Kingsley Primary School

Year 6 - DT Knowledge Progression Sheet

	Electrical Systems - More complex switches and circuits	Mechanisms - Cams	Textiles - Combining different fabric shapes
Prior Learning	-Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product. -Initial experience of using computer control software and an interface box or a standalone box, e.g. writing and modifying a program to make a light flash on and off.	-Experience of axles, axle holders and wheels that are fixed or free moving. -Basic understanding of different types of movement. -Experience of cutting and joining techniques with a range of materials including card, plastic and wood. -An understanding of how to strengthen and stiffen structures.	-Experience of basic stitching, joining textiles and finishing techniques. -Experience of making and using simple pattern pieces.
Designing	-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.	-Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. -Develop a simple design specification to guide their thinking. -Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views.	-Generate innovative ideas by carrying out research including surveys, interviews and questionnaires. -Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes and, where appropriate, computer-aided design. -Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification.
Making	-Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components.	-Produce detailed lists of tools, equipment and materials. Formulate	-Produce detailed lists of equipment and fabrics relevant to their tasks.

	-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.	step-by-step plans and, if appropriate, allocate tasks within a team. -Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost.	-Formulate step-by-step plans and, if appropriate, allocate tasks within a team. -Select from and use a range of tools and equipment to make products that are accurately assembled and well finished. Work within the constraints of time, resources and cost.
Evaluating	-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	-Compare the final product to the original design specification. -Test products with the intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. -Consider the views of others to improve their work. -Investigate famous manufacturing and engineering companies relevant to the project.	-Investigate and analyse textile products linked to their final product. -Compare the final product to the original design specification. -Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. -Consider the views of others to improve their work
Technical Knowledge and Understanding	-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.	-Understand that mechanical systems have an input, process and an output. -Understand how cams can be used to produce different types of movement and change the direction of movement. -Know and use technical vocabulary relevant to the project.	-A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. -Fabrics can be strengthened, stiffened and reinforced where appropriate.
Key Vocabulary	series circuit, parallel circuit, names of switches and components, input device, output device, system, monitor, control,	cam, snail cam, off-centre cam, peg cam, pear-shaped cam follower, axle, shaft, crank, handle, housing, framework,	seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces name of

	program, flowchart, function, innovative, design specification, design brief, user, purpose	rotation, rotary motion, oscillating motion, reciprocating motion, annotated sketches, exploded diagrams mechanical system, input movement, process, output movement, design decisions, functionality, innovation, authentic, user, purpose ,design specification, design brief	textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, iron transfer paper design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype