# Year 4 Summer Term

## Electricity

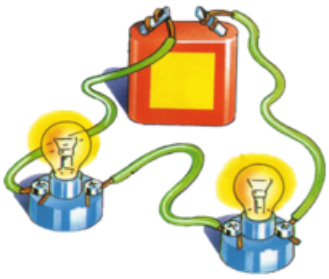

### Prior knowledge

Not covered – new learning

### National Curriculum for year 4

identify common appliances that run on electricity - construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers - identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery - recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit - recognise some common conductors and insulators, and associate metals with being good conductors

#### Overview



-Electricity is a type of energy.

-It is used to power lots of different things, including many items that we use in everyday life.

-Electricity can flow through wires and cables, and can be stored in batteries (sometimes called cells).

-Electricity can flow in simple series electrical circuits.

-Some materials conduct electricity, and others do not (insulators).

#### Creation and Uses of Electricity


Electricity can be created in a number of different ways, for example:

-Burning fossil fuels (oil, gas, etc.) in power stations;

-Using solar power generated from the sun;

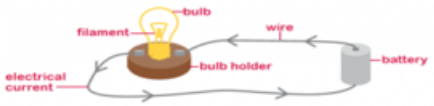
-Using wind power from wind turbines;

-Using water power (hydropower).

Electricity is used to power numerous household appliances, for example laptops, TVs, fridges, microwaves, toasters, ovens and lights/ lamps. Life would be very different without it!

#### Simple Series Electric Circuits

This diagram shows a battery with wires connecting it to a battery (or cell).




| | |
|---|---|
| **Circuit** | -A circuit is the path the electric current follows. It must have no breaks in it (a closed circuit) for electricity to flow. |
| **Current** | -A current is the electricity flowing through the circuit. |
| **Battery (Cell)** | -A battery (or cell) is something in which electricity can be stored. |
| **Wire/Cable** | -Wires and cables are thin flexible threads that transport electricity. |
| **Conductor/Insulator** | -Conductors allow electricity to flow through freely. Insulators do not allow electricity to flow through freely. |

#### Electrical Safety

Electricity can be extremely dangerous if it is not used safely. It can cause burns, shocks, serious injury and (in extreme cases) even death.

There are many electrical dangers, both in the home and outdoors.

**Some Important Electrical Safety Tips**

-Do not put fingers and other objects in an outlet;

-Never use anything with a cord or plug around water;

-Keep metal objects away from toasters;

-Stay away from power stations and power lines;

-Never pull a plug out by its cord;

-Never touch or climb trees near power lines;

-Go indoors when there is thunder and lightning.

-Look out for signs like the one on the left.

**Key vocabulary**

Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors,

**Suggested texts**

(Foxton) Electricity

**Scientists**

- Michael Faraday- Discovered relationship between magnets and electricity
- Thomas Edison- Lightbulb

Joseph Swan- Incandescent Light Bulb

Can you name basic parts of a circuit?

What are the dangers of using electricity?

What does conducting / conductor mean?

What is electricity?

| Conductors | | | | | Insulators | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Silver | Gold | Copper | Steel | Sea Water | Rubber | Glass | Oil | Diamond | Dry Wood |