Lord Deramore's Primary School Design and Technology Curriculum Progression Plan

Intent: Children at Lord Deramore's are taught design and technology through hands-on experiences, learning practical skills they will be able to use throughout their lives. We want them to learn about how things work and how they are made by investigating real life products. To give them ideas to spark their own creativity, our children are taught about pioneering women and men, from a variety of cultures and different eras, who have designed and made innovative products used in everyday life. Children use their creativity and ingenuity to design products for different users. They are taught to use materials and tools safely in order to make their products. They evaluate their designs and products against success criteria and staff teach them to think about products' suitability for purpose. We ensure that all children are able to access and enjoy design and technology. Children's experiences in design and technology inspire them to be creative, to make things and test them out, and to think more critically about products they use themselves in their everyday lives.
Implementation: DT is taught discretely but often links to the overall topic. It may be taught weekly or in a block, such as a DT week. Phases work together on a Unit and planning is based on a 'project on a page'. Throughout the project, a booklet documenting each stage of the design and making process is used to record work. In phase 1, DT is ongoing and accessed in continuous provision. It includes aspects such as small and large construction, block play, woodwork, baking and the workshop area.
Impact: DT knowledge and skills are assessed by teaching staff throughout a project and reported at the end of each year via each child's school report. Assessment may be made through observation, talking with children and recorded work. The process in DT is as important as the finished project when assessing attainment. DT subject lead and SLT assess impact and teaching through book trawls, pupil voice, learning walks and lesson observations

Design & Technology	**Phase 1**		**Phase 2**		**Phase 3**		
	EY	Y1	Y2	Y3	Y4	Y5	Y6
Knowledge & skills	Design Design purposeful, functional, appealing products for themselves and other users based on design criteria. Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology. Make Select from and use a range tools and equipment to perform practical tasks, e.g. cutting, shaping, joining and finishing. Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. Evaluate Explore and evaluate a range of existing products. Evaluate their ideas and products against design criteria. Technical Knowledge Build structures, exploring how they can be made stronger, stiffer and more stable. Explore and use mechanism (e.g. levers, sliders, wheels and axles), in their products. Cooking & Nutrition Use basic principles of a healthy and varied diet to prepare dishes. Understanding where food comes from. *Expressive Arts and Design: Creating with materials ELG:* Explore building and creating things using a variety of construction materials both commercial e.g. meccano, blocks and 'junk'. Share their creations and describe the processes they used. (Describe what they did) Begin to talk about how to improve their work. *Expressive Arts and Design: Creating with materials & Physical Development: Fine Motor Skills ELG:* Use cutlery safely including knives under adult supervision. Explore the use of different tools including scissors and use them safely. *Expressive Arts and Design: Creating with materials ELG:* Use different methods to join two materials e.g. sellotape, stapler, glue, split pins		Design Design purposeful, functional, appealing products for themselves and others, beginning to research design criteria. Generate, develop, model and communicate their ideas through discussion, sketches, diagrams, information and communication technology. Make Select from and use a range of tools and equipment to perform practical tasks eg cutting, shaping, joining and finishing. Select from and use a wide range of materials and components according to their characteristics. Evaluate Investigate and analyse a range of existing products. Evaluate their ideas and products against design criteria. Examine the work of some key events and individuals in design and technology. Technical Knowledge Build structures, exploring how they can be made stronger, stiffer and more stable. Explore and use mechanism (e.g. levers, sliders, wheels and axles), in their products. Cooking & Nutrition Understand and apply the principles of a healthy and varied diet. Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.		Design Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose aimed at particular individuals or groups. Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. Make Select from and use a wider range of tools and equipment to perform practical tasks (e.g. cutting, shaping, joining and finishing) accurately. Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. Evaluate Investigate and analyse a range of existing products. Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. Understand how key events and individuals in design and technology have helped shape the world. Technical Knowledge Apply their understanding of how to strengthen, stiffen and reinforce more complex structures. Understand and use mechanical systems in their products (e.g. gears, pulleys, cams, levers and linkages). Understand and use electrical systems in their products (e.g. series circuits incorporating switches, bulbs, buzzers and motors). Apply their understanding of computing to program, monitor and control their products. Cooking & Nutrition Understand and apply the principles of a healthy and varied diet. Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. Understand seasonally, and know where and how a variety of ingredients are grown, reared, caught and processed.		
Expectations	Explore making things in their play using a variety of resources – bricks, loose parts, paint, etc Talk about what they have made and how they made it.	Use own ideas to make something. Describe how something works. Cut food safely. Make a product which moves. Make a model stronger. Explain to someone how to make a product. Choose appropriate resources and tools. Make a simple plan before making.	Think of an idea and plan what to do next. Choose tools and materials and explain why they were chosen. Join materials and components in different ways. Explain what went well. Explain why specific textiles have been chosen. Measure materials to use in a model or structure. Describe the ingredients they use.	Prove that their design meets some set criteria. Follow a step-by-step plan, choosing the right equipment and materials. Design a product and make sure that it looks attractive. Choose a material for both its suitability and its appearance. Select the most appropriate tools and techniques for a given task. Make a product which uses both electrical and mechanical components. Work accurately to measure, make cuts and make holes. Describe how food ingredients come together.	Use ideas from other people when designing. Produce a plan and explain it. Evaluate and suggest improvements for designs. Evaluate products for both their purpose and appearance. Explain how they have improved original designs. Present a product in an interesting way. Measure accurately. Persevere and adapt word when original ideas do not work. Know how to be both hygienic and safe when using food.	Come up with a range of ideas after collecting information from different sources. Produce a detailed, step-by-step plan. Suggest alternative plans' outlining the positive features and draw backs. Explain how a product will appeal to a specific audience. Evaluate appearance and function against original criteria. Use a range of tools and equipment competently. Make a prototype before making a final version. Show that they can be both safe and hygienic in the kitchen.	Use market research to inform plans and ideas. Follow and refine plans. Justify plans in a convincing way. Show that they consider culture and society in plans and designs. Test and evaluate their products. Explain how products should be stored and give reasons. Work within a budget. Evaluate products against clear criteria.

Vocabulary	<u>Sliders and Levers</u> slider, lever, pivot, slot, bridge/guide card, masking tape, paper fastener, join pull, push, up, down, straight, curve, forwards, backwards <u>Freestanding Structures</u> structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder <u>Food</u> fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, <u>All</u> design, make, evaluate, user, purpose, ideas, design criteria, product, function	<u>Levers and Linkages</u> mechanism, lever, linkage, pivot, slot, bridge, guide system, input, process, output linear, rotary, oscillating, reciprocating user, purpose, function <u>Food – Healthy and Varied Diet</u> name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury hygienic, edible, grown, caught, frozen, tinned, healthy diet <u>Textiles- 2D to 3D</u> fabric, names of fabrics, fastening, zip, button, structure, strength, weakness, templates, stitch, seam, <u>Food – preparing fruit and vegetables</u> fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, investigating tasting, arranging, popular, design, evaluate, criteria <u>Textiles – templates and joining</u> names of existing products, joining and finishing techniques, tools, fabrics and components template, pattern pieces, mark out, join, decorate, finish <u>Wheels and Axles</u> vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism names of tools, equipment and materials used <u>All</u> user, purpose, design, model, evaluate, prototype, design criteria, appealing, design brief, investigate, label, drawing,	<u>Shell Structures</u> shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating <u>Simple Circuits and Switches</u> 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 <u>More Complex Switches</u> series circuit, parallel circuit, names of switches and components, input device, output device, system, monitor, control, program, flowchart <u>Food – celebrating culture and season</u> 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 <u>Pulleys or Gears</u> pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor circuit, switch, circuit diagram annotated drawings, exploded diagrams mechanical system, electrical system, input, process, output <u>Combining Different Fabrics</u> seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, iron transfer paper <u>Food – Healthy and Varied Diet</u> name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet <u>Frame Structures</u> frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent <u>All</u> font, lettering, text, graphics, decision, evaluating, design brief design criteria, innovative, prototype, user, purpose, function, appealing, design specification, research, design decisions, functionality, authentic, annotate, purpose, mock-up, planning, annotated sketch, sensory evaluations, functional
Long Term Planning Link	Both Continuous provision – workshop, construction, blocks, outside bricks, crates etc Y1 Sliders and levers – Christmas cards (examine books with moving parts – Lucy Cousins, Camilla Reid, Lydia Nichols) Freestanding structures – link to story e.g. Three Billy Goats Gruff and bridges Food – salad, (Oliver's Vegetables)	Year A Levers and Linkage (Weather) – linear, rotary, oscillating and reciprocating movements, loose and fixed pivots Food (The Great Fire of London) – healthy and varied diet, cutting skills (bridge and claw techniques), spreading, sensory evaluation link to story The Giant Jam Sandwich, Jamie Oliver (healthy school dinners) Textiles – 2D to 3D (Romans) – make bag or pencil case, waterproof clothing/umbrella (Charles Macintosh) Year B Food (Explorer) – preparing fruit and vegetables – peel, cut, slice, squeeze, grate, mouth feel, pith, kebab, salad. Textiles (Schools Now and Then) – templates and joining, Victorian aprons Wheels and Axles (On the Move) – George Stephenson – The Rocket, make vehicles	Year A Shell structures (World War II) – net, prism, edge, face, vertex, scoring to fold (Mary Fergusson, Zaha Hadid, Eileen Gray) Simple circuits and switches (Y4/5), More complex switches (Y5/6) (Greece). Michael Faraday, Elon Musk Food: celebrating culture and season (Rivers) – mixing to combine ingredients, rubbing in, kneading, bran, dough, endosperm, germ, yeast, unleavened bread (Marguerite Paten) Year B Pulleys and gears (Heslington Past and Present) – gear ratio, mechanical system, drive belt, driver, follower, mesh, motor spindle (Isambard Kingdom Brunel) Textiles: combining different fabric shapes (Anglo Saxons and Scots) (Designers eg William Morris, Amanda Wakeley) Food: healthy and varied diet (Egypt) - bridge and claw techniques for cutting, spreading, appearance, texture, preference, sensory evaluation Year C Simple circuits and switches (Y4/5), More complex switches (Y5/6) (Anglo Saxons and Vikings). Michael Faraday, Elon Musk Frame structures (Stone Age) – modelling, compression, strut, tension, tie, join thin sectioned wood (Stephen Sauvestre, the Eiffel Tower) Food: celebrating culture and season (Chocolate) (Madhur Jaffry)
Enrichment / Cultural Capital	Festival food links e.g. pancake day, Chinese New Year STEM visitor	Railway Museum visit	STEM visitor