

Design and Technology Progression of Skills and Vocabulary list

D.T. focus	EYFS	Year 1 and 2	Year 3 and 4	Year 5 and 6
<p align="center">Design (Understanding contexts, users and purposes, Generating, developing, modelling and communicating ideas)</p>	<ul style="list-style-type: none"> • Begin to use the language of designing and making, e.g. join, build and shape. • Learn about planning and adapting initial ideas to make them better. • Develop their small motor skills so that they can use a range of tools competently, safely and confidently. • 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. 	<ul style="list-style-type: none"> • Work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment. • State what products they are designing and making. • Say whether their products are for themselves or other users. • Describe what their products are for (purpose). • Say how their products will work. • Say how they will make their products suitable for their intended users (audience) • Use simple design criteria to help support and develop their ideas. • Generate ideas by drawing on their own experiences. • Use knowledge of existing products to help come up with ideas. • Develop and communicate ideas through initial discussions and drawings • Model ideas by exploring materials, components and construction kits and by making templates and mock-ups. • Use information and communication technology, where appropriate, to develop and communicate their ideas. 	<ul style="list-style-type: none"> • Work confidently within a range of contexts, such as the home, school, leisure, enterprise and the wider environment. • Describe the purpose and intended audience of their products. • Design features that will appeal to intended users. • Explain verbally how the specific components of their products are intended to function. • Gather information about the needs and wants of particular individuals and groups, in order to better construct products for an audience. • Develop their own design criteria and use these to inform their ideas. • Share and clarify ideas through discussion. • Model their ideas using prototypes and pattern pieces. • Use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas. • Use computer-aided design to develop and communicate their ideas. • Make design decisions that take account of the availability of resources. 	<ul style="list-style-type: none"> • Work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment. • Describe the purpose and intended audience of their products and how the product will suit the needs of the user. • Indicate the design features of their products that will appeal to intended users and explain why these would be appealing. • Explain in writing how the specific components of their products are intended to function and their purpose. • Carry out research, using surveys, interviews, questionnaires and web-based resources. • Identify the needs, wants, preferences and values of particular individuals and groups. • Develop a design specification to guide their thinking. • Generate innovative ideas, drawing on research. • Make design decisions, taking account of constraints such as time, resources and cost.

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<p align="center">Make (Construction) (Planning, practical skills and techniques)</p>	<ul style="list-style-type: none"> To learn to construct with a purpose in mind. Selects tools and techniques needed to shape, assemble and join materials. To learn how to use a range of small tools, e.g. scissors, hole punch, stapler, woodworking tools, cutlery, rolling pins, pastry cutters. Learn how everyday objects work by dismantling things 	<ul style="list-style-type: none"> Select from a range of tools and equipment, explaining their choices. Select from a range of materials and components according to their characteristics. Follow procedures for safety and hygiene. Use a range of materials and components, including construction materials and kits, textiles and mechanical components. Measure, mark out, cut and shape materials and components. Assemble, join and combine materials and components. Use finishing techniques, including those from art and design. 	<ul style="list-style-type: none"> Select tools and equipment suitable for the task. Explain their choice of tools and equipment in relation to the skills and techniques they will be using. Select materials and components suitable for the task. Explain their choice of materials and components according to functional properties and aesthetic qualities. Order the main stages of the construction process. Follow and recite procedures for safety and hygiene. Use a wider range of materials and components than KS1, including construction materials and kits, textiles, mechanical components and electrical components. Measure, mark out, cut and shape materials and components with some accuracy. Assemble, join and combine materials and components with some accuracy, such as two pieces of dowel joined as a corner using a hot glue gun. Apply a range of finishing techniques, including those from art and design, with some accuracy, e.g. varnish. 	<ul style="list-style-type: none"> Produce appropriate lists of tools, equipment and materials that they need. Formulate step-by-step plans as a guide to making. Accurately measure, mark out, cut and shape materials and components. Accurately assemble, join and combine materials and components. Accurately apply a range of finishing techniques, including those from art and design. Use techniques that involve a number of steps to create a finished product. Demonstrate resourcefulness when tackling practical problems. Apply learning from mathematics and science to help design and make products that work.
<p align="center">Technical Knowledge (making products work)</p>	<ul style="list-style-type: none"> 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. Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. 	<ul style="list-style-type: none"> Know about the movement of simple mechanisms such as levers, sliders, wheels and axles. Know how freestanding structures can be made stronger, stiffer and more stable. Know the correct technical vocabulary for the projects they are undertaking. Explore, if appropriate, whether a 3-D textiles product can be assembled from two identical fabric shapes. Know about the simple working characteristics of materials and components. To know that food ingredients should be combined according to their sensory characteristics. 	<ul style="list-style-type: none"> Know that mechanical systems such as levers and linkages or pneumatic systems create movement. Know mechanical and electrical systems have an input, process and output. Apply and explore simple electrical circuits and components in order to create functional products. Explore how to make strong, stiff shell structures. Discuss that a single fabric shape can be used to make a 3D textiles product (Art C/C Link) Discuss materials that have both functional properties and aesthetic qualities. Explore which materials can be combined and mixed to create more useful characteristics. Use correct technical vocabulary for the projects they are undertaking. 	<ul style="list-style-type: none"> Explore how mechanical systems such as cams or pulleys or gears create movement. Discuss how more complex electrical circuits and components can be used to create functional products. Explore and discuss how to program a computer to monitor changes in the environment and control their products. Be able to reinforce and strengthen a 3D framework. Know that a 3D textiles product can be made from a combination of fabric shapes.

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Key events and individuals		Nintendo Leonardo Da Vinici – transport Karl Benz – automobiles Fazlur Rahman Khan – skyscraper and tubular design Sir Christopher Wren - structures Louis Daguerre and Charles Marie Bouton, - dioramas	Adidas Steve Wozniak and Steve Jobs – programmed Apple I Henry Ford – inventor of the modern car Gustave Eiffel – tower and railway bridge structures Leonardo Da Vinci – single span bridges Michael Farady – convert electricity to easily usable format Charles Babbage - invented the first basic computer	Apple Burt Rutan – aircraft Isambard Kingdom Brunel – Great Western Railway Archimedes – screw and compound pulleys Alan Turing – computer algorithm
Key	<p>Textiles</p> <p>Mechanisms</p> <p>Paper and woodwork construction</p> <p>Electical Systems</p> <p>Computing to program, monitor and control products</p> <p>Materials</p>			
Evaluation (own ideas and products, existing products, key events and individuals)	<ul style="list-style-type: none"> Share their creations, explaining the process they have used. Explain why they chose the materials to make their product. Explain what/who they made they product for. Start to use the correct language of designing and making, e.g. words such as 'join', 'build' and 'shape' as well as evaluative and comparative language - 'longer', 'shorter', 'lighter', 'heavier' and 'stronger'. Children should also learn to record their experiences by, for example, drawing, writing, voice recording or modelling 	<ul style="list-style-type: none"> Talk about their design ideas and what they are making. Make simple judgements about their products and ideas against design criteria. Suggest how their products could be improved. Pupils should explore: <ul style="list-style-type: none"> -what products are, -who they are for (audience), -what products are for (purpose), -how products work, -how products are used, -where products might be used -what materials products are made from -what they like and dislike about products 	<ul style="list-style-type: none"> Identify the strengths and areas for development in their ideas and products. Consider the views of others, including intended users, to improve their work. Refer to their design criteria as they design and make products. Use their design criteria to evaluate their completed products. Discuss how well products have been designed, why materials have been chosen, what methods of construction have been used, whether products work, how successful they are against the intended outcome and whether they meet the users' needs or not. Investigate and analyse who designed and made the products, where products were designed and made, when products were designed and made and whether products can be recycled or reused. Evaluate, using 2 stars and a wish approach, own and others pieces of work. 	<ul style="list-style-type: none"> Critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make. Evaluate their ideas and products against their original design specification. Investigate and analyse how much products cost to make, how innovative products are, how sustainable the materials in products are, what impact products have beyond their intended purpose.

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<p align="center">Cooking and nutrition (where food comes from, preparation, cooking, nutrition)</p>	<ul style="list-style-type: none"> To begin to understand some of the tools, techniques and processes involved in food preparation. Children know the importance for good health of a healthy diet Children have basic hygiene awareness. Children should practise stirring, mixing, pouring and blending ingredients during cookery activities Use senses appropriately, e.g. when tasting different foods. 	<ul style="list-style-type: none"> Know that all food comes from plants or animals. Know that farmed, grown elsewhere (e.g. home) or caught. Know how to name and sort foods into the five groups in The Eatwell plate. Know that everyone should eat at least five portions of fruit and vegetables every day. Know how to prepare simple dishes safely and hygienically, without using a heat source. Know how to use techniques such as cutting, peeling and grating. 	<ul style="list-style-type: none"> Know that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world. Prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source. Use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. Understand and apply the knowledge that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The Eatwell plate. Know that to be active and healthy, food and drink are needed to provide energy for the body. Use food ingredients that are fresh, pre-cooked and processed. 	<ul style="list-style-type: none"> Understand that seasons may affect the food available. Know how food is processed into ingredients that can be eaten or used in cooking. Adapt recipes to change the appearance, taste, texture and aroma. Discuss the ways different food and drink contain different substances – nutrients, water and fibre – that are needed for health. Explore and discuss that a recipe can be adapted by adding or substituting one or more ingredients.
<p align="center">Key events and individuals</p>	<ul style="list-style-type: none"> 	<p>Mary Berry Jamie Oliver- Y2 Science</p>	<p>Nadiya Hussain</p>	<p>The Hairy Bikers Geoffrey Zakarian</p>

Design and Technology Progression of Skills and Vocabulary list

Vocabulary – Textiles			
EYFS	Year 1/2	Year 3/4	Year5/6
	Pattern, mark out, join, decorate, running stitch, needle, fabric Template, quality, suitable, features, dye, overstitch, design, fray, mock-up, seam	Fastening, compartment, zip, finishing technique, function, prototype, back stitch, felted, woven, knitted, bonded Aesthetics, seam allowance, pinning, embroidery, back stitch, blanket stitch, cross stitch	Specification, tacking, working drawing, clasp, pinking shears, design criteria, hem, reinforce, stem stitch, satin stitch, tie dye Applique, annotate, evaluate, innovation, functionality, renewable, authentic, chain stitch
Vocabulary – Electrical Systems			
EYFS	Year 1/2	Year 3/4	Year5/6
		User, fault, toggle switch, insulator, conductor, battery holder, crocodile clip Series circuit, connection, push-to make switch, push-to-break switch, innovative, appealing, control box, input device, output device, system	Parallel circuit, light emitting diode, monitor, flowchart, design specification, reed switch, tilt switch Light dependent resistor, interface control, micro switch, latching switch
Vocabulary – Mechanisms			
EYFS	Year 1/2	Year 3/4	Year5/6
	Wheels & Axles: Wheel, axel, fixed, free, design, make, cutting, joining, hacksaw, vice, dowel, body, cab, shaping Slider & Leavers: Mechanism, lever, slider, slot, pivot, guide/bridge, masking tape, fastener, pull, push, down, straight, work, design, evaluate, purpose	Leavers & linkages: Loose pivot, fixed pivot, system, input, process Leavers & Linkages: Loose pivot, fixed pivot, system, input, process, output, linear, rotary, reciprocating, innovative, appealing, linkage, oscillating	Pulleys or Gears: Pulley, gear, driver, follower, rotation, motor, belt, spindle, motor, circuit, switch, ratio, transmit, annotated drawings, exploded diagrams, functionality, Transmit, annotated drawings, exploded diagrams, functionality
Vocabulary – Structures			
EYFS	Year 1/2	Year 3/4	Year5/6
	Cut, fold, join, fix, weak, strong Freestanding Structures: Structure, base, underneath, thicker, thinner, corner, point, straight, curved, rectangle, cube, cuboid, cylinder	Shell, structure, net, marking out, material, joining, three dimensional, stiff, assemble, prism, vertex, breadth, capacity, scoring, adhesives, reduce, reuse, recycle, corrugating, ribbing, laminating	Reinforce, triangulation, stability, temporary, permanent, prototype, innovation, functional, design brief
Vocabulary – Food			
EYFS	Year 1/2	Year 3/4	Year5/6
	Fruit, vegetables, soft, juicy, crunchy, sticky, smooth, sharp, crisp, sour hard, flesh, skin, seed pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, tasting, arranging	Texture, taste, appearance, preference, greasy, moist, fresh, savoury, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested	Ingredients, yeast, dough, wholemeal, unleavened, baking soda, spice, herbs, carbohydrate, sugar, fat, protein, vitamins, nutrients, gluten, allergy, intolerance, savoury, seasonality, pour, mix, kneed, whisk, beat, combine, fold, rubbing in