

# DESIGN TECHNOLOGIST



## D&T Progression Document

### Learning in EYFS: DT

This part of the document demonstrates which statements from the 2020 Development Matters are prerequisite skills for DT within the national curriculum. The table below outlines the most relevant statements taken from the Early Learning Goals in the EYFS statutory framework and the Development Matters age ranges for Three and Four-Year-Olds and Reception to match the programme of study for DT.

Design Technology - Expressive Arts and Design			
Development Matters non-statutory guidance  Three and Four-Year-Olds	Personal, Social and Emotional Development	Select and use activities and resources, with help when needed. This helps them to achieve a goal they have chosen or one which is suggested to them.	<b>Nursery Autumn term</b>  Designing houses and constructing
	Physical Development	Use large-muscle movements to wave flags and streamers, paint and make marks.  Choose the right resources to carry out their own plan.  Use one-handed tools and equipment, for example, making snips in paper with scissors.	Joining Materials  Cake Baking
	Understanding the World	Explore how things work.	Making Gifts/ toys
	Expressive Arts and Design	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.  Create closed shapes with continuous lines, and begin to use these shapes to represent objects.	<b>Nursery Spring term</b>  The toy box - cut and stick pictures of toys from old catalogues.  Nature pictures- Transient Art  <b>Nursery Summer term</b>  Make moving mini-beast puppets - moving parts such as wings/ legs

# DESIGN TECHNOLOGIST



			Paper mache creatures using paint and other junk modelling items. Junk modelling sea creatures
Development Matters non-statutory guidance Reception	Physical Development	Progress towards a more fluent style of moving, with developing control and grace. Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor.	<b>Reception Autumn term</b>  <b>Superhero masks – how to make a hole safely</b>  Design and make a superhero spoon puppet  Make cakes and biscuits  <b>Reception Spring term</b>  Junk modelling rockets and spaceships - ways of joining
	Expressive Arts and Design	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.	
Statutory Framework ELG	Physical Development	Fine Motor Skills Use a range of small tools, including scissors, paintbrushes and cutlery.	Clay fossils  <b>Reception Summer term</b>  Junk modelling – making boats, ways of joining
	Expressive Arts and Design	Creating with Materials Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the process they have used.	

Year Group	National Curriculum	Sticky Knowledge	Vocabulary	Skills
<b>Y1</b>	<u>Design</u> <ul style="list-style-type: none"> <li>design purposeful, functional, appealing products for themselves and other users based on design criteria</li> <li>generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and,</li> </ul>	<u>Mechanisms - Sliders and levers</u> <b>MAKE A BOOK WITH MOVING PARTS</b> <ul style="list-style-type: none"> <li>Know books have moving parts</li> <li>Know what a slider and a lever is.</li> <li>Know how the slider moves</li> <li>Know how the lever moves</li> </ul>	<u>Mechanisms - Sliders and levers</u> <b>MAKE A BOOK WITH MOVING PARTS</b> <p>slider, lever, pivot, slot, bridge/guide card, masking tape, paper fastener, join pull, push, up, down, straight, curve, forwards, backwards design, make, evaluate, user, purpose,</p>	<u>Mechanisms - Sliders and levers</u> <b>MAKE A BOOK WITH MOVING PARTS</b> <p><u>Designing</u> Generate ideas based on simple design criteria and their own experiences, explaining what they could make.</p> <ul style="list-style-type: none"> <li>Develop, model and communicate their ideas through drawings and mock-ups with card and paper.</li> </ul> <p><u>Making</u> Plan by suggesting what to do next.</p> <ul style="list-style-type: none"> <li>Select and use tools, explaining their choices, to cut, shape and join paper and card.</li> </ul>



# DESIGN TECHNOLOGIST

	<p>where appropriate, information and communication technology</p> <p><b>Make</b></p> <ul style="list-style-type: none"> <li>• select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</li> <li>• select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</li> </ul> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>• explore and evaluate a range of existing products</li> <li>• evaluate their ideas and products against design criteria</li> </ul> <p><b>Technical knowledge</b></p> <ul style="list-style-type: none"> <li>• build structures, exploring how they can be made stronger, stiffer and more stable</li> <li>• explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</li> </ul> <p><b>Cooking and Nutrition</b></p>	<ul style="list-style-type: none"> <li>• Know which part of the mechanism is the pivot</li> <li>• Know how to replicate the slider and lever teaching aids.</li> <li>• Know how to add pictures to the sliders and levers</li> <li>• Know the order in which the mechanisms will be made.</li> </ul> <p><b>Food - Fruit and Vegetables</b></p> <p><b>MAKE A FRUIT COCKTAIL</b></p> <ul style="list-style-type: none"> <li>• Know basic food hygiene practices when handling food including the importance of following instructions to control risk</li> <li>• Know how to use simple utensils and provide opportunities for the children to practise food-processing skills such as washing, grating, peeling, slicing, squeezing</li> <li>• Know different effects achieved by different processes. Know about healthy eating, including eating more fruit and vegetables; using The eatwell plate model talk</li> </ul>	<p>ideas, design criteria, product, function</p> <p><b>Food - Fruit and Vegetables</b></p> <p><b>MAKE A FRUIT COCKTAIL</b></p> <p>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</p>	<ul style="list-style-type: none"> <li>• Use simple finishing techniques suitable for the product they are creating.</li> </ul> <p><b>Evaluating</b></p> <p>Explore a range of existing books and everyday products that use simple sliders and levers.</p> <ul style="list-style-type: none"> <li>• Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria.</li> </ul> <p><b>Technical knowledge and understanding</b></p> <p>Explore and use sliders and levers.</p> <ul style="list-style-type: none"> <li>• Understand that different mechanisms produce different types of movement.</li> <li>• Know and use technical vocabulary relevant to the project.</li> </ul> <p><b>Food - Fruit and Vegetables</b></p> <p><b>MAKE A FRUIT COCKTAIL</b></p> <p><b>Designing</b></p> <p>Design appealing products for a particular user based on simple design criteria.</p> <ul style="list-style-type: none"> <li>• Generate initial ideas and design criteria through investigating a variety of fruit and vegetables.</li> <li>• Communicate these ideas through talk and drawings.</li> </ul> <p><b>Making</b></p> <p>Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely.</p> <ul style="list-style-type: none"> <li>• Select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product. Evaluating</li> <li>• Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences.</li> </ul> <p><b>Evaluate</b></p> <p>Evaluate ideas and finished products against design criteria, including intended user and purpose.</p> <p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> <li>• Understand where a range of fruit and vegetables come from e.g. farmed or grown at home.</li> </ul>
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# DESIGN TECHNOLOGIST



	<ul style="list-style-type: none"> <li>• use the basic principles of a healthy and varied diet to prepare dishes</li> <li>• understand where food comes from.</li> </ul>	<p>about the importance of fruit and vegetables in our balanced diet</p>		<ul style="list-style-type: none"> <li>• 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.</li> <li>• Know and use technical and sensory vocabulary relevant to the project.</li> </ul>
<p><b>Y2</b></p>	<p><u>Design</u></p> <ul style="list-style-type: none"> <li>• design purposeful, functional, appealing products for themselves and other users based on design criteria</li> <li>• generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology</li> </ul> <p><u>Make</u></p> <ul style="list-style-type: none"> <li>• select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</li> <li>• select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</li> </ul> <p><u>Evaluate</u></p>	<p><u>Structures</u></p> <p><u>Make a chair for baby Bear</u></p> <ul style="list-style-type: none"> <li>• Know what a free-standing structure is</li> <li>• Know what a frame structure is</li> <li>• Know what stability means</li> <li>• Know what a mock up is</li> </ul> <p><u>Templates and joining</u></p> <p><u>Design and make a puppet</u></p> <ul style="list-style-type: none"> <li>• Know some of the different types of</li> </ul>	<p><u>Structures</u></p> <p><u>Make a chair for Baby Bear</u></p> <p>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 design, make, evaluate, user, purpose, ideas, design criteria, product, function</p> <p><u>Templates and joining</u></p> <p><u>Design and make a puppet</u></p> <p>names of existing products, joining and finishing techniques, tools, fabrics and components, template, pattern pieces, mark</p>	<p><u>Structures</u></p> <p><u>Make a chair for Baby Bear</u></p> <p><u>Designing</u></p> <p>Generate ideas based on simple design criteria and their own experiences, explaining what they could make.</p> <ul style="list-style-type: none"> <li>• Develop, model and communicate their ideas through talking, mock-ups and drawings.</li> </ul> <p><u>Making</u></p> <p>Plan by suggesting what to do next.</p> <ul style="list-style-type: none"> <li>• Select and use tools, skills and techniques, explaining their choices.</li> <li>• Select new and reclaimed materials and construction kits to build their structures.</li> <li>• Use simple finishing techniques suitable for the structure they are creating. Evaluating</li> <li>• Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings.</li> </ul> <p><u>Evaluate</u></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><u>Technical knowledge and understanding</u></p> <p>Know how to make freestanding structures stronger, stiffer and more stable.</p> <ul style="list-style-type: none"> <li>• Know and use technical vocabulary relevant to the project.</li> </ul> <p><u>Templates and joining</u></p> <p><u>Designing</u></p> <ul style="list-style-type: none"> <li>• Design a functional and appealing product for a chosen user and purpose based on simple design criteria.</li> </ul>



# DESIGN TECHNOLOGIST

	<ul style="list-style-type: none"> <li>• explore and evaluate a range of existing products</li> <li>• evaluate their ideas and products against design criteria</li> </ul> <p><b><u>Technical knowledge</u></b></p> <ul style="list-style-type: none"> <li>• build structures, exploring how they can be made stronger, stiffer and more stable</li> <li>• explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</li> </ul> <p><b><u>Cooking and Nutrition</u></b></p> <ul style="list-style-type: none"> <li>• use the basic principles of a healthy and varied diet to prepare dishes</li> <li>• understand where food comes from</li> </ul>	<p>puppets including: finger puppets, body puppets, marionettes, rod puppets, shadow puppets and glove puppets.</p> <ul style="list-style-type: none"> <li>• Know how puppets are joined using a running stitch.</li> <li>• Know how to sew using a running stitch.</li> <li>• Know that a special type of adhesive is used to add accessories.</li> </ul> <p style="text-align: center;"><b><u>Wheels and Axles</u></b> <b><u>Design an open top car for Gorilla (By Anthony Browne) to sit in.</u></b></p> <ul style="list-style-type: none"> <li>• Know a range of products that have wheels to move such as toys and everyday objects.</li> <li>• Know that wheels move using an axle.</li> </ul>	<p>out, join, decorate, finish, features, suitable, quality mock-up, design brief, design criteria, make, evaluate, user, purpose, function</p> <p style="text-align: center;"><b><u>Wheels and Axles</u></b> <b><u>Design an open top car for Gorilla (By Anthony Browne) to sit in.</u></b></p> <p>vehicle, wheel, axle, axle holder, chassis, body, cab, assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism, names of tools, equipment and materials used, design, make, evaluate, purpose, user, criteria, functional</p>	<ul style="list-style-type: none"> <li>• Generate, develop, model and communicate their ideas as appropriate through talking, drawing, templates, mock-ups and information and communication technology.</li> </ul> <p><b><u>Making</u></b></p> <ul style="list-style-type: none"> <li>• Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing.</li> <li>• Select from and use textiles according to their characteristics.</li> </ul> <p><b><u>Evaluating</u></b></p> <ul style="list-style-type: none"> <li>• Explore and evaluate a range of existing textile products relevant to the project being undertaken.</li> <li>• Evaluate their ideas throughout and their final products against original design criteria.</li> </ul> <p><b><u>Technical knowledge and understanding</u></b></p> <ul style="list-style-type: none"> <li>• Understand how simple 3-D textile products are made, using a template to create two identical shapes.</li> <li>• Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling.</li> <li>• Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons.</li> <li>• Know and use technical vocabulary relevant to the project.</li> </ul> <p style="text-align: center;"><b><u>Wheels and Axles</u></b></p> <p><b><u>Designing</u></b></p> <ul style="list-style-type: none"> <li>• Generate initial ideas and simple design criteria through talking and using own experiences.</li> <li>• Develop and communicate ideas through drawings and mock-ups.</li> </ul> <p><b><u>Making</u></b></p> <ul style="list-style-type: none"> <li>• Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing.</li> <li>• Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics.</li> </ul> <p><b><u>Evaluating</u></b></p>
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# DESIGN TECHNOLOGIST



		<ul style="list-style-type: none"> <li>Know the difference between a fixed and a moving axle.</li> </ul>		<ul style="list-style-type: none"> <li>Explore and evaluate a range of products with wheels and axles.</li> <li>Evaluate their ideas throughout and their products against original criteria.</li> </ul> <p><u>Technical knowledge and understanding</u></p> <ul style="list-style-type: none"> <li>Explore and use wheels, axles and axle holders.</li> <li>Distinguish between fixed and freely moving axles.</li> <li>Know and use technical vocabulary relevant to the project.</li> </ul>
<p><b>Y3</b></p>	<p><u>Design</u></p> <ul style="list-style-type: none"> <li>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</li> <li>generate, develop, model and communicate their ideas through discussion, annotated sketches, prototypes, pattern pieces and computer-aided design</li> </ul> <p><u>Make</u></p> <ul style="list-style-type: none"> <li>select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</li> <li>select from and use a wider range of materials and components, including construction materials,</li> </ul>	<p><u>Healthy and Varied Diet – Design and make a healthy sandwich or wrap for a packed lunch.</u></p> <ul style="list-style-type: none"> <li>Can discuss what foods make up a healthy balanced diet.</li> <li>Can give examples of foods from different food groups and comment on properties</li> <li>Can say where bread and bread products originate</li> <li>Can identify the source of ham, chicken, turkey, tuna, cheese.</li> <li>Can talk about the hygiene and safety requirements of food preparation e.g. clean surface, handwashing, food storage.</li> <li>Can select and use appropriate utensils, eg knife, chopping board.</li> </ul> <p><u>Structures – Shell structures (including using computer aided design -CAD)</u> <u>Disposable lunch box</u></p>	<p><u>Healthy and Varied Diet – Design and make a healthy sandwich or wrap for a packed lunch.</u></p> <p>Pitta bread, loaf, sandwich, wrap, bread roll, brown, white, multigrain, fold, roll, spread, knife, spoon, bowl, cling film, chopping board, multi-surface cleaner, hygiene, cloth, butter, sweet, spicy, crunchy, smooth, sticky, moist dry, fresh, savoury, filling, frozen, processed, fresh, seasonal, healthy, varied diet.</p> <p><u>Structures – Shell structures (including using computer aided design -CAD)</u> <u>Sandwich packaging for sales</u></p> <p>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,</p>	<p><u>Healthy and Varied Diet – Design and make a healthy sandwich or wrap for a packed lunch.</u></p> <p><u>Designing</u></p> <ul style="list-style-type: none"> <li>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.</li> <li>Use annotated sketches to develop and communicate ideas.</li> </ul> <p><u>Making</u></p> <ul style="list-style-type: none"> <li>Plan the main stages of a recipe, listing ingredients, utensils and equipment.</li> <li>Select and use appropriate utensils and equipment to prepare and combine ingredients.</li> <li>Select from a range of ingredients to make appropriate food products.</li> </ul> <p><u>Evaluating</u></p> <ul style="list-style-type: none"> <li>Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs.</li> <li>Evaluate the ongoing work and the final product with reference to the design criteria and the views of others.</li> </ul> <p><u>Technical knowledge and understanding</u></p> <ul style="list-style-type: none"> <li>Know how to use appropriate equipment and utensils to prepare and combine food.</li> <li>Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught.</li> </ul>



# DESIGN TECHNOLOGIST

	<p>textiles and ingredients, according to their functional properties and aesthetic qualities</p> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>investigate and analyse a range of existing products</li> <li>evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</li> <li>understand how key events and individuals in design and technology</li> </ul> <p><b>Technical knowledge</b></p> <ul style="list-style-type: none"> <li>apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> <li>apply their understanding of computing to program, monitor and control their products.</li> </ul> <p><b>Cooking and Nutrition</b></p> <ul style="list-style-type: none"> <li>understand and apply the principles of a healthy and varied diet</li> <li>prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</li> <li>understand seasonality and know where and how a</li> </ul>	<ul style="list-style-type: none"> <li>Can create nets of simple 3D shapes, referencing how best to join edges.</li> <li>Can make informed choices of materials to give strength and durability in a design.</li> <li>Can use simple CAD process to create designs, using 2D shape tools</li> </ul> <p><b><u>Textiles – 2D shape to 3D product</u></b> <b><u>Egyptian style collar</u></b></p> <ul style="list-style-type: none"> <li>Begin to thread needles and use simple stitches e.g. running stitch, back stitch, cross stitch.</li> <li>Use a pattern to cut fabric of appropriate size allowing for seams.</li> <li>Chn know the purpose of a stitch (as a fastening, decorative.)</li> <li>Can name types of fabric e.g. cotton, linen, felt, polyester, silk, wool.</li> </ul>	<p>laminating, text, graphics, decision, evaluating, design brief design criteria, innovative, prototype</p> <p>font, lettering, text, graphics, decision, evaluating, design brief design criteria, innovative, prototype</p> <p><b><u>Textiles – 2D shape to 3D product</u></b> <b><u>Egyptian style collar</u></b></p> <p>fabric, names of fabrics, fastening, zip, velcro, button, structure, pattern, cross stitch, back stitch, running stitch, seam allowance, user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, aesthetics, function, pattern pieces, applique, fabric pens, assemble, needles, threads, cotton, linen, felt, nylon</p>	<ul style="list-style-type: none"> <li>Know and use relevant technical and sensory vocabulary appropriately.</li> </ul> <p><b><u>Structures – Shell structures (including using computer aided design -CAD)</u></b> <b><u>Sandwich packaging for sales</u></b></p> <p><b>Designing</b></p> <ul style="list-style-type: none"> <li>Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and purpose of the product.</li> <li>Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas.</li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>Plan the order the main stages of making.</li> <li>Select and use appropriate tools to measure, mark out, cut, score, shape and assemble with some accuracy.</li> <li>Explain their choice of materials according to functional properties and aesthetic qualities.</li> <li>Use finishing techniques suitable for the product they are creating.</li> <li>Use computer-generated finishing techniques suitable for the product they are creating.</li> </ul> <p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>Investigate and evaluate a range of existing shell structures including the materials, components and techniques that have been used.</li> <li>Test and evaluate their own products against design criteria and the intended user and purpose.</li> </ul> <p><b>Technical knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>Develop and use knowledge of how to construct strong, stiff shell structures.</li> <li>Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes.</li> <li>Know and use technical vocabulary relevant to the project</li> </ul>
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# DESIGN TECHNOLOGIST



	<p>variety of ingredients are grown, reared, caught and processed.</p>			<p style="text-align: center;"><b><u>Textiles – 2D shape to 3D product</u></b> <b><u>Egyptian style collar</u></b></p> <p><b><u>Designing</u></b></p> <ul style="list-style-type: none"> <li>• Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s.</li> <li>• Produce annotated sketches, prototypes, final product sketches and pattern pieces.</li> </ul> <p><b><u>Making</u></b></p> <ul style="list-style-type: none"> <li>• Plan the main stages of making.</li> <li>• Select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing.</li> <li>• Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern.</li> </ul> <p><b><u>Evaluating</u></b></p> <ul style="list-style-type: none"> <li>• Investigate a range of 3-D textile products relevant to the project.</li> <li>• Test their product against the original design criteria and with the intended user.</li> <li>• Take into account others' views.</li> <li>• Understand how a key event/individual has influenced the development of the chosen product and/or fabric.</li> </ul> <p><b><u>Technical knowledge and understanding</u></b></p> <ul style="list-style-type: none"> <li>• Know how to strengthen, stiffen and reinforce existing fabrics.</li> <li>• Understand how to securely join two pieces of fabric together.</li> <li>• Understand the need for patterns and seam allowances.</li> <li>• Know and use technical vocabulary relevant to the project.</li> </ul>
<p><b>y4</b></p>	<p><b><u>Design</u></b></p> <ul style="list-style-type: none"> <li>• Generate realistic ideas and their own design criteria through discussion, focussing on the needs of the user</li> </ul>	<p><b><u>Mechanical Systems – Levers and Linkages</u></b></p> <ul style="list-style-type: none"> <li>• Recognise how levers are used in everyday products</li> </ul>	<p><b><u>Mechanical Systems – Levers and Linkages</u></b></p> <p>Mechanism, lever, linkage, pivot, slot, bridge, guide, system, input, process, output, user, purpose,</p>	<p style="text-align: center;"><b><u>Mechanical Systems – Levers and Linkages</u></b> <b><u>Design, make and evaluate a page for a History book, which includes moving parts, for children in Year 3.</u></b></p> <p><b><u>Designing</u></b></p> <ul style="list-style-type: none"> <li>• Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user.</li> </ul>





# DESIGN TECHNOLOGIST

	<ul style="list-style-type: none"> <li>Use annotated sketches and prototypes to develop, model and communicate ideas.</li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>Order the main stages of making</li> <li>Select from and use appropriate tools with some accuracy, to cut, shape, join paper and card</li> </ul> <p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>Evaluate their own products and criteria against criteria and user needs, as they design and make</li> </ul> <p><b>Technical Knowledge and Understanding</b></p> <ul style="list-style-type: none"> <li>Understand and use lever and linkages mechanisms</li> <li>Distinguish between fixed and loose pivots</li> <li>Know and use technical vocabulary related to the product</li> </ul>	<ul style="list-style-type: none"> <li>Know a lever is a rigid bar which moves around a pivot</li> <li>Know a linkage is where one or more levers are joined together to produce the type of movement required</li> <li>Know a loose pivot is a paper fastener that joins cards and strips together</li> <li>Know that a fixed pivot is a paper fastener that joins card strips to the backing system</li> <li>Know the input and the output of the mechanism</li> </ul> <p><b>Mechanical Systems – Pneumatics</b></p> <ul style="list-style-type: none"> <li>Know that pneumatic mechanisms work using compressed air</li> <li>Know real life examples of pneumatic mechanisms</li> <li>Understand how to join and combine materials to make the pneumatic mechanism work</li> </ul>	<p>function, prototype, appealing, design criteria</p> <p><b>Mechanical Systems – Pneumatics</b></p> <p>components, fixing, attaching, tubing, syringe, plunger, split pin, paper fastener, pneumatic system, input movement, process, output movement, control, compression, pressure, inflate, deflate, pump, seal, air-tight, linear, rotary, oscillating, reciprocating, user, purpose, function, prototype, design criteria, innovative, appealing, design brief, research, evaluate, ideas, constraints, investigate</p> <p><b>Electrical Systems – simple circuits and switches (including programming and control)</b></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, control, program, system, input device, output device, user, purpose, function, prototype, design criteria, innovative, appealing, design brief</p>	<ul style="list-style-type: none"> <li>Use annotated sketches and prototypes to develop, model and communicate ideas.</li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>Order the main stages of making.</li> <li>Select from and use appropriate tools with some accuracy to cut, shape and join paper and card.</li> <li>Select from and use finishing techniques suitable for the product they are creating.</li> </ul> <p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>Investigate and analyse books and, where available, other products with lever and linkage mechanisms.</li> <li>Evaluate their own products and ideas against criteria and user needs, as they design and make.</li> </ul> <p><b>Technical knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>Understand and use lever and linkage mechanisms.</li> <li>Distinguish between fixed and loose pivots.</li> <li>Know and use technical vocabulary relevant to the project.</li> </ul> <p><b>Mechanical Systems – Pneumatics</b></p> <p><b>Designing</b></p> <ul style="list-style-type: none"> <li>Generate realistic and appropriate ideas and their own design criteria through discussion, focusing on the needs of the user.</li> <li>Use annotated sketches and prototypes to develop, model and communicate ideas.</li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>Order the main stages of making.</li> <li>Select from and use appropriate tools with some accuracy to cut and join materials and components such as tubing, syringes and balloons.</li> <li>Select from and use finishing techniques suitable for the product they are creating.</li> </ul> <p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>Investigate and analyse books, videos and products with pneumatic mechanisms.</li> </ul>
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# DESIGN TECHNOLOGIST



		<ul style="list-style-type: none"> <li>• Know the input and the output of the mechanism</li> </ul> <p><b><u>Electrical Systems – simple circuits and switches (including programming and control)</u></b></p> <ul style="list-style-type: none"> <li>• Know different ways to operate a switch (e.g. when you press them, when you turn them, when you push them from side to side.)</li> <li>• Know the input and the output of the circuit</li> <li>• Know how to find a fault in a circuit</li> </ul>		<ul style="list-style-type: none"> <li>• Evaluate their own products and ideas against criteria and user needs, as they design and make.</li> </ul> <p><b><u>Technical knowledge and understanding</u></b></p> <ul style="list-style-type: none"> <li>• Understand and use pneumatic mechanisms.</li> <li>• Know and use technical vocabulary relevant to the project</li> </ul> <p><b><u>Electrical Systems – simple circuits and switches (including programming and control)</u></b></p> <p><b><u>Designing</u></b></p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams.</li> </ul> <p><b><u>Making</u></b></p> <ul style="list-style-type: none"> <li>• Order the main stages of making.</li> <li>• Select from and use tools and equipment to cut, shape, join and finish with some accuracy.</li> <li>• Select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities.</li> </ul> <p><b><u>Evaluating</u></b></p> <ul style="list-style-type: none"> <li>• Investigate and analyse a range of existing battery-powered products.</li> <li>• Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.</li> </ul> <p><b><u>Technical knowledge and understanding</u></b></p> <ul style="list-style-type: none"> <li>• Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers.</li> <li>• Apply their understanding of computing to program and control their products.</li> <li>• Know and use technical vocabulary relevant to the project.</li> </ul>
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# DESIGN TECHNOLOGIST



Y5	<p><u>Designing</u></p> <ul style="list-style-type: none"> <li>• Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources.</li> <li>• Develop a simple design specification to guide their thinking.</li> <li>• Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views.</li> </ul> <p><u>Making</u></p> <ul style="list-style-type: none"> <li>• Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team.</li> <li>• 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.</li> </ul> <p><u>Evaluating</u></p> <ul style="list-style-type: none"> <li>• Compare the final product to the original design specification.</li> </ul>	<p><u>Mechanical Systems – Cams</u></p> <ul style="list-style-type: none"> <li>• Children to comment on the movement of pre-cut cams made from MDF or wooden wheels to mount</li> <li>• Develop measuring, marking, cutting, shaping and joining skills using junior hacksaws, G-clamps, bench hooks, square section wood, card triangles and hand drills to.</li> </ul> <p><u>Textiles – Combining different fabric shapes/ using computer aided design (CAD) in textiles</u></p> <ul style="list-style-type: none"> <li>• Develop skills of threading needles and joining textiles using a range of stitches.</li> <li>• Develop skills of sewing textiles by joining right side together and making seams.</li> <li>• Develop skills of 2-D paper pattern making using grid or tracing paper to create a 3-D dipryl mock-up of a chosen product.</li> <li>• Develop skills of computer-aided design (CAD) by using on-line pattern making software to generate patterns.</li> <li>• Develop skills of 2-D paper pattern making using CAD and create a 3-D paper or</li> </ul>	<p><u>Mechanical Systems – Cams</u></p> <p>cam, snail cam, off-centre cam, peg cam, pear shaped cam follower, axle, shaft, crank, handle, housing, framework rotation, rotary motion, oscillating motion, reciprocating motion annotated sketches, exploded diagrams mechanical system, input movement, process, output movement design decisions, functionality, innovation, authentic, user, purpose, design specification, design brief</p> <p><u>Textiles-combining different fabric shapes / using computer aided design (CAD) in textiles</u></p> <p>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, computer aided design (CAD), computer aided manufacture (CAM) font, lettering, text, graphics, menu, scale, modify,</p>	<p><u>Mechanical Systems – Cams</u></p> <p><u>Designing</u></p> <ul style="list-style-type: none"> <li>• Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources.</li> <li>• Develop a simple design specification to guide their thinking.</li> <li>• Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views.</li> </ul> <p><u>Making</u></p> <ul style="list-style-type: none"> <li>• Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team.</li> <li>• 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.</li> </ul> <p><u>Evaluating</u></p> <ul style="list-style-type: none"> <li>• Compare the final product to the original design specification.</li> <li>• Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.</li> <li>• Consider the views of others to improve their work.</li> <li>• Investigate famous manufacturing and engineering companies relevant to the project.</li> </ul> <p><u>Technical knowledge and understanding</u></p> <ul style="list-style-type: none"> <li>• Understand that mechanical and electrical systems have an input, process and an output.</li> <li>• Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement.</li> <li>• Know and use technical vocabulary relevant to the project.</li> </ul> <p><u>Textiles – Combining different fabric shapes/ using computer aided design (CAD) in textiles</u></p> <p><u>Designing</u></p> <ul style="list-style-type: none"> <li>• Generate innovative ideas through research including surveys, interviews and questionnaires.</li> <li>• Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes including using computer-aided design.</li> </ul>
	Progression Model			



# DESIGN TECHNOLOGIST

<ul style="list-style-type: none"> <li>• Test products with the intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.</li> <li>• Consider the views of others to improve their work.</li> <li>• Investigate famous manufacturing and engineering companies relevant to the project.</li> </ul> <p><u>Technical knowledge and understanding</u></p> <ul style="list-style-type: none"> <li>• Understand that mechanical systems have an input, process and an output.</li> <li>• Understand how cams can be used to produce different types of movement and change the direction of movement.</li> <li>• Know and use technical vocabulary relevant to the project.</li> </ul>	<p>Dipryl mock-up of a chosen product.</p> <ul style="list-style-type: none"> <li>• Develop skills of sewing textiles by joining right side together and making seams.</li> </ul> <p><u>Mechanical Systems: Pulleys &amp; Gears</u></p> <ul style="list-style-type: none"> <li>• Using a construction kit, investigate combinations of two different sized pulleys to learn about direction and speed of rotation</li> <li>• Using a construction kit, explore combinations of two different size gears meshed together. Investigate the direction and speed of rotation focusing on how the size of the driver gear affects the speed of the follower gear.</li> <li>• Develop measuring, marking, cutting, shaping and joining skills using junior hacksaws, G-clamps, bench hooks, square section wood, card triangles and hand drills to construct wooden frames, as appropriate. Demonstrate the accurate use of tools and equipment.</li> </ul>	<p>repeat, copy, flip design brief, design criteria, design decisions, innovative,</p> <p><u>Mechanical Systems: Pulleys &amp; Gears</u></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 design decisions, functionality, innovation, authentic, user, purpose, design specification, design brief</p>	<ul style="list-style-type: none"> <li>• Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification.</li> </ul> <p><u>Making</u></p> <ul style="list-style-type: none"> <li>• Produce detailed lists of equipment and fabrics relevant to their tasks.</li> <li>• Formulate step-by-step plans and, if appropriate, allocate tasks within a team.</li> <li>• 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.</li> </ul> <p><u>Evaluating</u></p> <ul style="list-style-type: none"> <li>• Investigate and analyse textile products linked to their final product.</li> <li>• Compare the final product to the original design specification.</li> <li>• Test products with intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.</li> <li>• Consider the views of others to improve their work.</li> </ul> <p><u>Technical knowledge and understanding</u></p> <ul style="list-style-type: none"> <li>• A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics.</li> <li>• Fabrics can be strengthened, stiffened and reinforced where appropriate.</li> </ul> <p><u>Mechanical Systems: Pulleys &amp; Gears</u></p> <p><u>Designing</u></p> <ul style="list-style-type: none"> <li>• Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources.</li> <li>• Develop a simple design specification to guide their thinking.</li> <li>• Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views.</li> </ul> <p><u>Making</u></p> <ul style="list-style-type: none"> <li>• Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team.</li> </ul>
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# DESIGN TECHNOLOGIST



				<ul style="list-style-type: none"> <li>• 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.</li> </ul> <p><u>Evaluating</u></p> <ul style="list-style-type: none"> <li>• Compare the final product to the original design specification.</li> <li>• Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.</li> <li>• Consider the views of others to improve their work.</li> <li>• Investigate famous manufacturing and engineering companies relevant to the project.</li> </ul> <p><u>Technical knowledge and understanding</u></p> <ul style="list-style-type: none"> <li>• Understand that mechanical and electrical systems have an input, process and an output.</li> <li>• Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement.</li> </ul> <p>Know and use technical vocabulary relevant to the project.</p>
<b>Y6</b>	<p><u>Design</u></p> <ul style="list-style-type: none"> <li>• 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</li> <li>• generate, develop, model and communicate their ideas through discussion, annotated sketches, prototypes, pattern pieces and computer-aided design</li> </ul> <p><u>Make</u></p>	<p><u>Structures – frame structures</u></p> <ul style="list-style-type: none"> <li>• Know how to strengthen, stiffen and reinforce 3-D frameworks.</li> <li>• Know and use technical vocabulary relevant to the project.</li> <li>• Name techniques for building frame structures: joining straws, joining thin sectioned pieces of wood and understanding triangulation.</li> </ul>	<p><u>Structures – frame structures</u></p> <p>frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional</p> <p><u>Food – celebrating culture and seasonality</u></p> <p>ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition,</p>	<p><u>Structures – frame structures</u></p> <p><u>Designing</u></p> <ul style="list-style-type: none"> <li>• Carry out research into user needs and existing products, using surveys, interviews, questionnaires and web-based resources.</li> <li>• Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost.</li> <li>• Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches.</li> </ul> <p><u>Making</u></p> <ul style="list-style-type: none"> <li>• Formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used.</li> <li>• Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks.</li> <li>• Use finishing and decorative techniques suitable for the product they are designing and making.</li> </ul> <p><u>Evaluating</u></p>



# DESIGN TECHNOLOGIST

<ul style="list-style-type: none"> <li>select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</li> <li>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</li> </ul> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>investigate and analyse a range of existing products</li> <li>evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</li> <li>understand how key events and individuals in design and technology</li> </ul> <p><b>Technical knowledge</b></p> <ul style="list-style-type: none"> <li>apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> <li>apply their understanding of computing to program,</li> </ul>	<p><b><u>Food – celebrating culture and seasonality</u></b></p> <ul style="list-style-type: none"> <li>Know how to use utensils and equipment including heat sources to prepare and cook food.</li> <li>Know about seasonality in relation to food products and the source of different food products.</li> <li>Know and use relevant technical and sensory vocabulary.</li> <li>Name techniques that could be used: mixing to combine ingredients if making savoury muffins or scones; rubbing in to mix fat and flour if making a yeast-based product; and/or kneading a bread dough.</li> </ul> <p><b><u>Electrical systems – monitoring and control &amp; more complex switches and circuits</u></b></p> <ul style="list-style-type: none"> <li>Know and use electrical systems in products.</li> <li>Understand the use of computer control systems in products.</li> </ul>	<p>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</p> <p><b><u>Electrical systems – monitoring and control &amp; more complex switches and circuits</u></b></p> <p>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 function, innovative, design specification, design brief, user, purpose</p>	<ul style="list-style-type: none"> <li>Investigate and evaluate a range of existing frame structures.</li> <li>Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests.</li> <li>Research key events and individuals relevant to frame structures.</li> </ul> <p><b><u>Food – celebrating culture and seasonality</u></b></p> <p><b>Designing</b></p> <ul style="list-style-type: none"> <li>Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification.</li> <li>Explore a range of initial ideas and make design decisions to develop a final product linked to user and purpose.</li> <li>Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas.</li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>Write a step-by-step recipe, including a list of ingredients, equipment and utensils.</li> <li>Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients.</li> <li>Make, decorate and present the food product appropriately for the intended user and purpose.</li> </ul> <p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations - e.g. using tables/graphs/charts such as star diagrams.</li> <li>Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.</li> <li>Understand how key chefs have influenced eating habits to promote varied and healthy diets.</li> </ul>
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# DESIGN TECHNOLOGIST



	<p>monitor and control their products.</p> <p><u>Cooking and Nutrition</u></p> <ul style="list-style-type: none"> <li>• understand and apply the principles of a healthy and varied diet</li> <li>• prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</li> <li>• understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.</li> </ul>	<ul style="list-style-type: none"> <li>• Apply understanding of computing to program, monitor and control products.</li> <li>• Know and use technical vocabulary relevant to the project.</li> <li>• Name some different types of switches and sensors – e.g. latching switch, micro-switch, push-to-make switch, push-to-break switch, reed switch, tilt switch, toggle switch, light dependent resistor (LDR)</li> </ul>		<p><u>Electrical systems – monitoring and control &amp; more complex switches and circuits</u></p> <p><u>Designing</u></p> <ul style="list-style-type: none"> <li>• Develop a design specification for a functional product that responds automatically to changes in the environment.</li> <li>• Take account of constraints including time, resources and cost.</li> <li>• Generate, develop and communicate innovative ideas through discussion, annotated sketches and pictorial representations of electrical circuits or circuit diagrams.</li> </ul> <p><u>Making</u></p> <ul style="list-style-type: none"> <li>• Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components.</li> <li>• Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product.</li> <li>• Create and modify a computer control program to enable an electrical product to work automatically in response to changes in the environment.</li> </ul> <p><u>Evaluating</u></p> <ul style="list-style-type: none"> <li>• Continually evaluate and modify the working features of the product to match the initial design specification.</li> <li>• Test the system to demonstrate its effectiveness for the intended user and purpose.</li> <li>• Investigate famous inventors who developed ground-breaking electrical systems and components.</li> </ul>
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