

# Dog Kennel Hill Primary School - Science

**Topic: Electricity**










**Year: 4**

**Strand: Physics**

### What should I already know?

- **Electricity** is a form of **energy** that can be carried by wires and is used for heating and lighting, and to provide **power** for **devices**.
- **Sources** of light and sound may need **electricity** to work.

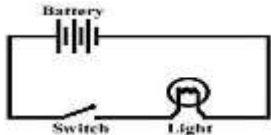
### What will I know by the end of the unit?

Where does <b>electricity</b> come from?	<ul style="list-style-type: none"> <li>• <b>Electricity</b> is <b>generated</b> using <b>energy</b> from natural <b>sources</b> such as the Sun, oil, water and wind.</li> <li>• These can also be called <b>fuel sources</b>.</li> </ul>
Which <b>appliances</b> run on <b>electricity</b> ?	<ul style="list-style-type: none"> <li>• Some <b>appliances</b> use <b>batteries</b> and some use <b>mains electricity</b>.</li> <li>• <b>Batteries</b> come in different sizes depending on how much and for how long the <b>appliance</b> is used.</li> <li>• Common <b>appliances</b> that use <b>electricity</b>.</li> </ul> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> toaster</div> <div style="text-align: center;"> lamp</div> <div style="text-align: center;"> kettle</div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> <div style="text-align: center;"> laptop</div> <div style="text-align: center;"> X-box</div> <div style="text-align: center;"> phone</div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> <div style="text-align: center;"> torch</div> <div style="text-align: center;"> headlights</div> <div style="text-align: center;"> television</div> </div>
How does a <b>circuit</b> work?	<ul style="list-style-type: none"> <li>• A complete <b>circuit</b> is a loop that allows <b>electrical current</b> to flow through <b>wires</b>.</li> <li>• A <b>circuit</b> contains a <b>battery (cell)</b>, <b>wires</b> and an <b>appliance</b> that requires <b>electricity</b> to work (such as a <b>bulb</b>, <b>motor</b> or <b>buzzer</b>).</li> <li>• The <b>electrical current</b> flows through the wires from the <b>battery (cell)</b> to the <b>bulb</b>, <b>motor</b> or <b>buzzer</b>.</li> <li>• A <b>switch</b> can break or reconnect a <b>circuit</b>.</li> <li>• A <b>switch</b> controls the flow of the <b>electrical current</b> around the <b>circuit</b>. When the <b>switch</b> is off, the <b>current</b> cannot flow. This is not the same as an incomplete <b>circuit</b>.</li> </ul>
What are <b>electrical conductors</b> and <b>insulators</b> ?	<ul style="list-style-type: none"> <li>• When objects are placed in the <b>circuits</b>, they may or may not allow <b>electricity</b> to pass through.</li> <li>• Objects that are made from materials that allow <b>electricity</b> to pass through a create a complete <b>circuit</b> are called <b>electrical conductors</b>.</li> <li>• Objects that are made from materials that do not allow <b>electricity</b> to pass through and do not complete a <b>circuit</b> are called <b>electrical insulators</b>.</li> </ul>


### Vocabulary

Appliances	A <b>device</b> or machine in your home that you use to do a job such as cleaning or cooking. <b>Appliances</b> are often <b>electrical</b> .
Battery	small <b>devices</b> that provide the <b>power</b> for <b>electrical</b> items such as torches
Bulb	the glass part of an <b>electric lamp</b> , which gives out light when <b>electricity</b> passes through it.
Buzzer	an <b>electrical device</b> that is used to make a buzzing sound
Cell	a synonym for <b>battery</b>
Circuit	a complete route which an <b>electric current</b> can flow around
Component	the parts that something is made of
Conductor	a substance that heat or <b>electricity</b> can pass through or along
Current	a flow of <b>electricity</b> through a <b>wire</b> or <b>circuit</b>
Device	an object that has been invented for a particular purpose
Electricity	a form of <b>energy</b> that can be carried by <b>wires</b> and in used for heating and lighting, and to provide <b>power</b> for <b>devices</b>
Energy	the <b>power</b> from <b>sources</b> such as <b>electricity</b> that makes machines work or provides heat
Fuel	a substance such as coal, oil, or petrol that is burned to provide heat or <b>power</b>
Generate	cause it to begin and develop
Insulator	a non- <b>conductor</b> of <b>electricity</b> or heat
Mains	where the supply of water, <b>electricity</b> , or gas enters a building
Motor	a <b>device</b> that uses <b>electricity</b> or fuel to produce movement
Power	<b>Power</b> is <b>energy</b> , especially <b>electricity</b> , that is obtained in large quantities from a fuel <b>source</b> and used to operate lights, heating, and machinery
Source	where something comes from
Switch	a small control for an <b>electrical device</b> which you use to turn the <b>device</b> on or off
Wires	a long thin piece of metal that is used to fasten things or to carry <b>electric current</b>


### Diagrams

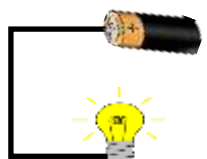


Battery  
Switch  
Light



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.