Tonacliffe Primary School Design and Technology Progression Document – Electrical Systems

|  |  |
| --- | --- |
| **Previous learning in EYFS and KS1** | See computing progression document |
|  | **LKS2** | **UKS2** |
| **Designing**  | Gather information about needs and wants, anddevelop design criteria to inform the design ofproducts that are fit for purpose, aimed atparticular individuals or groups.Generate, develop, model and communicaterealistic ideas through discussion and, asappropriate, annotated sketches, cross-sectionaland exploded diagrams. | Use research to develop a design specification fora functional product that responds automatically tochanges in the environment. Take account ofconstraints including time, resources and cost.Generate and develop innovative ideas and shareand clarify these through discussion.Communicate ideas through annotated sketches,pictorial representations of electrical circuits orcircuit 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 electricalcomponents according to their functionalproperties and aesthetic qualities. | Formulate a step-by-step plan to guide making,listing tools, equipment, materials andcomponents.Competently select and accurately assemblematerials, and securely connect electricalcomponents to produce a reliable, functionalproduct.Create and modify a computer control program toenable an electrical product to work automaticallyin response to changes in the environment. |
| **Evaluating** | Investigate and analyse a range of existingbattery-powered products. Evaluate their ideas and products against theirown design criteria and identify the strengths andareas for improvement in their work. | Continually evaluate and modify the workingfeatures of the product to match the initial designspecification.Test the system to demonstrate its effectivenessfor the intended user and purpose.Investigate famous inventors who developedground-breaking electrical systems andcomponents. |
| **Technical knowledge and understating**  | Understand and use electrical systems in theirproducts, such as series circuits incorporatingswitches, bulbs and buzzers.Apply their understanding of computing to programand control their products.Know and use technical vocabulary relevant to theproject. | Understand and use electrical systems in theirproducts.Apply their understanding of computing toprogram, monitor and control their products.Know and use technical vocabulary relevant to theproject. |
| **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 clipcontrol, program, system,input device, outputdeviceuser, purpose, function,prototype, design criteria,innovative, appealing,design brief | series circuit, parallelcircuit, names of switchesand components, inputdevice, output device,system, monitor, control,program, flowchartfunction, innovative,design specification,design brief, user,purpose |