



## Year 6 – DT: Electrical systems - More complex switches and circuits

### Vehicle Alarm

Key Knowledge	Key Skills	Key Vocabulary ( with definitions)	Key Questions
<p>To understand the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product.</p> <p>To understand and use electrical systems in their products.</p> <p>To know and use technical vocabulary relevant to the project.</p>	<p>To use research to develop a design specification for a functional product that responds automatically to changes in the environment.</p> <p>To investigate famous inventors who developed ground-breaking electrical systems and components.</p> <p>To take account of constraints including time, resources and cost.</p> <p>To generate and develop innovative ideas and share and clarify these through discussion.</p> <p>To communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams.</p> <p>To formulate a step-by-step plan to guide making, listing tools, equipment, materials and components.</p> <p>To competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product.</p> <p>To continually evaluate and modify the working features of the product to match the initial design specification.</p>	<p><b>Modelling:</b> to realise and manipulate ideas in a tangible form.</p> <p><b>Open switch:</b> when a switch is positioned such that electricity cannot flow through it.</p> <p><b>Closed switch:</b> when a switch is positioned such that electricity can flow through it.</p> <p><b>Input device:</b> components that are used to control an electrical circuit e.g. switches or sensors.</p> <p><b>Output device:</b> components that produce an outcome e.g. bulbs and buzzers.</p> <p><b>Normally open:</b> the term used to describe when a switch is in the off position, i.e. the switch is open and no electricity can flow when the button on not pressed.</p>	<p>Who is the intended user?</p> <p>What is the purpose of this product?</p> <p>What input devices, e.g. switches, and output devices, e.g. bulbs, have been used?</p> <p>How can you avoid creating a short circuit?</p> <p>Who will control it?</p> <p>What components will it need?</p> <p>Which switches or sensors should you use?</p> <p>What output devices should you use?</p> <p>What tools and components will you need?</p> <p>What sequence of steps will you use?</p> <p>How can computer control improve my alarm system?</p> <p>Will the alarm achieve its purpose?</p>



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To test the system to demonstrate its effectiveness for the intended user and purpose.

**Normally closed:** the term used to describe when a switch is in the on position i.e. the switch is closed and electricity can flow when the button is not pressed.

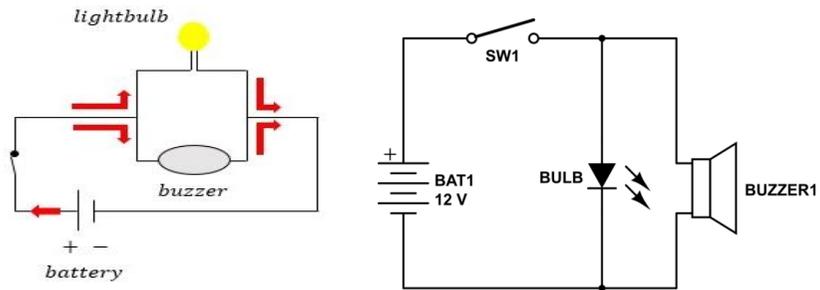
Series circuit  
Parallel circuit  
Names of switches and components  
System  
Monitor  
Flowchart  
Vehicle alarm



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#### Outcome: Vehicle Alarm



#### Useful links:

<https://www.youtube.com/watch?v=tZuIEKzWhbk>

<https://www.youtube.com/watch?v=NjgxXcBfIII>

<https://www.youtube.com/watch?v=JaMjH8zDuyc>