



St John Vianney Catholic Primary School



What I am Learning in

D&T this Term...

Year 4: Electrical Systems-Simple circuits and switches

Topic Overview – Lesson Objectives

Lesson 1	Investigate different examples of battery powered products. Consider such things as: 'What are the key features and components?' 'What materials have been used and why?' Investigate examples of switches which work in different ways, e.g., toggle switch. Use them in simple circuits.
Lesson 2	Recap how to make simple series circuits with batteries and different types of switches, bulbs and buzzers. Discuss which components are input devices, e.g., switches, and which are output devices, e.g., buzzers. Practise correcting a fault in a simple circuit. Practise making a variety of switches using simple classroom materials, e.g., card, paper clips. Make switches that operate in different ways and test them in a simple series circuit. Learn how to avoid making short circuits.
Lesson 3	Design a product in a context that is authentic and meaningful, considering the purpose of the battery-powered products that they will be designing and making, and who they will be for. Agree on a design criteria to be used, including safety features. Communicate ideas through annotated sketches, cross-sectional and exploded diagrams as appropriate. Local Link – Blackpool illuminations
Lesson 4	Make a and test, before assembling, high quality products, using tools and equipment to cut, shape join and finish. Use materials and components, including electrical components, according to their functional properties and aesthetic qualities.
Lesson 5	Finish making the product, following the design.
Lesson 6	Evaluate the final product against the intended purpose and with the intended user, drawing on the design criteria previously agreed. Identify strengths and areas for improvement in your work.

Assessment – National Curriculum

NC Statement	Maths/Literacy opportunity	Child led enquiry
<p>Design</p> <p>*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.</p> <p>*Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</p> <p>Make</p> <p>*Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.</p> <p>*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.</p>	<p>Measuring to nearest cm or mm.</p> <p>Spoken language-Participate in discussions. Ask relevant questions to extend knowledge and understanding. Build technical knowledge.</p>	<p>How might different types of switches be used in different types of products?</p>

Evaluate

*Investigate and analyse a range of existing products.

*Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.

*Understand how key events and individuals in design and technology have helped shape the world.

Technical knowledge

*Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].

*Apply their understanding of computing to program, monitor and control their products.

Topic Vocabulary

series circuit, fault, correction, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip, control, program, system, input device, output device, user, purpose, function, prototype, design criteria, innovative, appealing, design brief