



# St John Vianney Catholic Primary School



What I am Learning in

D&T this Term...

## Year 5: Electrical Systems-More complex switches and circuits

### Topic Overview – Lesson Objectives

<b>Lesson 1</b>	Discuss a range of products that react to changes in the environment using a computer control program such as alarm systems. Consider such things as 'Who have the products been designed for and for what purpose?' Investigate electrical sensors such as light dependent resistors (LDRs) and a range of switches such as micro switches. Use each component to control a bulb in a simple circuit. Opportunity to study Thomas Edison (inventor of the lightbulb) if time allows.
<b>Lesson 2</b>	Recap measuring, marking out, cutting and joining skills. Practice methods for making secure electrical connections, e.g., using automatic wire strippers. Explore a range of electrical systems that could be used to control your product included, for example, a simple series circuit where a single output device is controlled. Learn how to avoid making short circuits.
<b>Lesson 3</b>	<b>Design</b> a functional product that responds automatically to changes in the environment. Take account of constraints including time, resources and cost. Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams. Carefully consider the purpose and needs of the intended user. Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. <b>SJV – CREATE A CIRCUIT AND DESIGN TO RESEMBLE BLACKPOOL ILLUMINATIONS.</b>
<b>Lesson 4</b>	<b>Make</b> a high quality, reliable and functional product by selecting and accurately assembling materials, and securely connecting electrical components.
<b>Lesson 5</b>	Finish making the product, following the design.
<b>Lesson 6</b>	<b>Evaluate</b> the product comparing it to the original design specification. Test the system to demonstrate its effectiveness for the intended user and purpose.

### Assessment – National Curriculum

NC Statement	Maths/Literacy opportunity	Child led enquiry
<p><b>Design</b></p> <ul style="list-style-type: none"> <li>*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.</li> <li>*Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. <b>Make</b></li> <li>*Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.</li> <li>*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.</li> </ul> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>*Investigate and analyse a range of existing products.</li> <li>*Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</li> <li>*Understand how key events and individuals in design and technology have helped shape the world.</li> </ul> <p><b>Technical knowledge</b></p> <ul style="list-style-type: none"> <li>*Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].</li> <li>*Apply their understanding of computing to program, monitor and control their products.</li> </ul>	<p>Apply understanding and skill to carry out accurate measuring using standard units, i.e., cm/mm.</p> <p><b>Spoken Language-Ask relevant questions, give well-structured descriptions and explanations. Build technical vocabulary.</b></p>	<p>Which electrical connection will work best with my product?</p>
<b>Topic Vocabulary</b>	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	