

Design Technology Progression Grid

Early Years

<u>Design and Technology in the Early Years Framework 2021</u>	<u>Nursery</u>	<u>Reception</u>
	<ul style="list-style-type: none"> -Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park. -Explore different materials freely, in order to develop their ideas about how to use them and what to make. -Develop their own ideas and then decide which materials to use to express them. -Join different materials and explore different textures. -Create closed shapes with continuous lines, and begin to use these shapes to represent objects. -Draw with increasing complexity and detail, such as representing a face with a circle and including details. -Use one-handed tools and equipment, for example, making snips in paper with scissors 	<ul style="list-style-type: none"> -Explore, use and refine a variety of artistic effects to express their ideas and feelings. -Return to and build on their previous learning, refining ideas and developing their ability to represent them. -Create collaboratively, sharing ideas, resources and skills. -Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Suggested tools: pencils for drawing and writing, paintbrushes, scissors, knives, forks and spoons -Understand the importance of healthy food choices.

Developing, planning & communicating ideas

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
<u>Knowledge and skills</u>	<p>Generate ideas based on simple design criteria and their own experiences, explaining what they could make with adult guidance</p> <p>Develop, model and communicate their ideas through drawings and mock-ups with card and paper with adult support</p>	<p>Generate ideas based on simple design criteria and their own experiences, explaining what they could make independently</p> <p>Develop, model and communicate their ideas through drawings and mock-ups with card and paper independently</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 and pattern pieces with adult support</p>	<p>Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s evaluating as they move through the process</p> <p>Produce annotated sketches, prototypes, final product sketches and pattern pieces with little support</p>	<p>Generate innovative ideas by carrying out research in the form of product evaluations</p> <p>Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes</p> <p>Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification.</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 with little adult support drawing on previous taught knowledge</p>
<u>Vocabulary</u>	design, make, evaluate, user, purpose, ideas	design criteria, product, function	model, prototype, drawing, aesthetics, function, pattern pieces	annotated sketch, functional, innovative, investigate, label	design decisions, functionality, mock-up, prototype	innovation, authentic, computer aided design

<u>Expectation of progression</u>						

Working with materials, tools and equipment

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
<u>Knowledge and skills</u>	<p>Select and use tools, explaining their choices, to cut, shape and join paper and card.</p> <p>Use simple finishing techniques suitable for the product they are creating.</p>	<p>Select and use tools, skills and techniques, explaining their choices</p> <p>Select new and reclaimed materials to build their structures</p> <p>Use simple finishing techniques suitable for the structure they are creating</p>	<p>Select and use appropriate tools to measure, mark out, cut, score, shape and assemble with some accuracy</p> <p>Explain their choice of materials according to functional properties and aesthetic qualities</p> <p>Use finishing techniques suitable for the product they are creating.</p>	<p>Select from and use appropriate tools with some accuracy to cut, shape and join paper and card.</p> <p>Select from and use finishing techniques suitable for the product they are creating with little adult support</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>Produce detailed lists of tools, equipment, construction kits 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. Work within the constraints of time, resources and cost</p> <p>Accurately measure, mark out, cut, shape and join construction materials to make frameworks</p>	<p>Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components.</p> <p>Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product.</p> <p>Create and modify a computer control program to enable an electrical product to work automatically in response to changes in the environment</p>

<u>Vocabulary</u>	<p>cut, fold, join, fix, slider, lever, pivot, slot, card, masking tape, paper fastener, join, pull, push, up, down, straight, curve, forwards, backwards</p>	<p>vehicle, wheel, axle, axle holder, chassis, body, cutting, joining, shaping, finishing, fixed, free, moving, mechanism names of tools, equipment and materials used</p> <p>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</p>	<p>shell structure, three-dimensional (3-D) shape, net, prism, vertex, edge, face, length, width, breadth, capacity marking out, scoring, shaping, tabs, adhesives, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating</p>	<p>mechanism, linkage, bridge, guide system, input, process, output linear, rotary, oscillating, reciprocating</p> <p>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</p>	<p>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</p> <p>frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, temporary, permanent</p>	<p>series circuit, parallel circuit, names of switches and components, input device, output device, system, monitor, control, program, flowchart</p>
<u>Expectation of progression</u>						

Evaluating processes and products

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
<u>Knowledge and skills</u>	<p>Explore a range of existing books and everyday products that use simple sliders and levers.</p> <p>Evaluate their ideas throughout and their products against original criteria</p>	<p>Explore and evaluate a range of products with wheels and axles</p> <p>Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings.</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>Investigate and evaluate a range of existing shell structures including the materials, components and techniques that have been used.</p> <p>Test and evaluate their own products against design criteria and the intended user and purpose.</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 analyse a range of existing battery-powered products.</p> <p>Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.</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> <p>Investigate famous manufacturing and engineering companies relevant to the project.</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>Continually evaluate and modify the working features of the product to match the initial design specification.</p> <p>Test the system to demonstrate its effectiveness for the intended user and purpose.</p> <p>Investigate famous inventors who developed ground-breaking electrical systems and components.</p>

Expectation of progression						
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Textiles						
	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
<u>Knowledge and skills</u>	<p>Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing.</p> <p>Select from and use textiles according to their characteristics</p>		<p>Select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing.</p> <p>Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern.</p>			<p>Produce detailed lists of equipment and fabrics relevant to their tasks.</p> <p>Select from and use a range of tools and equipment to make products that are accurately assembled and well finished.</p>

<u>Vocabulary</u>	names of existing products, 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, stitch, seam, seam allowance, needles, thread			wadding, reinforce, right side, wrong side, hem, pattern pieces name of textiles and fastenings used, pins, pinking shears, fastenings, iron transfer paper
<u>Expectation of progression</u>						

Food and Nutrition

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
Knowledge and skills	<p>Generate ideas and design criteria through investigating a variety of fruit and vegetables. Communicate these ideas through talk and drawings.</p> <p>Use simple utensils and equipment to: cut, 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.</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</p>	<p>Design appealing products for a particular user based on simple design criteria.</p> <p>Generate initial ideas and design criteria through investigating a variety of fruit and vegetables. Communicate these ideas through talk and annotated drawings.</p> <p>Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely.</p> <p>Evaluate ideas and finished products against design criteria, including intended user and purpose. Technical knowledge and understanding.</p> <p>Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and</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 to communicate ideas.</p> <p>Plan the main stages of a recipe, listing ingredients.</p> <p>Select and use appropriate utensils and equipment to prepare and</p>	<p>Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas.</p> <p>Plan the main stages of a recipe, listing ingredients, utensils and equipment.</p> <p>Select from a range of ingredients to make appropriate food products, thinking about sensory characteristics.</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</p>	<p>Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification.</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>Write a step-by-step recipe, including a list of ingredients, equipment and utensils</p> <p>Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients.</p> <p>Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using</p>	<p>Make, decorate and present the food product appropriately for the intended user and purpose 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>Build upon all prior knowledge, skills and understanding. Following a recipe and working independently to follow that recipe and produce a final product with very little adult support.</p>

	<p>against design criteria.</p> <p>Understand where a range of fruit and vegetables come from e.g. farmed or grown at home.</p>	<p>vegetables are part of the eat well plate.</p> <p>Know and use technical and sensory vocabulary relevant to the project.</p>	<p>combine ingredients.</p> <p>Select from a range of ingredients to make appropriate food products based on the individual's likes and dislikes.</p> <p>Carry out evaluations of a variety of ingredients and products.</p> <p>Evaluate the ongoing work and the final product with reference to the design criteria.</p>	<p>reference to the design criteria and the views of others.</p>	<p>e.g. tables/graphs/charts such as star diagrams.</p> <p>Understand how key chefs have influenced eating habits to promote varied and healthy diets.</p>	
<p>Vocabulary</p>	<p>fruit and vegetable names, names of equipment and utensils cutting, tasting, healthy, design criteria sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth,</p>	<p>flesh, skin, seed, pip, core, slicing, peeling, squeezing, diet, spicy, choosing, ingredients, planning, investigating, arranging, popular, evaluate, samosa, Greek, salad</p>	<p>Jacket potato, quiche, pastry, rating, texture, sour, hot, spice appearance, smell, greasy, moist, cook, fresh, savoury hygienic, edible, grown, reared, caught, processed,</p>	<p>Pizza, base, crust, rubbing in, preference, frozen, sensory, dough, flour, sauce, topping yeast, herbs, combine, fold, knead, roll out, research, evaluate, design brief</p>	<p>Soup, bread, bran, wholemeal, unleavened, tinned, soda, fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, source, seasonality, stir, pour, whisk, beat, design specification, innovative,</p>	<p>shape, sprinkle, crumble, pipe, piping, piping bag, afternoon tea</p>

	sharp, crisp, sour, hard		seasonal, harvested purpose, user, annotated sketch			
<u>Expectation of progression</u>						