# Knowledge Progression – DT (Year 1-6)

| Year Group | Food | Textiles | Structures | Mechanics | Electrical systems |
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| R | In EYFS children will begin to self-select a range of materials to develop their ideas and interests by designing and making items. They will learn how to safely explore a variety of materials, tools and techniques. They will have opportunities to experiment with a range of colours, materials and textures to represent their ideas. Through their exploration and adult support, children will make decisions about how media and materials can be joined and changed as well as talking about the purpose of their creation. Children will begin to talk about their own and others ideas and designs and begin to discuss the differences between them and the strengths. | | | | |
| 1<br>**Pupils will be taught to**:<br><br>Design - Begin to design products that have a clear purpose and an intended user, through talk and own experiences.<br><br>Make – Select and use simple tools and equipment. Select from a rage of ingredients and materials.<br><br>Evaluate - Begin to taste, explore and evaluate objects and designs to identify likes and dislikes. Begin to suggest improvements to existing designs. | Cut ingredients safely and hygienically. Assemble or cook ingredients.<br><br>Understand where a range of fruit and vegetables come from e.g. farmed or grown at home.<br><br>Know and use relevant technical and sensory vocabulary.<br><br>e.g. fruit and vegetables – know which category they fall into, taste test then design and make a smoothie and its packaging. | | Know how to make freestanding structures stronger, stiffer and more stable. Know and use technical vocabulary relevant to the project.<br><br>e.g. design and make a freestanding animal enclosure. | Explore and use sliders and levers. Understand that different mechanisms produce different types of movement. Know and use technical vocabulary relevant to the project.<br><br>e.g. make a moving story book using sliders and levers | |
| Vocabulary | Basic fruit and vegetable names, sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sour, hard, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, tasting. | | cut, fold, join, fix 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 | slider, lever, pivot, slot, wheel, bridge/guide, card, masking tape, paper fastener, join, pull, push, up, down, straight, curve, forwards, backwards | |

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| Year Group | | | | | |
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| 2<br>**Pupils will be taught to:**<br><br>Design – Generate ideas through own experiences and design criteria. Develop, model and communicate their ideas through talk, mock-ups and drawings. Design products that have a clear purpose and an intended user.<br><br>Make – Select and use tools, equipment, skills and techniques explaining their choice. Select a range of materials (reclaimed and construction kits) to create products. Use simple finishing techniques.<br><br>Evaluate - Suggest improvements to existing designs. Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria. | Cut, peel or grate ingredients safely and hygienically. Measure or weigh using measuring cups or electronic scales.<br><br>Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of 'The eat well plate.' Know and use technical and sensory vocabulary relevant to the project.<br><br>Term 4: link to paragon<br><br>Taste test, look at balanced diet and design a choice of 3 healthy wraps with a balance of food types then make 1 of the recipes. | Shape textiles using templates. Colour and decorate textiles. Explore different finishing techniques.<br><br>Know and use technical vocabulary relevant to the project.<br><br>Understand how simple 3-D textile products are made, using a template to create two identical shapes. Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling.<br><br>Term 2 Sew Christmas stocking using a running stitch. | | Explore and use wheels, axles and axle holders. Distinguish between fixed and freely moving axles. Know and use technical vocabulary relevant to the project.<br><br>Link to paragon – Design and make a Victorian toy with wheels. Term 5 | |
| Vocabulary | Fruit and vegetable names, names of equipment and utensils, use of sensory vocabulary from Year 1 and extending to e.g. sharp, crisp, bitter, flesh ingredients, planning, investigating tasting, arranging, popular, design, evaluate, criteria. | names of existing products, tools, fabrics and components, template, decorate, mock-up, design brief, design criteria, make, evaluate, user, purpose, function, finish, features, suitable, quality, joining and finishing techniques, pattern pieces, mark out, join, running stitch, sew | | vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism names of tools, equipment and materials used | |

# Knowledge Progression – DT (Year 1-6)

| Year Group | | | | | |
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| 3<br><br>**Pupils will be taught to:**<br>Design – Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s. Use annotated sketches, prototypes, final product sketches and pattern pieces; communication technology, such as web-based recipes, to develop and communicate ideas.<br><br>Make - Make products by selecting appropriate tools, equipment and ingredients fit for purpose. Begin to select finishing techniques to suit the product they are creating.<br><br>Evaluate - Identify some of the great designers in all of the areas of study to generate ideas for designs. Test their product against the original design criteria and with the intended user. Evaluate the ongoing work and the final product with reference to the design criteria and the views of others. Improve upon existing designs, giving reasons for choices. | Prepare ingredients hygienically using appropriate utensils. Measure accurately. Follow a recipe to cook ingredients.<br><br>Know how to use appropriate equipment and utensils to prepare and combine food.<br><br>Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught.<br><br>Know and use relevant technical and sensory vocabulary.<br><br>e.g. make 3 dishes using seasonal fruit/vegetables and look at where they are sourced from. | Know how to strengthen, stiffen and reinforce existing fabrics.<br><br>Understand how to securely join two pieces of fabric together with appropriate stitching.<br><br>Understand the need for patterns and seam allowances.<br><br>Know and use technical vocabulary relevant to the project.<br><br>e.g. sew a simple cushion for a teddy using cross stitch and applique. | | Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears).<br><br>Understand and use lever and linkage mechanisms. Distinguish between fixed and loose pivots. Know and use technical vocabulary relevant to the project<br><br>e.g. mechanical posters using levers and linkage. | |
| Vocabulary | 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 planning, design criteria, | fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance, user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, | | mechanism, lever, linkage, pivot, slot, bridge, guide system, input, process, output linear, rotary, oscillating, reciprocating | |

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| | purpose, user, annotated sketch, sensory evaluations. | aesthetics, function, pattern pieces | | | |
| Year Group | | | | | |
| 4<br>**Pupils will be taught to:**<br><br>Design – Generate and clarify ideas through discussion to develop design criteria that are fit for purpose, aimed at particular individuals or groups. Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas. Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams.<br><br>Make - Select and use appropriate tools to measure, mark out, cut, score, shape and combine with some accuracy related to their products. • Explain their choice of materials according to functional properties and aesthetic qualities. Select from and use materials and components, including ingredients, construction and electrical components according to their function and properties.<br><br>Evaluate - Investigate and evaluate a range of products including the ingredients, materials, components and techniques that are used. Test and evaluate their own products against design criteria and the intended user and purpose. Evaluate their ideas and | Prepare ingredients hygienically using appropriate utensils. Measure ingredients to the nearest gram. Assemble and cook ingredients (controlling the temperature of the oven or hob, if cooking).<br><br>Know and use relevant technical and sensory vocabulary appropriately.<br><br>e.g. bake a simple biscuit then adapt it to create the tastiest considering a budget for ingredients. | | Develop and use knowledge of how to construct strong, stiff shell structures. Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. Know and use technical vocabulary relevant to the project.<br><br>Term 6 – Design and make a chair | | Understand and use electrical systems in their products linked to science coverage. Apply their understanding of computing to program and control their products. Know and use technical vocabulary relevant to the project.<br><br>E.G. Electronic greetings card.<br>Link to science Term 6 |

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| products against their own design criteria and identify the strengths and areas for improvement in their work. | | | | | |
| Vocabulary | 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 planning, design criteria, purpose, user, annotated sketch, sensory evaluations. | | 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, font, lettering, text, graphics, decision, evaluating, design brief design criteria, innovative, prototype | | 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 |

# Knowledge Progression – DT (Year 1-6)

| Year Group | | | | | |
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| 5<br><br>**Pupils will be taught to:**<br>Design – Generate innovative ideas through research and discussion with peers to develop a design brief and criteria for a design specification. Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification. Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views (and, where appropriate, computer-aided design).<br><br>Make - Produce detailed lists of equipment and fabrics relevant to their tasks. Write a step-by-step plan. Select from and use, a range of appropriate utensils, tools and equipment accurately to measure and combine appropriate ingredients, materials and resources.<br><br>Evaluate - Investigate and analyse products linked to their final product. Compare the final product to the original design specification and record the evaluations. Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and suitability for purpose. Consider the views of others to improve their work | Understand the importance of correct storage and handling of ingredients (knowledge of microorganisms). Demonstrate a range of baking and cooking techniques<br><br>Know how to use utensils and equipment including heat sources to prepare and cook food.<br><br>Understand about the source of different food products.<br><br>Know and use relevant technical and sensory vocabulary.<br><br>e.g. make anew healthier version of a bolognaise sauce after taste testing/researching (including looking at nutrition and ethical considerations). | | Understand how to strengthen, stiffen and reinforce 3-D frameworks. Know and use technical vocabulary relevant to the project.<br><br>Link to paragon: building castles, different ways to create a strong structure. | Understand that mechanical and electrical systems have an input, process and an output. Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. Know and use technical vocabulary relevant to the project.<br><br>e.g possible link to science Term 1<br><br>make a moving toy using CAM | |
| | ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, carbohydrate, protein, | | frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent, design | pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor, circuit, switch, circuit diagram, annotated drawings, | |

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| Vocabulary | 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 | | brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional | exploded diagrams, mechanical system, electrical system, input, process, output | |

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| Year Group | | | | | |
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| 6<br><br>**Pupils will be taught to:**<br>Design – Use research (interviews, questionnaires and web-based resources) to develop a design specification for a range of functional products. Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost. Generate and develop innovative ideas with the user in mind and share and clarify these through discussion. Communicate ideas through annotated sketches, cross-sectional diagrams, pictorial representations of electrical circuits or circuit diagrams.<br><br>Combine elements of design from a range of inspirational designers throughout history.<br><br>Make - Create a step-by-step plan to guide making; listing tools, equipment, materials and components. Competently select from and use appropriate tools to accurately measure, mark, cut and assemble materials, and securely connect electrical components to produce reliable, functional products. Use finishing and decorative techniques suitable for the product they are designing and making<br><br>Evaluate - Continually evaluate and modify the working features of the product to match the initial design specification. Critically evaluate their | Measure accurately and calculate ratios of ingredients to scale up or down from recipe. Create and refine recipes, including ingredients, methods, cooking times and temperatures.<br><br>Understand about seasonality in relation to food products. Know and use relevant technical and sensory vocabulary.<br><br>e.g. come dine with me (starter, main, dessert - rotational with other groups researching the journey of the food or writing the favourite recipe). | Produce a 3-D textile product from a combination of accurately made pattern pieces, fabric shapes and different fabrics. Understand how fabrics can be strengthened, stiffened and reinforced where appropriate. Join textiles with a combination of stitching techniques (e.g. back stitch for seams and running stitch to attach decoration). Know and use technical vocabulary relevant to the project.<br>e.g. design and make a piece of clothing linked to paragon topic. | | | Understand and use electrical systems in their products linked to science coverage. Apply their understanding of computing to program, monitor and control their products. Know and use technical vocabulary relevant to the project.<br><br>Link to science Term 4<br><br>e.g. steady hand game |

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| products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests to demonstrate its effectiveness. | | | | | |
| Vocabulary | 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 | 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, design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype | | | reed switch, toggle switch, push-to-make, switch, push-to-break switch, light dependent resistor (LDR), tilt switch, light emitting diode (LED), bulb, bulb holder, battery, battery holder, USB cable, wire, insulator, conductor, crocodile clip control, program, system, input device, output device, series circuit, parallel circuit |