St. John's Gosport Church of England Primary School - Science Knowledge Organiser

Year 4 Making Electrical Circuits Work - What are electric circuits and how do they work?

Substantive Knowledge

Lots of devices are powered by **electricity**.
Electricity comes from a source.
There are two main sources - **batteries and mains**.
A battery pushes electricity to the device.
To be able to push electricity, the battery must be connected to the device using **wires**.
This is called a **circuit**.
If there are more batteries added to a circuit, this provides a bigger push on the electricity.
This will make the device work harder e.g., brighter bulbs, faster spinning motor, louder buzzer.
Some materials will allow electricity to flow through them - **Conductors**.
Metals such as silver, gold and copper are good conductors. Water is also a conductor of electricity.
Other materials will not allow electricity to flow through them - **Insulators**.
Plastic, wood, glass and rubber are good electrical insulators. That is why they are used to cover materials that carry electricity.
A switch opens and closes a circuit.

Disciplinary Knowledge

Asking relevant questions and using different types of scientific enquiries to answer them.	
Making systematic and careful observations where appropriate, taking accurate measurements.	
Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.	

Significant Scientists

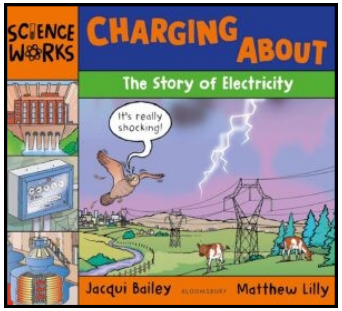
Charles K. Kao (1933-2018)

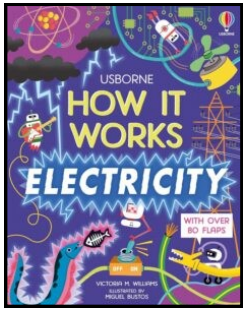
Charles K. Kao was a Nobel Prize winner and an influential electrical engineer in the history of telecommunications. His work revolutionized the internet and helped create fiber optics, which allows us to transmit data at

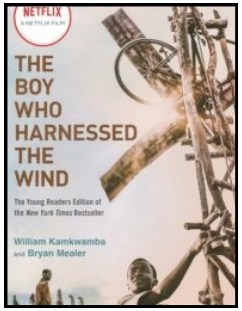
Thomas Edison (1847-1931)

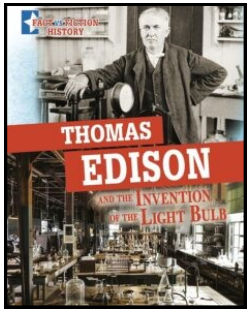
Thomas Edison was an inventor who was dyslexic, struggled with speech and couldn't grasp arithmetic concepts. He came up with many inventions but his most ground breaking invention includes the electric light bulb.

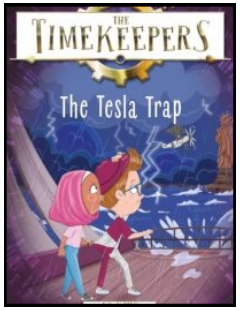
Interesting Books











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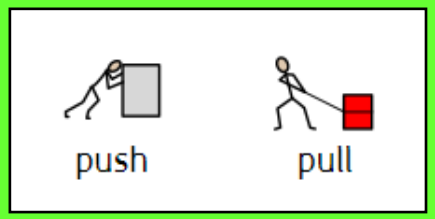
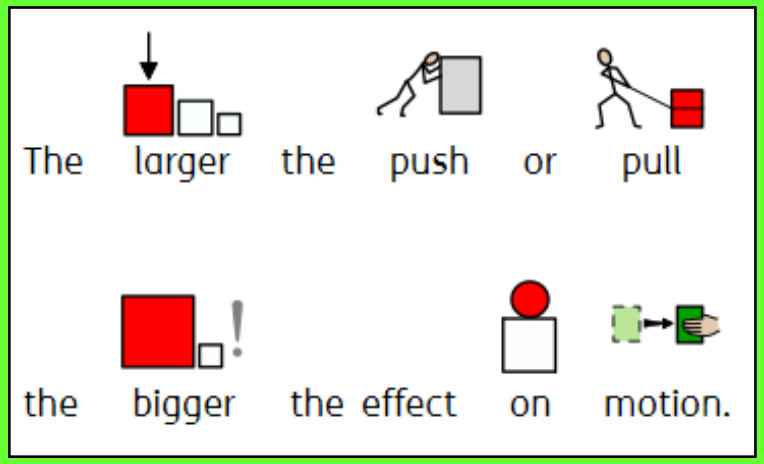
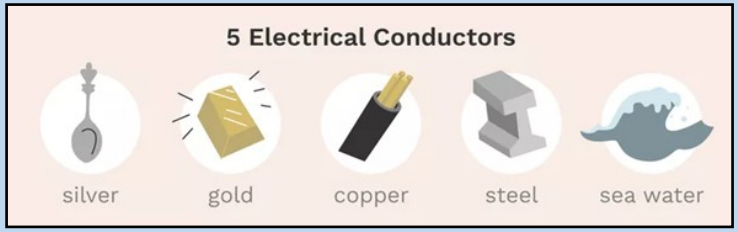
Prior Knowledge

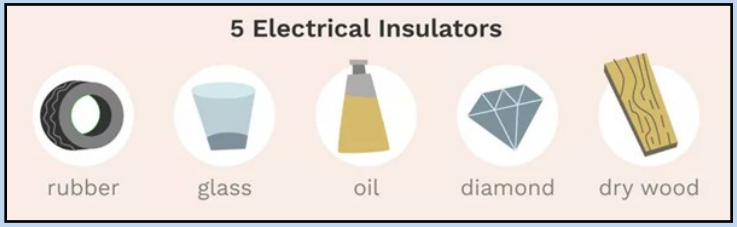




Key Vocabulary	
electricity	A form of energy that flows around a circuit.
batteries	A store of chemical energy.
mains electricity	Electricity supllied to a building through wires.
device	Any machine powered by electricity.
wires	A long thin piece of conducting metal that electricity can flow through.
circuit	A connection of electrical devices, wires and a power supply.
conductor	A material that will allow electricity to flow through it.
insulator	A material that will not allow electricity to flow through it.

Conductors and Insulators





Electric Circuits