

**Ashwell Primary School**  
**Design & Technology Curriculum**  
**Skills & Knowledge Organiser – Electrical Systems**



**Electrical Systems – Key Stage 2**

		Year 4 – Torches	Year 6 – Steady hand game
<b>Skills</b>	<b>Design</b>	<ul style="list-style-type: none"> <li>Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas</li> </ul>	<ul style="list-style-type: none"> <li>Designing a steady hand game - identifying and naming the components</li> <li>Drawing a design from three different perspectives</li> <li>Generating ideas through sketching and discussion</li> <li>Modelling ideas through prototypes</li> <li>Understanding the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'</li> </ul>
	<b>Make</b>	<ul style="list-style-type: none"> <li>Making a torch with a working electrical circuit and switch</li> <li>Using appropriate equipment to cut and attach materials</li> <li>Assembling a torch according to the design and success criteria</li> </ul>	<ul style="list-style-type: none"> <li>Constructing a stable base for a game</li> <li>Accurately cutting, folding and assembling a net</li> <li>Decorating the base of the game to a high quality finish</li> <li>Making and testing a circuit Incorporating a circuit into a base</li> </ul>
	<b>Evaluate</b>	<ul style="list-style-type: none"> <li>Evaluating electrical products</li> <li>Testing and evaluating the success of a final product</li> </ul>	<ul style="list-style-type: none"> <li>Testing own and others finished games, identifying what went well and making suggestions for improvement</li> <li>Gathering images and information about existing children's toys</li> <li>Analysing a selection of existing children's toys</li> </ul>
<b>Knowledge</b>	<b>Technical</b>	<ul style="list-style-type: none"> <li>To understand that electrical conductors are materials which electricity can pass through</li> <li>To understand that electrical insulators are materials which electricity cannot pass through</li> <li>To know that a battery contains stored electricity that can be used to power products</li> <li>To know that an electrical circuit must be complete for electricity to flow</li> <li>To know that a switch can be used to complete &amp; break a circuit</li> </ul>	<ul style="list-style-type: none"> <li>To know that batteries contain acid, which can be dangerous if they leak</li> <li>To know the names of the components in a basic series circuit including a buzzer</li> </ul>
	<b>Additional</b>	<ul style="list-style-type: none"> <li>To know the features of a torch: case, contacts, batteries, switch, reflector, lamp, lens</li> <li>To know facts from the history and invention of the electric light bulb(s) - by Sir Joseph Swan and Thomas Edison</li> </ul>	<ul style="list-style-type: none"> <li>To know that 'form' means the shape and appearance of an object</li> <li>To know the difference between 'form' and 'function'</li> <li>To understand that 'fit for purpose' means that a product works how it should and is easy to use</li> <li>To know that form over purpose means that a product looks good but does not work very well</li> <li>To know the importance of 'form follows function' when designing: the product must be designed primarily with the function in mind</li> <li>To understand the diagram perspectives 'top view', 'side view' and 'back'</li> </ul>