



DT Knowledge and Skills Progression

National Curriculum Strand	Year 1 & 2	Years 3 & 4	Years 5 & 6
<p>Prior Learning</p>	<p>Experience of using construction kits to build walls, towers and frameworks.</p> <p>Experience of using of basic tools e.g. scissors or hole punches with construction materials e.g. plastic, card.</p> <p>Experience of different methods of joining card and paper.</p> <p>Early experiences of working with paper and card to make simple flaps and hinges.</p> <p>Experience of simple cutting, shaping and joining skills using scissors, glue, paper fasteners and masking tape.</p> <p>Experience of common fruit and vegetables, undertaking sensory activities i.e. appearance taste and smell.</p> <p>Experience of cutting soft fruit and vegetables using appropriate utensils.</p> <p>Assembled vehicles with moving wheels using construction kits.</p> <p>Explored moving vehicles through play. Gained some experience of designing, making and evaluating products for a specified user and purpose.</p>	<p>Have joined fabric in simple ways by gluing and stitching.</p> <p>Have used simple patterns and templates for marking out.</p> <p>Have evaluated a range of textile products.</p> <p>Know some ways to prepare ingredients safely and hygienically.</p> <p>Have some basic knowledge and understanding about healthy eating and The Eatwell Plate.</p> <p>Have used some equipment and utensils and prepared and combined ingredients to make a product.</p> <p>Explored and used mechanisms such as flaps, sliders and levers.</p> <p>Learnt how materials can be joined to allow movement.</p> <p>Joined and combined materials using simple tools and techniques.</p> <p>Gained experience of basic cutting, joining and finishing techniques with paper and card.</p>	<p>Experience of axles, axle holders and wheels that are fixed or free moving. Basic understanding of different types of movement.</p> <p>Experience of cutting and joining techniques with a range of materials including card, plastic and wood.</p> <p>An understanding of how to strengthen and stiffen structures.</p> <p>Have knowledge and understanding about food hygiene, nutrition, healthy eating and a varied diet.</p> <p>Be able to use appropriate equipment and utensils, and apply a range of techniques for measuring out, preparing and combining ingredients.</p> <p>Experience of basic stitching, joining textiles and finishing techniques. Experience of making and using simple pattern pieces.</p> <p>Experience of using measuring, marking out, cutting, joining, shaping and finishing techniques with construction materials. Basic understanding of what structures are and how they can be made stronger, stiffer and more stable.</p>

	<p>Developed some cutting, joining and finishing skills with card.</p>	<p>A basic understanding of 2-D and 3-D shapes in mathematics and the physical properties and everyday uses of materials in science.</p> <p>Familiarity with general purpose software that can be used to draw accurate shapes, such as Microsoft Word, or simple computer-aided design (CAD), such as 2D Primary by Techsoft.</p> <p>Constructed a simple series electrical circuit in science, using bulbs, switches and buzzers.</p> <p>Cut and joined a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue.</p>	<p>Initial experience of using computer control software and an interface box, a standalone box or microcontroller, e.g. Crumble.</p> <p>Some experience of writing and modifying a program to make a light turn on or flash on and off.</p> <p>Understanding of the essential characteristics of a series circuit and experience of creating a battery-powered, functional, electrical product.</p> <p>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.</p> <p>Experience of stitching, joining and finishing techniques in textiles.</p> <p>Experience of making and using textiles pattern pieces.</p> <p>Experience of simple computer-aided design applications.</p>
<p>Designing</p>	<p>Generate ideas based on simple design criteria and their own experiences, explaining what they could make.</p> <p>Design appealing products for a particular user based on simple design criteria.</p> <p>Develop, model and communicate their ideas through talking, mock-ups and drawings.</p>	<p>Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s.</p> <p>Produce annotated sketches, prototypes, final product sketches, models and pattern pieces, to communicate ideas.</p>	<p>Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources and through research and discussion with peers and adults to develop a design brief and criteria for a design specification.</p> <p>Develop a simple design specification to guide their thinking.</p>

	<p>Communicate these ideas through talk and drawings.</p>	<p>Generate and clarify ideas through discussion with peers and adults to develop design criteria including appearance, taste, texture and aroma for an appealing product for a particular user and purpose.</p> <p>Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas.</p> <p>Develop ideas through the analysis of existing shell structures and use computer-aided design to model and communicate ideas.</p> <p>Gather information about needs and wants, and develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups.</p> <p>Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams.</p>	<p>Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views.</p> <p>Explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose.</p> <p>Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas.</p> <p>Generate innovative ideas by carrying out research including surveys, interviews and questionnaires.</p> <p>Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes and, where appropriate, computeraided design.</p> <p>Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification.</p> <p>Carry out research into user needs and existing products, using surveys, interviews, questionnaires and web-based resources.</p> <p>Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost.</p>
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<p>Making</p>	<p>Plan by suggesting what to do next. Select and use tools, skills and techniques, explaining their choices.</p> <p>Select new and reclaimed materials and construction kits to build their structures. Use simple finishing techniques suitable for the structure they are creating.</p> <p>Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely.</p> <p>Select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product. Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing.</p> <p>Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics.</p>	<p>Plan the main stages of making. Select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing, appropriate utensils and equipment to prepare and combine ingredients, to cut, shape and join paper and card,</p> <p>Join materials and components such as tubing, syringes and balloons.</p> <p>Select from and use finishing techniques suitable for the product they are creating. Order the main stages of making.</p> <p>Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern.</p> <p>Plan the main stages of a recipe, listing ingredients, utensils and equipment. Select from a range of ingredients to make appropriate food products, thinking about sensory characteristics.</p>	<p>Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team.</p> <p>Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished.</p> <p>Work within the constraints of time, resources and cost.</p> <p>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.</p> <p>Make, decorate and present the food product appropriately for the intended user and purpose.</p> <p>Produce detailed lists of equipment and fabrics relevant to their tasks.</p> <p>Formulate step-by-step plans and, if appropriate, allocate tasks within a team.</p>

		<p>Explain their choice of materials according to functional properties and aesthetic qualities.</p> <p>Use computer-generated finishing techniques suitable for the product they are creating.</p> <p>Program a standalone control box, microcontroller or interface box to enhance the way the product works.</p> <p>Select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities.</p>	<p>Select from and use a range of tools and equipment to make products that are accurately assembled and well finished.</p> <p>Work within the constraints of time, resources and cost.</p> <p>Formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used.</p> <p>Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks.</p> <p>Use finishing and decorative techniques suitable for the product they are designing and making.</p> <p>Create and modify a computer control program to enable their electrical product to respond to changes in the environment.</p> <p>Select from and use a range of tools and equipment, including CAD, to make products that are accurately assembled and well finished. Work within the constraints of time, resources and cost.</p>
<p>Evaluating</p>	<p>Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings.</p> <p>Explore a range of existing books and everyday products that use simple sliders and levers.</p>	<p>Investigate a range of 3-D textile products relevant to the project. Test their product against the original design criteria and with the intended user.</p> <p>Take into account others' views.</p>	<p>Compare the final product to the original design specification.</p> <p>Test products with the intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.</p>

	<p>Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria.</p> <p>Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences.</p> <p>Evaluate ideas and finished products against design criteria, including intended user and purpose.</p> <p>Explore and evaluate a range of products with wheels and axles.</p> <p>Evaluate their ideas throughout and their products against original criteria.</p>	<p>Understand how a key event/individual has influenced the development of the chosen product and/or fabric.</p> <p>Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs.</p> <p>Evaluate the ongoing work and the final product with reference to the design criteria and the views of others.</p> <p>Investigate and analyse books and, where available, other products with lever and linkage mechanisms.</p> <p>Evaluate their own products and ideas against criteria and user needs, as they design and make.</p> <p>Investigate and evaluate a range of shell structures including the materials, components and techniques that have been used.</p> <p>Investigate and analyse a range of existing battery-powered products, including pre-programmed and programmable products.</p> <p>Test and evaluate their own products against design criteria and the intended user and purpose.</p>	<p>Consider the views of others to improve their work.</p> <p>Investigate famous manufacturing and engineering companies relevant to the project.</p> <p>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.</p> <p>Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.</p> <p>Understand how key chefs have influenced eating habits to promote varied and healthy diets.</p> <p>Investigate and analyse textile products linked to their final product.</p> <p>Compare the final product to the original design specification.</p> <p>Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.</p> <p>Consider the views of others to improve their work.</p>
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<p>Technical Knowledge and Understanding.</p>	<p>Know how to make freestanding structures stronger, stiffer and more stable.</p> <p>Explore and use sliders and levers.</p> <p>Understand that different mechanisms produce different types of movement.</p> <p>Understand where a range of fruit and vegetables come from e.g. farmed or grown at home.</p>	<p>Know how to strengthen, stiffen and reinforce existing fabrics.</p> <p>Understand how to securely join two pieces of fabric together.</p> <p>Understand the need for patterns and seam allowances.</p> <p>Know how to use appropriate equipment and utensils to prepare and combine food.</p> <p>Know about a range of fresh and processed ingredients appropriate for</p>	<p>Understand that mechanical systems have an input, process and an output.</p> <p>Understand how cams can be used to produce different types of movement and change the direction of movement.</p> <p>Know and use technical vocabulary relevant to the project.</p> <p>Know how to use utensils and equipment including heat sources to prepare and cook food.</p>

	<p>Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of The Eatwell Plate.</p> <p>Explore and use wheels, axles and axle holders.</p> <p>Distinguish between fixed and freely moving axles.</p> <p>Know and use technical vocabulary relevant to the project.</p>	<p>their product, and whether they are grown, reared or caught.</p> <p>Understand and use lever and linkage mechanisms.</p> <p>Distinguish between fixed and loose pivots.</p> <p>Understand and use pneumatic mechanisms.</p> <p>Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes.</p> <p>Develop and use knowledge of how to construct strong, stiff shell structures.</p> <p>Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers.</p> <p>Apply their understanding of computing to program and control their products.</p> <p>Know and use technical vocabulary relevant to the project.</p>	<p>Understand about seasonality in relation to food products and the source of different food products.</p> <p>A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics.</p> <p>Fabrics can be strengthened, stiffened and reinforced where appropriate.</p> <p>Investigate and evaluate a range of existing frame structures.</p> <p>Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests.</p> <p>Research key events and individuals relevant to frame structures.</p> <p>Understand how to strengthen, stiffen and reinforce 3-D frameworks.</p> <p>Understand and use electrical systems in their products.</p> <p>Understand the use of computer control systems in products.</p> <p>Apply their understanding of computing to program, monitor and control their products.</p> <p>Know and use technical vocabulary relevant to the project.</p>
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