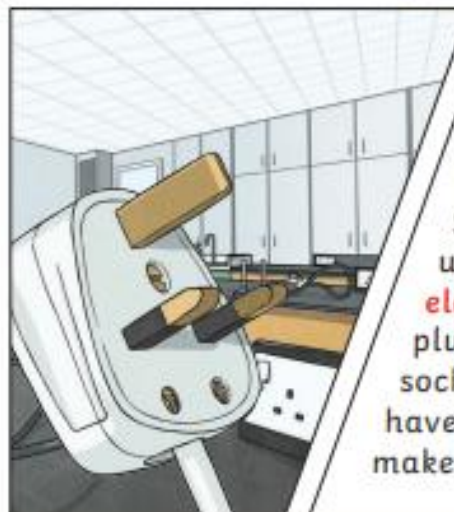


Coal, oil and natural gases are fossil fuels which, when burnt, produce heat which can be used to **generate electricity**.

Electricity can be **generated** from wind power used to turn windmills and hydroelectric power from water used in dams. The Sun's rays can be converted into **electricity** by solar panels.



Nuclear energy is created when atoms are split. This creates heat which can be used to **generate electricity**. Geothermal energy is heat from the Earth that is converted into **electricity**.



Many everyday **appliances** rely on **electricity** for them to work. Some appliances use mains **electricity** (are plugged into a socket) and others have a **battery** to make them work.

