

Year 6 Term 1 Electrical decoration

What I should know.

Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product.

Initial experience of using computer control software and an interface box or a standalone box, e.g. writing and modifying a program to make a light flash on and off.

Knowledge

Design

Make

Understand and use electrical systems in their products.

Evaluate

Know and use technical vocabulary relevant to the project.

Vocabulary

series circuit, parallel circuit, names of switches and components, input device, output device, system, monitor, control, program, flowchart

function, innovative, design specification, design brief, user, purpose

DT Skills

Designing

Use research to develop a design specification for a functional product that responds automatically to changes in the environment. Take account of constraints including time, resources and cost.

- Generate and develop innovative ideas and share and clarify these through discussion.
- Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams.

Making

Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components.

- Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product.
- Create and modify a computer control program to enable an electrical product to work automatically in response to changes in the environment.

Evaluating

Continually evaluate and modify the working features of the product to match the initial design specification.

- Test the system to demonstrate its effectiveness for the intended user and purpose.
- Investigate famous inventors who developed ground-breaking electrical systems and components.



| Working Towards | Expected Standard | Exceeding Standard |
|--|--|--------------------|
| <p>Processes Use his/her research into existing products and his/her market research to inform the design of his/her own innovative product</p> | <p>Processes Use research he/she has done into famous designers and inventors to inform the design of his/her own innovative products</p> | |
| <p>Processes Create prototypes to show his/her ideas</p> | <p>Processes Generate, develop, model and communicate his/her ideas through discussion, annotated sketches, cross sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p> | |
| <p>Processes Make careful and precise measurements so that joins, holes and openings are in exactly the right place</p> | <p>Processes Apply his/her knowledge of materials and techniques to refine and rework his/her product to improve its functional properties and aesthetic qualities</p> | |
| <p>Processes Produce step by step plans to guide his/her making, demonstrating that he/she can apply his/her knowledge of different materials, tools and techniques</p> | <p>Processes Use technical knowledge accurate skills to problem solve during the making process</p> | |
| <p>Processes Make detailed evaluations about existing products and his/her own considering the views of others to improve his/her work</p> | <p>Processes Use his/her knowledge of famous designs to further explain the effectiveness of existing products and products he/she have made</p> | |
| <p>Processes Build more complex 3D structures and apply his/her knowledge of strengthening techniques to make them stronger or more stable</p> | <p>Processes Use a wide range of methods to strengthen, stiffen and reinforce complex structures and can use them accurately and appropriately</p> | |
| <p>Processes Understand how to use more complex mechanical and electrical systems</p> | <p>Processes Apply his/her understanding of computing to program, monitor and control his/her product</p> | |