

Progression of Skill & Knowledge in DT

	Structures	Mechanisms	Electrical Systems	Food	Textiles
EYFS		✓		✓	
Year 1		✓			✓ Linked with Art
Year 2	✓	✓		✓	
Year 3	✓	✓			✓ Linked with Art
Year 4	✓	✓	✓	✓	
Year 5	✓	✓			✓ Linked with Art
Year 6			✓	✓	

Progression in Designing

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<ul style="list-style-type: none"> • Have their own ideas and share them with their peers or teachers. • Use what they already know to learn new things • Choose ways to do things • Consider finding new ways to do things. 	<ul style="list-style-type: none"> • Design a functional and appealing product for a chosen user and purpose based on simple design criteria. • Generate, develop, model and communicate their ideas as appropriate through talking, drawing, templates, mock-ups and information and communication technology. • Generate initial ideas and simple design criteria through talking and using own experiences. • Develop and communicate ideas through drawings and mock-ups. 	<ul style="list-style-type: none"> • Generate ideas based on simple design criteria and their own experiences, explaining what they could make. • Develop, model and communicate their ideas through drawings and mock-ups with card and paper. • Design appealing products for a particular user based on simple design criteria. • Generate initial ideas and design criteria through investigating a variety of fruit and vegetables. • Communicate these ideas through talk and drawings. 	<ul style="list-style-type: none"> • Generate realistic and appropriate ideas and their own design criteria through discussion, focusing on the needs of the user. • Use annotated sketches and prototypes to develop, model and communicate ideas. • Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s. • Produce annotated sketches, prototypes, final product sketches and pattern pieces. • Develop ideas through the analysis of existing shell structures and use computer-aided design to model and communicate ideas. 	<ul style="list-style-type: none"> • Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user. • Use annotated sketches and prototypes to develop, model and communicate ideas. • 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. • 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. 	<ul style="list-style-type: none"> • Carry out research into user needs and existing products, using surveys, interviews, questionnaires and web-based resources. • Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost. • Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches. • Generate innovative ideas by carrying out research including surveys, interviews and questionnaires. • Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes and, where appropriate, computer-aided design. 	<ul style="list-style-type: none"> • Use research to develop a design specification for a functional product that responds automatically to changes in the environment. Take account of constraints including time, resources and cost. • Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams. • Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. • Explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose. • Use words, annotated sketches and information and communication technology as appropriate to

						<ul style="list-style-type: none"> • Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification. 	develop and communicate ideas.
Vocabulary	Create make design think experiment	names of existing products, joining and finishing techniques, tools, fabrics and components, vehicle, wheel, axle, axle holder, chassis, body, cab	<p>slider, lever, pivot, slot, bridge/guide</p> <p>fruit and vegetable names, names of equipment and utensils</p>	<p>components, fixing, attaching, tubing, syringe, plunger, split pin, paper fastener</p> <p>shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity</p>	<p>mechanism, lever, linkage, pivot, slot, bridge, guide</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>name of products, names of equipment, utensils, techniques and ingredients</p>	<p>frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent</p> <p>seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces</p>	<p>crocodile leads, bulbs, bulb holders, buzzers, light emitting diodes (LEDs), micro switches, reed switches and magnets, light dependent resistors (LDRs), wire,</p> <p>ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs</p>

Progression in Making

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<ul style="list-style-type: none"> • Safely use and explore a variety of materials such as paper, card, lollypop sticks, boxes, cello tape and glue. • Use a range of tools and techniques such as scissors, brushes, pencils and rollers. • Experiment with colour, design, texture, form and function. • Use a range of small tools, including scissors, paint brushes and cutlery; 	<ul style="list-style-type: none"> • Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing. • Select from and use textiles according to their characteristics. • Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics. 	<ul style="list-style-type: none"> • Plan by suggesting what to do next. • Select and use tools, explaining their choices, to cut, shape and join paper and card. • Use simple finishing techniques suitable for the product they are creating. • Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely. • Select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product. <p>Select new and reclaimed materials and construction kits to build their structures.</p>	<ul style="list-style-type: none"> • Order the main stages of making. • Select from and use appropriate tools with some accuracy to cut and join materials and components such as tubing, syringes and balloons. • Select from and use finishing techniques suitable for the product they are creating. • Plan the main stages of making. • Select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing. • Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern. • Select and use appropriate tools and software to measure, mark out, cut, score, shape and assemble with some accuracy. • Explain their choice of materials 	<ul style="list-style-type: none"> • Order the main stages of making. • Select from and use appropriate tools with some accuracy to cut, shape and join paper and card. • Select from and use finishing techniques suitable for the product they are creating. • Select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities. • Plan the main stages of a recipe, listing ingredients, utensils and equipment. • Select and use appropriate utensils and equipment to prepare and combine ingredients. • Select from a range of ingredients to make appropriate food products, thinking about 	<ul style="list-style-type: none"> • Formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used. • Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks. • Use finishing and decorative techniques suitable for the product they are designing and making. • Produce detailed lists of equipment and fabrics relevant to their tasks. • Formulate step-by-step plans and, if appropriate, allocate tasks within a team. • Select from and use a range of tools and equipment to make products that are accurately assembled and well finished. Work within the constraints of time, resources and cost. 	<ul style="list-style-type: none"> • Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. • Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product. • Create and modify a computer control program to enable an electrical product to work automatically in response to changes in the environment. • 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. • Make, decorate and present the food product appropriately for the intended user and purpose.

				<p>according to functional properties and aesthetic qualities.</p> <ul style="list-style-type: none"> • Use computer-generated finishing techniques suitable for the product they are creating. 	<p>sensory characteristics.</p>		
Vocabulary	<p>Scissors glue paper card pencils crayons paint brushes</p>	<p>template, pattern pieces, mark out, join, decorate, finish, assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism</p>	<p>card, masking tape, paper fastener, join</p> <p>sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard</p>	<p>pneumatic system, input movement, process, output movement, control, compression, pressure, inflate, deflate, pump, seal, air-tight</p> <p>linear, rotary, oscillating, reciprocating</p> <p>fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance</p> <p>marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating</p>	<p>system, input, process, output</p> <p>control, program, system, input device, output device</p> <p>texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury</p>	<p>name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, iron transfer paper</p>	<p>fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality</p>

Progression in Evaluating

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<ul style="list-style-type: none"> • Share their creations, explaining the process they have used. • Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary; • Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate; • Express their ideas and feelings about their experiences using full sentences, including use of past, present and future tenses and making use of conjunctions, with modelling and support from their teacher 	<ul style="list-style-type: none"> • Explore and evaluate a range of existing textile products relevant to the project being undertaken. • Evaluate their ideas throughout and their final products against original design criteria. • Explore and evaluate a range of products with wheels and axles. 	<ul style="list-style-type: none"> • Explore a range of existing books and everyday products that use simple sliders and levers. • Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria. • Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences. • Evaluate ideas and finished products against design criteria, including intended user and purpose. 	<ul style="list-style-type: none"> • Investigate and analyse books, videos and products with pneumatic mechanisms. • Evaluate their own products and ideas against criteria and user needs, as they design and make. • 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. • Take into account others' views. • Understand how a key event/individual has influenced the development of the chosen product and/or fabric. • Investigate and evaluate a range of shell structures including the materials, components and techniques that have been used. 	<ul style="list-style-type: none"> • Investigate and analyse books and, where available, other products with lever and linkage mechanisms. • Investigate and analyse a range of existing battery-powered products. • Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work. • Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs. • Evaluate the ongoing work and the final product with reference to the design criteria and the views of others. 	<ul style="list-style-type: none"> • Investigate and evaluate a range of existing frame structures. • Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests. • Research key events and individuals relevant to frame structures. • Investigate and analyse textile products linked to their final product. • Compare the final product to the original design specification. • 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 	<ul style="list-style-type: none"> • Continually evaluate and modify the working features of the product to match the initial design specification. • Test the system to demonstrate its effectiveness for the intended user and purpose. • Investigate famous inventors who developed ground-breaking electrical systems and components. • 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. • Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements. • Understand how key chefs have influenced eating habits to promote

							varied and healthy diets.
Vocabulary	<p>Voice sounds hear listen loud quiet muffled clear long short hard soft</p> <p>Food, bake, mix, stir, sprinkle, taste, smell, touch, look.</p>	<p>features, suitable, quality mock-up, design brief, design criteria, make, evaluate, user, purpose, function, names of tools, equipment and materials used</p>	<p>pull, push, up, down, straight, curve, forwards, backwards</p> <p>flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, investigating tasting, arranging, popular, design, evaluate, criteria</p>	<p>user, purpose, function, prototype, design criteria, innovative, appealing, design brief, research, evaluate, ideas, constraints, investigate</p> <p>font, lettering, text, graphics, decision, evaluating, design brief design criteria, innovative, prototype criteria</p>	<p>user, purpose, function</p> <p>prototype, design criteria, innovative, appealing, design brief</p> <p>hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet</p>	<p>design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional</p>	<p>utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble</p>

Progression in Technical Knowledge and Understanding

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<ul style="list-style-type: none"> Set and work towards simple goals, being able to wait for what they want and control their immediate impulses when appropriate; Be confident to try new activities and show independence, resilience and perseverance in the face of challenge; Explain the reasons for rules, know right from wrong and try to behave accordingly Begin to show accuracy and care. 	<ul style="list-style-type: none"> 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 e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons. Explore and use wheels, axles and axle holders. Distinguish between fixed and freely moving axles. Know and use technical vocabulary relevant to the project. 	<ul style="list-style-type: none"> Explore and use sliders and levers. Understand that different mechanisms produce different types of movement. Know and use technical vocabulary relevant to the project. Understand where a range of fruit and vegetables come from e.g. farmed or grown at home. Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of <i>The eatwell plate</i>. Know and use technical and sensory vocabulary relevant to the project. 	<ul style="list-style-type: none"> Understand and use pneumatic mechanisms. 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. 	<ul style="list-style-type: none"> Understand and use lever and linkage mechanisms. Distinguish between fixed and loose pivots. Know and use technical vocabulary relevant to the project. Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers. Apply their understanding of computing to program and control their products. Know how to use appropriate equipment and utensils to prepare and combine food. Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. 	<ul style="list-style-type: none"> Understand how to strengthen, stiffen and reinforce 3-D frameworks. Know and use technical vocabulary relevant to the project. A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. Fabrics can be strengthened, stiffened and reinforced where appropriate. 	<ul style="list-style-type: none"> Understand and use electrical systems in their products. Apply their understanding of computing to program, monitor and control their products. Know and use technical vocabulary relevant to the project. Know how to use utensils and equipment including heat sources to prepare and cook food. Understand about seasonality in relation to food products and the source of different food products. Know and use relevant technical and sensory vocabulary.

Vocabulary	design, make, evaluate	design, make, evaluate, purpose, user, criteria, functional	design, make, evaluate, user, purpose, ideas, design criteria, product, function	prototype, design criteria, innovative, appealing, design brief	prototype, design criteria, innovative, appealing, design brief	design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype	design specification, innovative, research, evaluate, design brief
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Progression in Engineers and Designers

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Mechanisms	<p>Alexander Graham Bell</p> <p>He is famous for inventing the first telephone.</p> <p>He refused to have a telephone in his own office as it was seen as a distraction.</p> <p>He was interested in the science of sound as his mother and wife were both deaf. These two women influenced his work.</p>	<p>George Stephenson</p> <p>He is known as the 'Father of the Railways'.</p> <p>He played a key role in developing the railways system in Britain.</p> <p>The train helped people move around the country.</p>	<p>Samuel Crompton</p> <p>Samuel Crompton, was born on 3rd December 1753 in Bolton.</p> <p>He was British inventor of the spinning mule.</p> <p>The spinning mule permitted large-scale manufacture of high-quality thread and yarn.</p>	<p>Richard Arkwright</p> <p>Richard Arkwright was born in Preston, England on 23 December 1732.</p> <p>In 1769 Richard Arkwright patented the spinning frame (later called the water-frame), a machine to produce inexpensive spun cotton.</p> <p>In 1771, Arkwright and his business partners built the first water-powered cotton mill at Cromford in Derbyshire.</p>	<p>James Dyson</p> <p>James Dyson is a British designer and inventor. He founded the Dyson Company and is best known for devising and promoting the Dyson Dual Cyclone bagless vacuum cleaner.</p> <p>Dyson experimented with a bagless vacuum cleaner design during the 1970s. He also devised the idea of using a ball instead of wheels, allowing the machine to turn more easily.</p> <p>The James Dyson Foundation was set up in 2002 to encourage education in design and engineering.</p>	<p>Margaret E. Knight</p> <p>When she was twelve, she saw an accident in a cloth factory. She invented a device that would automatically stop a machine if something were caught in it. The factories began using the device soon after.</p> <p>Later, Margaret worked in a paper bag factory. At that time, paper bags weren't flat on the bottom. Margaret thought about how much easier they'd be to use if they were flat and she went to work creating a machine that would make the bags.</p> <p>Margaret is most famous for her bag machine, but she went on to make 100 inventions and receive 20 patents.</p>	
Structures			<p>The Wright Brothers</p> <p>The Wright Brothers, Orville and Wilbur, were American engineers, inventors and bicycle makers.</p>	<p>Gustave Eiffel</p> <p>Gustave was a French structural engineer and architect.</p>	<p>Thomas Edison</p> <p>Thomas Edison was born February 11, 1847 in America.</p>	<p>Isambard Kingdom Brunel</p> <p>Isambard Kingdom Brunel was born on 9th April 1806</p>	

			<p>They are famous for inventing, constructing and flying the first aeroplane in the world.</p> <p>Orville was born in 1871 in Ohio, and Wilbur in Indiana, in 1867.</p> <p>A toy flying machine gave the brothers an interest in flight and aerodynamics. They designed and built several model gliders, and experimented with a wind tunnel.</p>	<p>He is known for designing the Eiffel Tower.</p> <p>He also designed the armature (supporting framework) for the Statue of Liberty, New York Harbour, United States.</p>	<p>He is known for creating the first working lightbulb.</p> <p>He created The Phonograph – the first machine that was able to record and playback sound</p>	<p>Isambard Kingdom Brunel was a Victorian engineer who was one of the main architects of Britain’s industrial revolution. He was famous for his pioneering work on Britain’s railways and ships.</p> <p>He built railways and designed bridges, tunnels, viaducts and passenger ships.</p>	
Food	<p>Nadiya Husain</p> <p>Nadiya is a British TV chef, author, and television presenter.</p> <p>She rose to fame after winning the sixth series of BBC's The Great British Bake Off in 2015.</p> <p>Her appearance on the show, and ensuing popularity with audiences, were deemed important steps toward shifting stereotypes about the Muslim community and acceptance about cultural diversity</p>		<p>Jamie Oliver</p> <p>Jamie Oliver MBE (James Trevor Oliver) was born 27 May 1975.</p> <p>He is an English celebrity chef, restaurateur, and media personality.</p> <p>He is known for his television shows, cookbooks and restaurants.</p> <p>He has highlighted the need for improved cooking in schools and hospitals.</p>		<p>Heston Blumenthal</p> <p>Heston is an English celebrity chef well known for his innovative spins on classic British foods.</p> <p>His restaurant, The Fat Duck, received a rating of three Michelin stars and was voted the #1 restaurant in the world in 2005.</p> <p>He received no formal culinary training.</p>		<p>Lisa Goodwin-Allen</p> <p>Lisa Goodwin-Allen (born 29 April 1981) is a British chef best known for being executive chef of the Michelin starred Northcote restaurant near Preston.</p> <p>She was also one of four winning chefs on season five of the BBC cooking show <i>Great British Menu</i>.</p> <p>She was placed in charge of the kitchen at Northcote aged 23.</p>

<p>Textiles</p>		<p>James Fox</p> <p>James works with machine embroidery</p> <p>His works are shown in Manchester and Preston.</p> <p>His works look at modern life issues e.g politics, gender, work & culture.</p>		<p>Coco Chanel</p> <p>Gabrielle Chanel (her real name) was born in 1883 in a poor family to a market trader.</p> <p>Coco Chanel started her fashion career by designing hats. With the help of one of her male admirers, she opened her first shop in Paris in 1913. As it became more popular, she started selling clothes as well.</p> <p>In 1921, she created her first perfume, Chanel No 5.</p> <p>Coco Chanel's revolutionary designs were elegant but also comfortable and practical, as they freed women from wearing corsets.</p>		<p>Faith Ringgold</p> <p>She was born on 8th October 1930 in New York.</p> <p>The works that Ringgold created in 1960s were inspired from the Impressionism, Africa art and Cubism.</p> <p>The American People Series was created in 1963. It was the first political collection of Ringgold. The works highlighted the point of view of women toward the racial interaction.</p> <p>She has also written and illustrated 11 children's books.</p> <p>Faith Ringgold has said that she uses her art to tell a story.</p>	
<p>Electrical Systems</p>				<p>Edith Clarke</p> <p>Clarke began her career as a "computer" -- literally a human calculator -- in support of the engineers working to build the first transcontinental phone line.</p> <p>Her most famous contribution was</p>			<p>Sir Jony Ive</p> <p>Sir Jonathan Paul Ive, is a British industrial designer and Apple executive who was responsible for making design as integral to the appeal of a personal computer as its power and speed.</p> <p>He is responsible for the design of many</p>

					<p>the "Clarke Calculator" in 1921, a graphical device that simplified the equations electrical engineers used to understand power lines. It was patented in 1925.</p> <p>Clarke helped build the Hoover Dam</p>		<p>Apple products we use today such as the iMac, iPhone, iPad and iWatch.</p>
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