Year: 6   **Program of Study:** Electrical systems – More complex switches and circuits

N.C POS:
- *Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.*
- *Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams and prototypes.*
- *Select from tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] accurately.*
- *Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.*
- *Investigate and analyse a range of existing products.*
- *Evaluate their ideas and products against their own design criteria.*
- *Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].*

Concept: technology, impact, legacy, change, inventions innovation, application, cause and effect, light, homes, impact.

Key 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.

Prior Learning: 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.

Core Knowledge- non-negotiable

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.
Wider Influences - Our school - Toys and games - Keep safe - Ourselves - Culture and leisure - Travel - Homes - Buildings
Enduring Understanding - Understand and use electrical systems in their products. - Apply their understanding of computing to program, monitor and control their products. - Know and use technical vocabulary relevant to the project.