Tonacliffe Primary School Design and Technology Progression Document – Electrical Systems

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| **Previous learning in EYFS and KS1** | See computing progression document | |
|  | **LKS2** | **UKS2** |
| **Designing** | Gather information about needs and wants, and  develop design criteria to inform the design of  products that are fit for purpose, aimed at  particular individuals or groups.  Generate, develop, model and communicate  realistic ideas through discussion and, as  appropriate, annotated sketches, cross-sectional  and exploded diagrams. | 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** | Order the main stages of making.  Select from and use tools and equipment to cut,  shape, join and finish with some accuracy.  Select from and use materials and components,  including construction materials and electrical  components according to their functional  properties and aesthetic qualities. | 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** | Investigate and analyse a range of existing  battery-powered products.  Evaluate their ideas and products against their  own design criteria and identify the strengths and  areas for improvement in their work. | 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. |
| **Technical knowledge and understating** | Understand and use electrical systems in their  products, such as series circuits incorporating  switches, bulbs and buzzers.  Apply their understanding of computing to program  and control their products.  Know and use technical vocabulary relevant to the  project. | 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. |
| **Key Vocab** | series circuit, fault,  connection, 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 | 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 |