D&T Progression Map – Year 6

	Autumn 1	Autumn 2	Summer 1
Topic	Animals	Electricity	Mayans
Aspect of D&T	Mechanisms	Electrical Systems	Food
Focus	Cams	More Complex Switches and Circuits	Celebrating Culture and Seasonality
Product, user and purpose	Moving toy. Children to select own user and purpose.	Electrical board game for KS2 children for entertainment.	A savoury Mayan inspired dish for their parents and judges for a MasterChef competition.
Learning Objective (from DC Pro)	I can justify why I selected specific materials. I can follow my plan and refine if necessary, in order to meet all design criteria.	I can use market research to inform plans. I can justify why I selected specific materials. I can follow my plan and refine if necessary, in order to meet all design criteria. I can work within a budget and have thought about how my product could be sold. I can hold feedback sessions in order to develop my designs and products and consider culture and society in my designs. I can create a simple computer program to program, monitor and control my product. I can suggest how to amend my computer program to improve my product. I can create my own electrical system (e.g. using switches, bulbs, motors and buzzers). I can recognise the effect of changing part of my electrical system and how this will impact on the use of my product.	I can create detailed recipes with instructions and explain how it is varied and healthy, including how to be hygienic and safe. I can make recipes that meet the requirements of a particular target audience. I can use market research to inform plans. I can follow my plan and refine if necessary, in order to meet all design criteria. I can work within a budget and have thought about how my product could be sold. I can hold feedback sessions in order to develop my designs and products and consider culture and society in my designs.

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Skills	**Designing** • 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. **Making** • Produce detailed lists of tools, equipment and materials. 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 that are accurately assembled and well finished. Work within the constraints of time, resources and cost. **Evaluating** • 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.	**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. **Making** • 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** • 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.	**Designing** • Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. • Explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose. • Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas. **Making** • Write a step-by-step recipe, including a list of ingredients, equipment and utensils • Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients. • Make, decorate and present the food product appropriately for the intended user and purpose. **Evaluating** • Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables/graphs/charts such as star diagrams. • Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements. • Understand how key chefs have influenced eating habits to promote varied and healthy diets.

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Key Learning/ Technical Knowledge	**Prior learning** • 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. **Technical knowledge and understanding** • 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.	**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. **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.	**Prior learning** • Have knowledge and understanding about food hygiene, nutrition, healthy eating and a varied diet. • Be able to use appropriate equipment and utensils, and apply a range of techniques for measuring out, preparing and combining ingredients. **Technical knowledge and understanding** • Know how to use utensils and equipment including heat sources to prepare and cook food. • Understand about seasonality in relation to food products and the source of different food products. • Know and use relevant technical and sensory vocabulary.
Vocabulary	cam, snail cam, off-centre cam, peg cam, pear shaped cam follower, axle, shaft, crank, handle, housing, framework 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	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	ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble design specification, innovative, research, evaluate, design brief

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Tools	videos and photographs of cams, models or toys with different cam mechanisms MDF, card or wooden wheels, plastic or wooden cams, dowel, card boxes, PVA glue, glue guns, masking tape, double-sided tape, square section wood, card, corrugated plastic, foam, paper straws, finishing media junior hacksaws, glass paper, G-clamps, bench hooks, hand drill	batteries, crocodile leads, bulbs, bulb holders, buzzers, light emitting diodes (LEDs), micro switches, reed switches and magnets, light dependent resistors (LDRs), wire, automatic wire strippers, masking tape, construction materials and tools as required computer control software and interface boxes or standalone boxes, connecting leads	information about food from around the world video clips of foods in the context of where they come from, used and eaten range of relevant examples of foods to taste and evaluate basic recipes suitable equipment and utensils to make and cook recipes such as: weighing scales, measuring jugs, bowls, spoons – various sizes, baking trays, parchment paper, plastic film