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| **Tarporley C of E Primary School Progression Document for Design & Technology** |
| At Tarporley CE Primary School we use the National Curriculum for Design and Technology and our scheme 'Projects on a Page', the development of Design and Technology proficiency at Tarporley Primary is achieved through opportunities and experiences across a broad curriculum. Our curriculum enables pupils to take part in a wide range of practical activities directly concerned with:   * identifying needs * generating ideas * planning and designing * making and testing * evaluating and reflecting   All of these key disciplinary skills are realised through design projects which explore and use of a variety of mediums and materials such as textiles, construction, sheet materials, mechanisms, computer-aided design (CAD) and cooking and nutrition.  Following an iterative design process is key to enabling children to evaluate and adjust their designs and products. We achieve this through various approaches such as: the use of handling displays for children to explore existing designs and products; well-structured lessons allowing time for exploration, discussion, practice and research; designing a product for a specific audience or 'client' in mind; cross-curricular links that allow children to make connections between subjects and with real-life situations and problems that may need a design solution; whole school Design and Technology afternoons aimed to support children working collaboratively.  Our Design and Technology curriculum is continually being developed, improved and reviewed to ensure we can offer the most up to date, exciting and challenging lessons for all pupils. All Tarporley CE teachers are now members of the Design & Technology Association (DATA) and have access to design industry professionals, experienced design educators and a wealth of design and technology training that can be disseminated throughout the teaching staff. Through a considered curriculum, teachers can ensure that children at Tarporley CE build upon the skills and knowledge acquired in KS1, gaining confidence and a deeper understanding as they progress through KS2 equipping them with the vital skills they will need going into KS3 and beyond. |

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| EYFS | Characteristics of effective learning | Early Learning Goals |
|  | Show curiosity about objects, events and people  Questions why things happen  Engage in open-ended activity  Thinking of ideas  Find ways to solve problems / find new ways to do things / test their ideas  Use senses to explore the world around them  Create simple representations of events, people and objects  Planning, making decisions about how to approach a task, solve a problem and reach a goal Checking how well their activities are going  Changing strategy as needed  Reviewing how well the approach worked | Choose the resources they need for their chosen activities  Handle equipment and tools effectively  Children know the importance for good health of a healthy diet  They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.  Children use what they have learnt about media and materials in original ways, thinking about uses and purposes.  They represent their own ideas, thoughts and feelings through design and technology |

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| Skills | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| Generating ideas - designing | * Design appealing products for a particular user based on simple design criteria. * Generate initial ideas and design criteria through own experiences. * Develop and communicate these ideas through talk and drawings and mock ups where relevant. | * Generate ideas based on simple design criteria and their own experiences, explaining what they could make. * Develop, model and communicate their ideas through talking, mock-ups and drawings. | * 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. | * Generate and clarify ideas through discussion with peers to develop design criteria to inform the design of products 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. | * Generate innovative ideas through research including surveys, interviews and questionnaires. 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 | * Use research using surveys, 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 and share and clarify these through discussion. * Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams. |
| Making | • Select and use simple utensils, tools and equipment to perform a job e.g. peel, cut, slice, squeeze, grate and chop safely; marking out, | * Plan by suggesting what to do next. * Select and use tools, equipment, skills and techniques to perform | * Plan the main stages of making. * Select from and use a range of appropriate utensils, tools and equipment with some | * Order the main stages of making. * Select and use appropriate tools to measure, mark out, cut, score, shape and | • Produce detailed lists of equipment and fabrics relevant to their tasks | • Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. |

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|  | cutting, joining and finishing; cut, shape and join paper and card.  • Select from a range of ingredients and materials according to their characteristics to create a chosen product. | practical tasks, explaining their choices.   * Select new and materials, components, reclaimed materials and construction kits to build and create their products. * Use simple finishing techniques suitable for the products they are creating. | accuracy related to their product.  • Select from and use finishing techniques suitable for the product they are creating. | 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. | .• Write a step-by-step plan, including a list of resources required.  • Select from and use, a range of appropriate utensils, tools and equipment accurately to measure and combine appropriate ingredients, materials and resources. | * 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. |
| Evaluating | * Taste, explore and evaluate a range of products to determine the intended user’s preferences for the product * Evaluate their ideas throughout and finished products against design criteria, including intended user and purpose. | * Explore a range of existing products related to their design criteria. * Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria. | * Investigate a range of 3-D textile products, ingredients and lever and linkage products relevant to their project. * 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. | * 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 products against their own design criteria and identify the strengths and areas for improvement in their work. | * 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 fitness for purpose. • Consider the views of   others to improve their work  . | * Continually evaluate and modify the working features of the product to match the initial design specification. * Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests. * Test the system to demonstrate its effectiveness for the intended user and purpose. |
| Vocabulary | planning,  investigating design, evaluate, make, user, purpose, ideas, product, | investigating, planning, design, make, evaluate, user, purpose, ideas, design  criteria, product, function | user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, function, planning, design criteria, annotated sketch, appealing | evaluating, design brief design criteria, innovative, prototype, user, purpose, function, prototype, design  criteria, innovative, appealing, design brief, planning, annotated sketch, sensory evaluations | design decisions, functionality, authentic, user, purpose, design specification, design brief, innovative, research, evaluate, design criteria, annotate,  evaluate, mock-up, prototype | function, innovative, design specification, design brief,  user, purpose design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional, mock-up, prototype |
| Knowledge | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| Food | • Understand where a range of fruit and vegetables come from e.g. farmed or grown at home. | Understand where a range of fruit and vegetables come from e.g. farmed or grown at home. | • Know how to use appropriate equipment and utensils to prepare and combine food. | • Know how to use appropriate equipment and utensils to prepare and combine food. | • Know how to use utensils and equipment including heat sources to prepare and cook food. | • Know how to use utensils and equipment including heat sources to prepare and cook food. |

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|  | * Understand anduse basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of *The eatwell plate*. * Know and use technical and sensory vocabulary relevant to the project. | | * Understand anduse basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of *The eatwell plate*. * Know and use technical and sensory vocabulary relevant to the project. | | | * Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. * Know and use relevant technical and sensory vocabulary appropriately. | | | * Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. * Know and use relevant technical and sensory vocabulary appropriately. | | * Understand about seasonality in relation to food products and the source of different food products. * Know and use relevant technical and sensory vocabulary. | | | * Understand about seasonality in relation to food products and the source of different food products. * Know and use relevant technical and sensory vocabulary. | | |
| Vocabulary | 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, | | 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 | | | 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 | | | 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 | | 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 | | | 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 | | |
| Structures |  | * Know how to make freestanding structures stronger, stiffer and more stable. * Know and use technical vocabulary relevant to the project. | | | |  | * 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. | | | |  | * Understand how to strengthen, stiffen and reinforce 3-D frameworks. * Know and use technical vocabulary relevant to the project. | | | | |
| Vocabulary |  | 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 | | | |  | 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, | | | |  | frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent | | | | |
| Textiles | * 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. * Explore different finishing techniques • Know and use technical vocabulary relevant to the project. | | | |  | * Know how to strengthen, stiffen and reinforce existing fabrics. * Understand how to securely join two pieces of fabric together. * Understand the need for patterns and seam allowances. * Know and use technical vocabulary relevant to the project. | | | |  | * 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. * Know and use technical vocabulary relevant to the project. | | | | |  |
| Vocabulary | joining and finishing techniques, tools, fabrics and components, template, pattern pieces, mark out, join, decorate, finish | | |  | | fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance | | | |  | 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, | | | |  | |
| Mechanisms & mechanical systems | * Explore and use sliders and levers. * Understand that different mechanisms produce different types of movement. • Know and use technical vocabulary relevant to the project. | | * Explore and use wheels, axles and axle holders. * Distinguish between fixed and freely moving axles. * Know and use technical vocabulary relevant to the project. | | | * Understand and use lever and linkage mechanisms. * Distinguish between fixed and loose pivots. * Know and use technical vocabulary relevant to the project. | | |  | | * 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. | | | |  | |
| Vocabulary | slider, lever, pivot, slot, bridge/guide, card, masking tape, paper fastener, join, pull, push, up, down, straight, curve, forwards, backwards | | vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining,  shaping, finishing, fixed, free, moving, mechanism names of  tools, equipment and  materials used | | | mechanism, lever, linkage, pivot, slot, bridge, guide system, input, process, output  linear, rotary, oscillating,  reciprocating | | |  | | 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 | | | |  | |
| Electrical systems |  | |  | | |  | | * 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. | | |  | | * 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. | | | |
| Vocabulary |  | |  | | |  | | 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 | | |  | | 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 | | | |