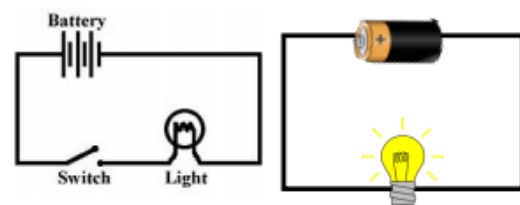


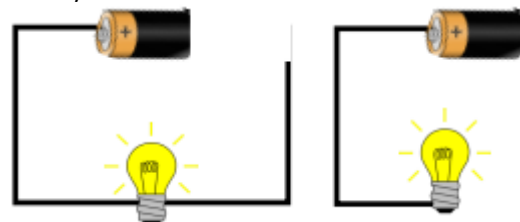
## Year 4 Electricity

Key Enquiry Questions	Key Facts
<ul style="list-style-type: none"> <li>Where does electricity come from?</li> <li>Which appliances run on electricity?</li> <li>How does a circuit work?</li> <li>What are electrical conductors and insulators?</li> </ul>	<ul style="list-style-type: none"> <li>Electricity is generated using energy from natural sources such as the sun, oil, water and wind. These can also be called fuel sources.</li> <li>Some appliances use batteries and some use mains electricity. Batteries come in different sizes depending on how much and for how long the appliance is used.</li> <li>Common appliances that use electricity include toasters, lamps, kettles, laptops, game consoles, mobile phones, torches, headlights (car), tvs.</li> <li>A complete circuit is a loop that allows electrical current to flow through wires.</li> <li>A circuit contains a battery (cell), wires and an appliance that requires electricity to work (such as a bulb, motor or buzzer). The electrical current flows through the wires from the battery (cell) to the bulb, motor or buzzer). A switch can break or reconnect a circuit. A switch controls the flow of the electrical current around the circuit. When the switch is off, the current cannot flow. This is not the same as an incomplete circuit.</li> <li>When objects are placed in the circuits, they may or may not allow electricity to pass through.</li> <li>Objects that are made from materials that allow electricity to pass through and create a complete circuit are called electrical conductors. Conductors include metals such as copper, iron, steel, silver and gold.</li> <li>Objects that are made from materials that do not allow electricity to pass through and do not complete a circuit are called electrical insulators. Insulators include plastic, wood, glass, paper and rubber.</li> </ul>

Key Vocabulary	
appliance	A device or machine in your home that you use to do a job such as cleaning or cooking. Appliances are often electrical.
battery	Small devices that provide the power for electrical items such as torches.
bulb	The glass part of an electrical lamp, which gives out light when electricity passes through it.
buzzer	An electrical device that is used to make a buzzing sound.
cell	Another word for a battery.
circuit	A complete route which an electrical current can flow round.
component	The parts that something is made of.
conductor	A substance that heat or electricity can pass through or along.
current	A flow of electricity through a wire or circuit.
danger	The possibility of suffering harm or injury.
device	An object that has been invented for a particular purpose.
electricity	A form of energy that can be carried by wires and is used for heating and lighting, and to provide power for devices.
energy	The power from sources such as electricity that makes machines work or provides heat.
fuel	A substance such as coal, oil or petrol that is burned to provide heat or power.
generate	Cause it to begin and develop.
insulator	A non-conductor of electricity or heat.
mains	Where the supply of water, electricity or gas enters a building.
motor	A device that uses electricity or fuel to produce movement.
power	Power is energy, especially electricity, that is obtained in large quantities from a fuel source and used to operate lights, heating and machinery.
socket	A device on a wall that you can plug electrical equipment into.
source	Where something comes from
switch	A small control for an electrical device which you use to turn the device on or off
voltage	An electrical force that makes electricity move through a wire, measured in volts (V).
wires	A long, thin piece of metal that is used to fasten things or to carry electric current.



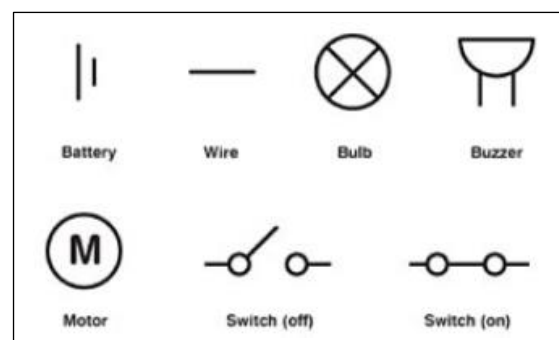
These are complete circuits - they have a battery (cell) and a component (bulb). The wires are placed in the right places of the battery for the circuit to work.



These circuits will not work as they are incomplete.

### Investigate(suggestions)

- Research how to work safely with electricity.
- Make a variety of circuits, investigating which circuits work and why.
- Create circuits using switches.
- Investigate what happens if more batteries are added to a circuit.
- Investigate which materials are electrical conductors and insulators.



### Common electrical hazards

1. Overloading a plug extension socket.
  2. Exposed wires.
  3. Damaged wall sockets.
  4. Wires left along the carpet for people to trip over.
  5. Placing metal into electrical appliances or open sockets.
  6. Electrical appliances and wires near water.
- Water is an excellent electrical conductor so it can be very dangerous to have electrical devices near water**

### Thomas Edison (1847 – 1931)

Thomas Edison was born in 1847 and died in 1931. He lived in the state of New Jersey in the United States of America (USA)

He is known as one of the greatest inventors in history.



He invented the **light bulb**, the **phonograph** (which could record and play sound) and an early video camera called the **Kinetograph**. The films were then watched on a **Kinetoscope** which he also invented.