



# Cycle A Summer Term Year 3/4 DT Knowledge Organiser - Electrical Systems

## Key Vocabulary

### Glossary

Battery	Two or more cells put together to provide electrical energy to power a circuit.
Bulb	A circuit part, made from glass or plastic, which gives out light when electricity passes through it.
Buzzer	A circuit part which will make a buzzing noise when electricity is passed through it.
Cell	A single unit that provides electrical energy to power a circuit.
Conductor	A material that allows electricity to pass through it. E.g. metal/
Copper	A reddish metal material that is good at letting heat and electricity flow through it. It is often used to make wires and pipes.
Design Criteria	A set of rules to help designers focus their ideas and test the success of them.
Electrical item	Objects that need electricity to work such as hair dryers, toasters and kettles.
Electricity	A type of energy, that is usually invisible, that can be made or stored and used to make objects work. (for example to move things or to heat them up).
Electronic Item	Electrical items that have an element of computer processing in them such as mobile phones and laptops.
Insulator	A material that does not allow electricity to flow through it. E.g. plastic.
Series Circuit	A closed circuit where the current follows one path.
Switch	A circuit part that you can open or close to allow electricity to flow through or to stop it flowing thorough. (E.g. In a house, an electric light switch lets you turn the lights on or turn the lights off.)
Test	To find out whether something works as it should.
Torch	A battery-powered electric lamp.
Wire	A thin piece of copper thread which conducts electricity to connect circuit components together.

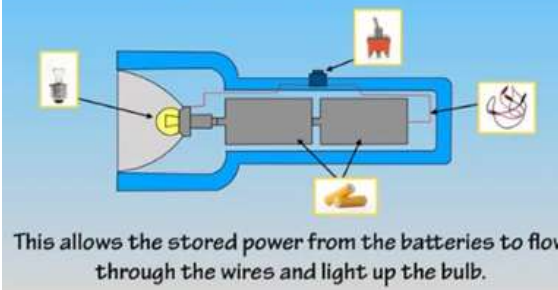
### Learning Objectives:

I can identify electrical items and how they work.  
 I can analyse and evaluate electrical products.  
 I can design a product to fit a set of specific user needs.  
 I can make and evaluate a torch.

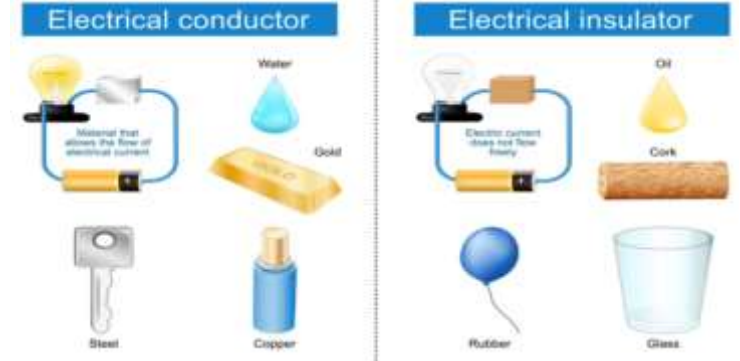
- Electricity is a type of energy.
- It is used to power lots of different things, including many items that we use in everyday life.
- Electricity can be created in a number of different ways. For example: burning fossil fuels, solar power, wind power and water power.



The wires are used to join the bulb, batteries and switch together in a loop, or circuit.



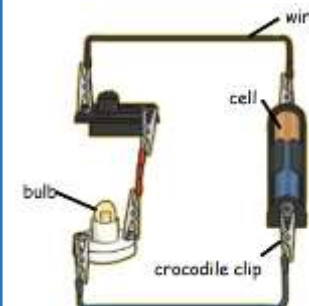
## (Sticky) Knowledge & Skills that I need to remember



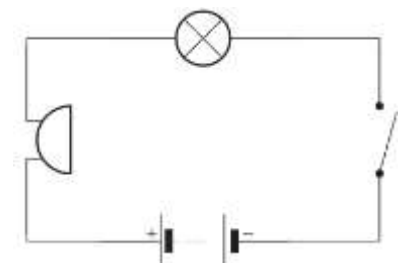
**Conductors:** When they are placed in a circuit, some materials allow electricity to pass freely through them. These are called electrical conductors. Metal is a good conductor.

**Insulators:** When they are placed in a circuit, some materials do not allow electricity to pass freely through them. These are called electrical insulators.

### Complete Circuit



### Circuit Diagram



### Conductors

Silver      Gold      Copper      Steel      Sea Water

### Insulators

Rubber      Glass      Oil      Diamond      Dry Wood

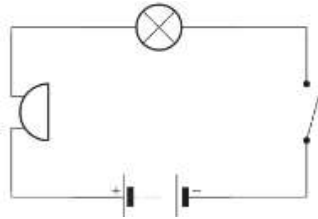
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## DT Quiz – Electrical Systems

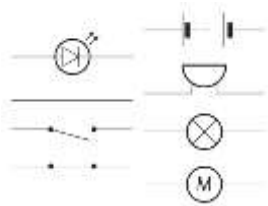
Year 3/4

- 1) What is electricity?
- a) An Invisible form of magic.
  - b) A type of force similar to gravity that pulls objects down.
  - c) A type of energy used to power electrical items
  - d) The force to push or pull something with your body.

- 2) What type of diagram is this?
- a) Electric.
  - b) Circuit.
  - c) Product.
  - d) Exploded.

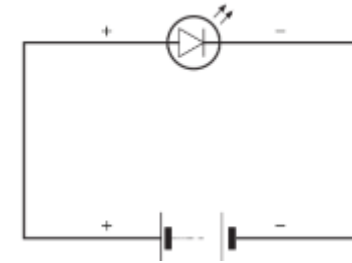


- 3) What do these symbols represent?
- a) Map locations
  - b) Bulbs
  - c) Current
  - d) Circuit Components.



- 4) What is a conductor
- a) A material that does not allow electricity to travel through it.
  - b) A material that lets electricity travel through it.
  - c) A material that outputs electricity as light.
  - d) A material that lets water to pass through it.
- 5) What is an insulator?
- a) A material that electricity cannot pass through.
  - b) A material that absorbs and converts solar energy.
  - c) A material that allows electricity to pass through it.
  - d) A material that is springy and bounces back.

- 6) What type of circuit is this?
- a) Parallel
  - b) Line
  - c) Series
  - d) Linear



- 7) Series Circuits only have:
- a) Space for one output to be connected at once.
  - b) A small amount of battery power.
  - c) One path for the electrical current to flow.
  - d) Two paths that flow in the same direction.
- 8) Which answer is a portable form of electricity?
- a) Plug.
  - b) Charger.
  - c) Mains.
  - d) Battery.
- 9) What does this symbol represent?
- a) Bulb.
  - b) Battery.
  - c) LED.
  - D) Resistor.