

## Goonhavern Primary School- Science

**TOPIC: Electricity**

**YEAR: 4**

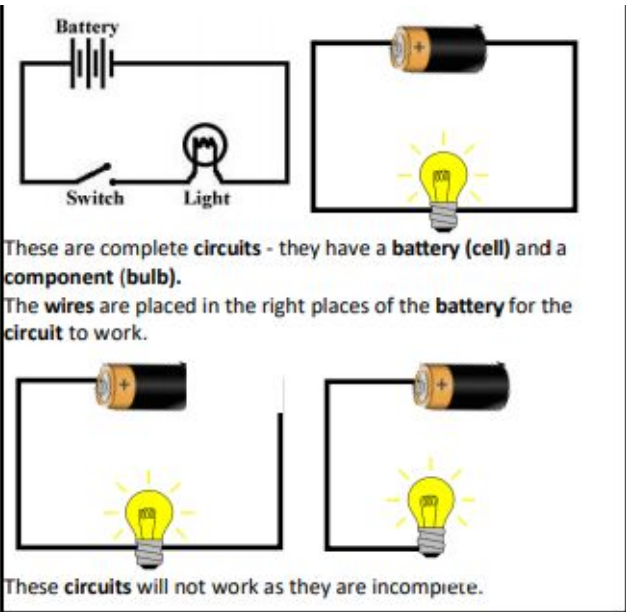
**STRAND: Physics**

| What should I know already?  | What will I know by the end of the unit?       |   |
|--|--|---|
| <ul style="list-style-type: none"> <li>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.</li> <li>Sources of light and sound may need electricity to work.</li> </ul> | Where does electricity come from?              | <ul style="list-style-type: none"> <li>Electricity is generated using energy from natural sources such as the Sun, oil, water and wind.</li> <li>These can also be called fuel sources.</li> </ul>  |
|  | Which appliances run on electricity?           | <ul style="list-style-type: none"> <li>Some appliances use batteries and some use mains electricity.</li> <li>Batteries come in different sizes depending on how much and for how long the appliance is used.</li> <li>Common appliances that use electricity.</li> </ul>   |
|  | How does a circuit work?                       | <ul style="list-style-type: none"> <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).</li> <li>The electrical current flows through the wires from the battery (cell) to the bulb, motor or buzzer).</li> <li>A switch can break or reconnect a circuit.</li> <li>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> </ul> |
|  | What are electrical conductors and insulators? | <ul style="list-style-type: none"> <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 to create a complete circuit are called electrical conductors.</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.</li> </ul>   |

### Vocabulary

|            |   |
|------------|---|
| Appliances | 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 electric lamp, which gives out light when electricity passes through it.                           |
| Buzzer     | An electrical device that is used to make a buzzing sound.  |
| Cell       | A synonym for battery.  |
| Circuit    | A complete route which an electric current can flow around.   |
| 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.   |
| 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.  |
| Insulator   | A non-conductor of electricity or heat.  |
| 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. |
| Switch      | A small control for an electrical device which you use to turn the device on or of.  |
| Wires       | A long thin piece of metal that is used to fasten things or to carry electric current.   |

| Image/diagram that helps me to articulate my knowledge/understanding   | Investigate!  |
|--|---|
|  <p>These are complete <b>circuits</b> - they have a <b>battery (cell)</b> and a <b>component (bulb)</b>.<br/>The <b>wires</b> are placed in the right places of the <b>battery</b> for the <b>circuit</b> to work.</p> <p>These <b>circuits</b> will not work as they are incomplete.</p> | <ul style="list-style-type: none"> <li>• Research how to work safely with electricity.</li> <li>• Make a variety of circuits, investigating which circuits work and why.</li> <li>• Name the basic parts including cells, batteries, wires, bulbs, switches, motors and buzzers.</li> <li>• Draw circuits using pictorial representations (not circuit symbols).</li> <li>• Create circuits using switches.</li> <li>• Investigate which materials are electrical conductors and insulators.</li> </ul> |

