Sir Alexander Fleming Primary School

Progression of Design and Technology skills across Key stages 1 and 2.

Area of learning	Year 1 Design products that have a clear purpose and an intended user. Make products, refining the design as work progresses. Explore objects and designs to identify likes and dislikes of the designs.	Year 2 Design products that have a clear purpose and an intended user. Make products, refining the design as work progresses. Use software to design Explore objects and designs to identify likes and dislikes of the designs. Suggest improvements to existing designs. Explore how products have been created.	Year 3 Design with purpose by identifying opportunities to design. Make products by working efficiently (such as by carefully selecting materials). Refine work and techniques as work progresses, continually evaluating the product design. Use software to design and represent product designs. Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs. Improve upon existing designs, giving reasons for choices.	Year 4 Design with purpose by identifying opportunities to design. Make products by working efficiently (such as by carefully selecting materials). Refine work and techniques as work progresses, continually evaluating the product design. Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs. Improve upon existing designs, giving reasons for choices. Disassemble products to understand how they work.	Year 5 Design with the user in mind, motivated by the service a product will offer (rather than simply for profit). Ensure products have a high quality finish, using art skills where appropriate. Use prototypes, cross-sectional diagrams and computer aided designs to represent designs. Evaluate the design of products so as to suggest improvements to the user experience.	Year 6 Design with the user in mind, motivated by the service a product will offer (rather than simply for profit). Use prototypes, cross-sectional diagrams and computer aided designs to represent designs. Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices. Evaluate the design of products so as to suggest improvements to the user experience.
Mechanisms	Mechanisms Sliders and levers	Mechanisms Wheels and axels	Mechanisms	Mechanisms Pneumatics	Mechanical systems	Mechanisms CAMs

	(E.g Moving Xmas card) Create products using levers/sliders Demonstrate a range of joining techniques (such as gluing, hinges or combining materials to strengthen).	Create products wheels and winding mechanisms Cut materials safely using tools provided. Measure and mark out to the nearest centimetre.	Levers and linkages E.g Moving Card/ Story book Create products using techniques found in pop up books eg paper springs, levers, slides,etc Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs). Measure and mark out to the nearest centimetre.	Use a simple pneumatic system to create movement Show air pressure can be used to produce and control movement Use some techniques for making simple pneumatic systems Compare the effectiveness of different pneumatic systems	Pulley's or gears Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement.	Convert rotary motion to linear using cams.
Structures	Structures Repeat Free standing structures- exploration- Junk modelling Cut materials safely using tools provided. Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products.	Structures Repeat Free standing structures- exploration Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling). Demonstrate a range of joining techniques (such as gluing, hinges or combining materials to strengthen).	Structures Shell structures- physically making (Maths link- nets Use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes Select and use appropriate tools to measure, mark out, cut, score, shape and assemble with some accuracy. Choose materials according to functional properties	Structures- Shell structures using CAD Model designs using software.	Structures- Repeat Frame structures Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (such as the nature of fabric may require sharper scissors than would be used to cut paper).	Structures- Repeat Frame structures Use a range of strengthening techniques to add rigidity to the structure

			and aesthetic qualities. Use finishing techniques suitable for the product they are creating.			
Electrical systems			Electrical systems Simple circuits and switches (Science link) Construct a simple series electrical circuit using bulbs, switches and buzzers. Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers	Electrical systems Simple programming and control Model designs using software. Control and monitor models using software designed for this purpose. Write code to control and monitor models or products.	Electrical systems More complex switches and circuits. Create series and parallel circuits Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips).	Electrical systems Monitoring and control Control and monitor models using software designed for this purpose. Write code to control and monitor models or products.
Textiles	Textiles Repeat Templates and joining-exploration Weaving with different fabrics	Textiles Repeat Templates and joining-exploration Shape textiles using templates. Join textiles using running stitch. Colour and decorate textiles using a number of techniques (such as dyeing, adding sequins, buttons).	Textiles Repeat Joining techniques (e.g On a xmas card/gift bag) Understand the need for a seam allowance. Join textiles with appropriate stitching.	Textiles Repeat Joining techniques (e.g On a xmas card/gift bag) Use oversew and embroidery techniques	Textiles Combining different fabric shapes (buttons, zips) Children can create products using pattern pieces and demonstrate application of seam allowance. They are taught how to blanket stitch.	Textiles Using CAD in textiles (Enterprise) Design item using CAD. Children able to make quality products with increasing accuracy and independence.

Cooking	Cooking Chopping/cutting /slicing grating -Cut, peel or grate ingredients safely and hygienically. Measure or weigh using measuring cups or electronic scales. Assemble or cook ingredients.	Cooking Grating/slicing/ peeling -Cut, peel or grate ingredients safely and hygienically. Measure or weigh using measuring cups or electronic scales. Assemble or cook ingredients.	Cooking Grating/kneading/ spreading/ introduction to the bridge and claw -Cut, peel or grate ingredients safely and hygienically. Measure or weigh using measuring cups or electronic scales. Prepare ingredients hygienically using appropriate utensils.	Cooking Cutting techniques, claw and bridge -Prepare ingredients hygienically using appropriate utensils. Measure ingredients to the nearest gram accurately. Follow a recipe. Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking).	Cooking Rubbing in technique -Prepare ingredients hygienically using appropriate utensils. Measure accurately and calculate ratios of ingredients to scale up or down from a recipe. Demonstrate a range of baking and cooking techniques. Create and refine recipes, including ingredients, methods, cooking times and temperatures.	Cooking Application of skills from both key stages -Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms). Measure accurately and calculate ratios of ingredients to scale up or down from a recipe. Demonstrate a range of baking and cooking techniques. Create and refine recipes, including ingredients, methods, cooking times and temperatures.