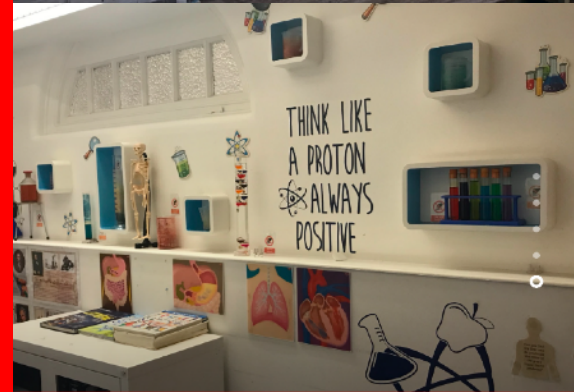


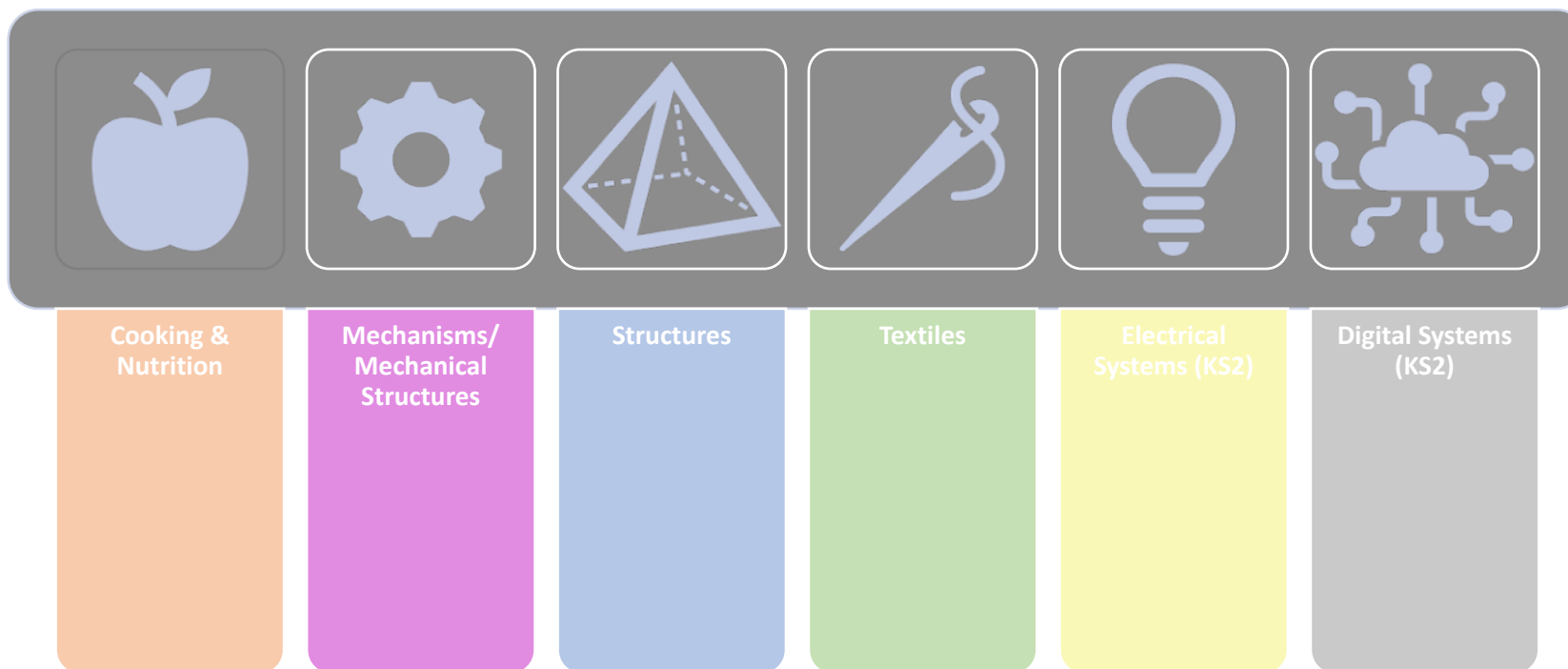
D&T Curriculum Overview



“A caring community; Serious about learning.”

Our Approach

Our **cyclical** curriculum focuses on the 6 aspects below and our pupils revisit these aspects throughout their time in our school every year, with two aspects only being introduced in KS2 (electrical systems & digital systems). Each time they revisit an aspect, it is with **increasing complexity** to build on their **prior knowledge**. In EYFS pupils start to develop their skills through the **Expressive Art & Design** strand of the EYFS framework with **both adult and child led activities**, reinforced through **continuous provision**. In EYFS we use an **interleaved approach** to ensure our pupils learning is stored in their long term memories and we use **solo taxonomy** to pitch learning at personalised starting points. Design and Technology is undertaken once a half term for the equivalent of 1.5hours per week in Y2-6 and as a block within Y1. In each of the **3 projects** they complete each year they build on their ability to **design, make** and **evaluate** whilst also developing an understanding of **cooking and nutrition**. In addition, they are given opportunities to use their growing **technical vocabulary**, to talk about their products. Within each project, they will examine the work/impact of **famous crafts people, designers, inventors** and **engineers**, whilst also considering **key events** that have shaped the world, as outlined in our overviews on the following pages.



Our Big Ideas

Our curriculum is designed to enable our children to work towards an understanding of the 'big ideas' in art outlined below. This cumulative knowledge is developed over time through appropriate, age-related steps that enable pupils to develop a secure understanding.

1. Designing is an iterative process; ideas are communicated using annotated drawing, exploded diagrams, prototypes, pattern pieces or CAD and alterations and improvements are made to the design throughout the making process.
2. Evaluation of a product ensures it matches the design criteria and is fit for purpose
3. Simple structures are made by cutting, joining/sticking and strengthening everyday materials including paper and wood
4. Simple structures are made by cutting, joining/sticking and strengthening everyday materials including paper, wood
5. Architecture through history has been innovative, pioneering ways to create structural strength and stability in more complex buildings and structures
6. Architecture through history has been innovative, pioneering ways to create structural strength and stability in more complex buildings and structures
7. Mechanisms (such as levers and linkages, pulleys, cams, gears, wheels and axles) create different types of 'movements' in devices and machines
8. Electrical systems and simple circuits (such as bulbs, buzzers, and switches) enhance mechanisms and electrical products
9. Recipes provide step by step instructions to prepare and cook different dishes and involve a range of cooking techniques
10. Seasonality: know where and how a variety of ingredients are grown, reared, caught, and processed.

YR	Autumn	Spring	Summer
Knowledge & Skills	<ul style="list-style-type: none"> Textiles-Weaving & Flower Threading Explore how to weave with a range of materials through developing their fine and gross motor skills. Create collaborative large scale weaving creations. Explore different patterns 	<ul style="list-style-type: none"> Structures-Junk Modelling 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. 	<ul style="list-style-type: none"> Mechanisms-Creating Diva Lamps & Rockets Safely use and explore materials and tools. Explore new techniques Talk about new creations Begin to return to and build upon previous learning Use split pins to add moving parts deciding on placement.
Cooking & Nutrition	<ul style="list-style-type: none"> Name simple everyday equipment used in baking and use simple terms such as mix, ingredient, recipe and bake. Use small motor skills to use a range of tools such as knives and forks. To know and talk about how to maintain a healthy body and well-being: healthy eating and eating a range of food. Take part in baking bread looking at the process of how the ingredients change and understand the dangers when working around a hot oven. Describe how key ingredients feel and think about where they come from (caught, reared or processed). 		
Vocabulary	Weave, pattern, design, evaluate	Join, stick, cut, bend, slot, scissors, measure, materials, fix	Design, evaluation, fix, mechanic, mechanism, model, test
	<p>Continuous Provision Enhancements</p> <ul style="list-style-type: none"> Children have access to the creative area or workshop throughout each day to “design” and “make” a variety of products with a purpose. Children will practice joining and combining different materials including paper, card, material, wood, string/yarn and plastic using glue, split pins, tape or loops. Opportunities to develop and practice cutting skills using different tools are provided. Large construction and small world materials in both the indoor and outdoor classroom enable pupils to develop construction skills to develop an understanding of structures, whilst experimenting with strengthening techniques and different shapes. 		
Y1	Autumn U2	Spring U4	Summer U6

<p>Knowledge & Skills</p>	<p>Textiles-Puppets</p> <ul style="list-style-type: none"> • Explore a variety of puppets, identifying and labelling their features. • Cut out felt using a simple template. • Stick pieces of felt together to make a finger puppet. • Add pieces of felt and other materials to a finger puppet to create features, such as eyes, hats and mouths. • Use running stitch to join two pieces of fabric together. • Use overstitch to join two pieces of fabric together. • Sew a button onto a piece of fabric. • Design a glove puppet for a particular purpose. • Follow a design to make a glove puppet by sewing two pieces of fabric together and adding decorations. 	<p>Food & Nutrition-Seasonal Food (Fruit Salad)</p> <ul style="list-style-type: none"> • Name a variety of fruits and vegetables. • Use adjectives to describe the taste, smell and texture of a variety of fruits and vegetables. • Know that some fruits and vegetables need to be washed, cut, cored, peeled or grated before they can be eaten. • Understand basic food hygiene, e.g. washing hands, tying long hair back and keeping surfaces clean. • Use a knife to cut some fruits and vegetables in different ways. • Grate an apple/carrot and peel a banana, apple and cucumber. 	<p>Mechanisms-Moving Pictures Pop Up Book</p> <ul style="list-style-type: none"> • Make a sliding mechanism out of card. • Know what a pivot and lever are. • Use a pivot and lever mechanism using card and a split pin. • Make a wheel mechanism using card and a split pin. • Match a mechanism to the type of movement they produce. • Design a moving minibeast picture to include a variety of moving mechanisms. • Follow a design to create a moving minibeast picture for a particular purpose. • Evaluate my finished moving minibeast picture by identifying things that worked well and things that could be improved.
<p>Key People</p>	<p>Jim Henson & the evolution of puppetry (muppets)</p>	<p>Philip Harben & the first television cooking show</p>	<p>Rod Campbell/David A Carter & their amazing pop up books</p>
<p>Vocabulary</p>	<p>Decorate, design, fabric, glue, model, hand puppet, safety pin, staple, stencil, template, stitch, sew</p>	<p>Fruit, vegetables, safety, knife, blade, tool, edge, handle, chop, slice, cut, saucepan, blender, carton, healthy, ingredients, peel, peeler, recipe, slice, smoothie, stencil, template, vegetable</p>	<p>sliders, mechanism, adapt, design criteria, design, design criteria, input, model, template, assemble, test</p>

Y2	Autumn U1	Spring U3	Summer U5
Knowledge & Skills	<p style="text-align: center;">Structures-Stable Structures.</p> <ul style="list-style-type: none"> Identify the features of toy garages. Know what the word 'stable' means. Make changes to the design of a stable structure to make it fit for purpose. Explore a range of materials and evaluate the usefulness of their properties for a particular project. Explore how to make stable structures that hold a given object. Follow a design to make a stable structure. Know some ways to make a structure more stable. Evaluate a finished structure against a set of given criteria. 	<p style="text-align: center;">Mechanical Systems-Exploring Axles & Vehicles</p> <ul style="list-style-type: none"> Investigate a range of vehicles, identifying and labelling their features. Know what an axle is. Know what a chassis is. Explore different ways of using axles, chassis and wheels to create a moving base. Design a vehicle with wheels, axles and chassis, as well as a body. Follow a design to make a moving vehicle. Evaluate my finished moving vehicle. 	<p style="text-align: center;">Food & Nutrition-Perfect Pizzas</p> <ul style="list-style-type: none"> Name a variety of pizza toppings. Use the model of the balanced plate to evaluate how healthy different pizzas are. Explore different types of bread and evaluate which would work best for a pizza base. Identify which food group a variety of pizza toppings belong to. Sort pizza toppings into groups based on different criteria, e.g. animal vs plant products. Explain why each of the food groups is important for a balanced diet. Design and make a healthy pizza following given criteria. Evaluate my finished pizza, saying what I think and feel about it.
Key People	<p style="text-align: center;">Gustav Eiffel & his incredible structures</p>	<p style="text-align: center;">Henry Ford & the mass manufacture of cars</p>	<p style="text-align: center;">Auguste Escoffier & his food revolution</p>

Vocab	Client, design, evaluation, net, stable, strong, test, weak	Axle, axle holder, chassis, design, evaluation, fix, mechanic, mechanism, model, test, wheel	Alternative, diet, balanced diet, evaluation, expensive, healthy, ingredients, nutrients, packaging, refrigerator, sugar, substitute
--------------	---	--	--

Y3	Autumn U1	Spring U4	Summer U6
Knowledge & Skills	<p style="text-align: center;">Textiles-Money Pouches</p> <ul style="list-style-type: none"> • Explain the difference between the function and visual appeal of a product. • Evaluate the function and visual appeal of a variety of money pouches/purses/bags • Use pins to temporarily fasten two pieces of fabric together. • Use running stitch, back stitch, overstitch and zigzag stitch to join two pieces of fabric together. • Hide the finishing knot. • Identify a variety of decorative techniques that have been used to decorate. • Sew a button, bead, sequin or pipe cleaner onto a piece of fabric. • Design a money pouch incorporating a range of decorative techniques. • Use a template to cut out front and back pattern pieces. • Follow a design to create a money pouch. • Evaluate the function and visual appeal of my finished money pouch. 	<p style="text-align: center;">Structures-Bridges</p> <ul style="list-style-type: none"> • Learn about various types of bridge designs. • Explore how the strength of structures can be affected by the shapes used. • Create their own bridge and test its durability - using woodworking tools and techniques. • Examine what a plan view is. 	<p style="text-align: center;">Food & Nutrition-Food Groups & Allergies</p> <ul style="list-style-type: none"> • I know that most foods we buy have nutrition labels to help us make informed choices about what we eat. • I know that calories come from fats, proteins and carbohydrates. • I can design a burger for someone with particular dietary requirements. • I can make and evaluate a savoury tart, following my recipe and design.
Key People	<p style="text-align: center;">Lucienne Day & her influence on textile patterns</p>	<p style="text-align: center;">William Paxton & the Great Exhibition</p>	<p style="text-align: center;">Catherine Bertini & the world food project</p>

Vocab	Accurate, pin, money pouch, decorate, detail, fabric, patch, running-stitch, seam, stencil, stuffing, target audience, target customer, template	Abutment, Accurate, Arched bridge, Beam bridge, Coping saw, Evaluation, File, Mark out, Material properties, Measure, Predict, Reinforce, Research, Sandpaper, Set square	Abutment, Accurate, Arched bridge, Beam bridge, Coping saw, Evaluation, File, Mark out, Material properties, Measure, Predict, Reinforce, Research, Sandpaper, Set square Cross-contamination, diet, ethical issues, farm, healthy, ingredients, method, nutrients, packaging, reared, recipe, research, substitute, supermarket, vegan, vegetarian, welfare, storyboard, units of measurement
Y4	Autumn U1	Spring U3	Summer U5
Knowledge & Skills	<p>Digital World-Wearable Technology</p> <ul style="list-style-type: none"> To understand that, in programming, a 'loop' is code that repeats something again and again until stopped. To know that a micro:bit is a pocket-sized, codeable computer. To know that a simulator is able to replicate the functions of an existing piece of technology. To know what the 'Digital revolution' is and features of some of the products that have evolved as a result. To understand what is meant by 'point of sale display.' To know that CAD stands for 'Computer-aided design'. To know what a focus group is by taking part in one. Problem solving by suggesting potential features on a micro:bit and justifying my ideas. Drawing and manipulating 2D shapes, using computer-aided design, to produce a point of sale badge. Developing design ideas through annotated sketches to create a product concept. Developing design criteria to respond to a design brief. Following a list of design requirements. Writing a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm. Analysing and evaluating an existing product. Using feedback from peers to improve a design. 	<p>Electrical Systems-Light Up Game/Signs</p> <ul style="list-style-type: none"> Explore and analyse illuminated signs. Create a simple circuit with incandescent bulbs and a switch. Describe the difference between an LED and an incandescent light bulb. Create a simple circuit with an LED bulb and a resistor. Make a circuit with a string of LED lights. Design an illuminated light box against a set of design criteria. Select materials, tools and components to create a free-standing structure. Make a stable, free-standing structure to house an electrical circuit. Strip, twist and join wire to make permanent connections. Insert an electrical circuit into a free-standing structure to create an illuminated light box. Evaluate the effectiveness of a finished product against the design criteria. 	<p>Mechanisms-Cogs, gears and cams</p> <ul style="list-style-type: none"> Make use of cross sectional designs. Use woodworking skills pupils construct an automata. Refine measuring and cutting their materials, Assemble the frame. Choose cams as part of their design. Design the characters that sit on the followers to form an interactive shop display. Make a variety of prototypes and test their effectiveness. Design, make and evaluate an automata according to a specific design criteria.

Key People	George W Theiss & the world's first digital watch	Thomas Edison & the incandescent light bulb	Leonardo Da Vinci & his robot/clock automaton designs
Vocab	Analogue, analyse, annotate, badge, computer-aided design (CAD), control, design criteria, develop, digital, digital revolution, digital world, display, electronic, electronic products, fastening, feature, feedback, form, function, initiate, layers, monitor, net, opinion, point of sale, product, product design	Battery, bulb, buzzer, cell, component, conductor, copper, design criteria, electrical item, electricity, electronic item, function, insulator, series circuit, switch, test, torch, wire	Accurate, Assembly-diagram, Automata, Axle, Bench hook, Cam, Clamp, Component, Cutting list, Diagram, Dowel, Drill bits, Exploded-diagram, Finish, Follower, Frame, Function, Hand drill, Jelutong, Linkage Mark out, Measure, Mechanism, Model, Research, Right-angle, Set square, Tenon saw
Y5	Autumn U1	Spring U3	Summer U5

<p>Knowledge & Skills</p>	<p>Textiles-Design a draw string bag</p> <ul style="list-style-type: none"> • Explain the process of turning raw cotton into cloth. • Know that products that are woven together are called textiles. • Know that different textiles have different properties, and can match these to their purpose. • Identify straight stitch, zigzag stitch, whip/blanket stitch, blind stitch, buttonhole stitch and overlock stitch on a variety of ready-made garments. • Describe what the job of a fashion designer entails. • I can sew a basting stitch, a whip stitch, a hem and a back stitch. • Sew an appliqué decoration. • Use back stitch to embroider. • Know what a pattern piece is and why they are important when designing a garment. • Design a drawstring bag, including the necessary pattern pieces. • Use pattern pieces to measure, mark, cut and sew fabric. • Sew design elements according to design criteria. • Join two pieces of fabric by hand sewing, using an appropriate stitch. • Evaluate a finished product against a set of design criteria. 	<p>Food & Nutrition-Making a Seasonal Meal</p> <ul style="list-style-type: none"> • Explain what the term 'seasonal food' means. • Know that different parts of the world have different seasonal food. • Discuss the benefits and problems of unseasonal food being available in shops all year round. • Know that some foods, like wheat, are available all year round in the UK. • Practice cooking skills including slicing, dicing, beating, whisking, folding, sieving, rolling and grating. • Follow a recipe to make fairy cakes. • Describe the cycle of wheat production in the UK. • Distinguish between fruits that are grown in the UK and those that are grown abroad. • Know how food producers can speed up or slow down the ripening process to make fruits and vegetables available all year round. • Follow a recipe to make fruit tarts using seasonal fruit. • Follow a recipe to make stuffed peppers. • Know some of the nutrients we get from fruits, vegetables, meat, fish and dairy products. • Know when certain meats are in season in the UK and which are available all year round. • Follow a recipe to make meatballs. • Know some vegetarian options that provide the same nutrients as meat. • Explain how fish are caught or reared, processed and used in healthy meals. • Use new knowledge about seasonal food to design healthy meals and menus. 	<p>Structures-Bird House Builders</p> <ul style="list-style-type: none"> • Investigate the appearance and function of a variety of different bird houses. • Identify what materials have been used to construct a variety of bird houses and suggest how the parts have been joined together. • Know what a flat pack diagram is and can use it to identify each part of a structure. • Create a flat pack diagram of a constructed bird house. • Draw an exploded diagram. • Identify the tools associated with basic woodworking. • Measure, clamp, saw, sand and join wood. • Use a hand drill to drill a hole in a piece of wood. • Know the safety rules I need to follow when doing woodworking. • Design a bird house for a particular bird, taking into account the bird's needs. • Select appropriate tools and materials to use when making a bird house. • Create a sturdy bird house frame using wood. • Evaluate my finished bird house, taking into account the views of others to improve my work. • Use observation to evaluate the effectiveness of a bird house.
<p>Key People</p>	<p>Coco Chanel and the impact on the fashion world</p>	<p>Henry Blair & his agricultural inventions</p>	<p>Zaha Hadid & her redefinition of contemporary architecture</p>
<p>Vocabulary</p>	<p>Accurate, annotate, appendage, blanket-stitch, design criteria, detail, evaluation, fabric, sew, shape, stuffing, template, pattern piece, hem, blind stitch, whip stitch, button hole, fashion designer, basting stitch, garment</p>	<p>Climate, dry climate, exported, imported, Mediterranean climate, nationality, nutrients, polar climate, recipe, seasonal food, seasons, temperate climate, tropical climate</p>	<p>apparatus, design criteria, equipment, landscape features, flat pack, diagram, measure, clamp, saw, sanding, hand drill, frame, angle, wooden dowel, mark, accurate.</p>

Y6	Autumn U1	Spring U3	Summer U6
Knowledge & Skills	<p style="text-align: center;">Electrical Systems-Steady hand game</p> <ul style="list-style-type: none"> To know that 'form' means the shape and appearance of an object. To know the difference between 'form' and 'function'. To understand that 'fit for purpose' means that a product works how it should and is easy to use. To know that 'form over purpose' means that a product looks good but does not work very well. To know the importance of 'form follows function' when designing: the product must be designed primarily with the function in mind. To understand diagram perspectives 'top view', 'side view' and 'back'. Designing a steady hand game, identifying and naming the components required. Drawing a design from three different perspectives. Modelling ideas through prototypes. Constructing a stable base for a game. Accurately cutting, folding and assembling a net. Decorating the base of the game to a high-quality finish. Making and testing a circuit. Incorporating a circuit into a base. Testing their own and others' finished games, identifying what went well and making suggestions for improvement. Gathering images and information about existing children's toys. Analysing a selection of existing children's toys. 	<p style="text-align: center;">Digital Systems-Navigating the World</p> <ul style="list-style-type: none"> Explain how computers and computer programs are used in a variety of products. Explain how modern memory chips work to store information. Write an algorithm to suggest how various appliances might work. Know what a computer engineer is and what they do. Describe some examples of how computer hardware and software specialists work together to create new products. Develop and build a prototype pedestrian crossing using computer programming. Develop, model and communicate ideas for an embedded system which monitors and controls a door, room or both. Describe the typical design process for computer-controlled electronic products. Debug errors in an algorithm. Suggest ways to change an algorithm to improve a system. Select and use electronic components to construct a prototype of an embedded computer-controlled room system. Evaluate my design for a computer-controlled system and consider the views of others to improve my work. 	<p style="text-align: center;">Mechanical Systems-Pop Up Book</p> <ul style="list-style-type: none"> To know that mechanisms control movement. To understand that mechanisms can be used to change one kind of motion into another. To understand how to use sliders, pivots and folds to create paper based mechanisms. To know that a design brief is a description of what I am going to design and make. To know that designers often want to hide mechanisms to make a product more aesthetically pleasing. Designing a pop up book which uses a mixture of structures and mechanisms. Naming each mechanism, input and output accurately. Storyboarding ideas for a book. Following a design brief to make a pop up book, neatly and with a focus on accuracy. Making mechanism and/or structures using sliders, pivots and folds to produce movement. Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result. Evaluating the work of others and receiving feedback on their own work. Suggesting points for improvement.
Key People	Edith Clark the worlds first female electrical engineer.	Walter Braithwaite & the use of CAD/CAM technology	Johannes Guttenburg and the printing press

Vocab	Assemble, battery, battery pack, benefit, bulb, bulb holder, buzzer, circuit, circuit symbol, component, conductor, copper, design, design criteria, evaluation, fine motor skills, fit for purpose, form, function, gross motor skills, insulator, LED, user	3D CAD, application (apps), biodegradable, Boolean, cardinal compass, client, compass, concept, convince, corrode, duplicate, environmentally friendly, equipment, feature, finite, function, functional, GPS tracker, If statement, infinite investment, lightweight, loop, manufacture, materials (wood, metal, plastic etc.), mouldable, navigation, non-recyclable, product lifecycle, product lifespan, program, recyclable, smart, sustainable,	Aesthetic, Computer-aided design (CAD), Caption, Design, Design brief, Design criteria, Exploded-diagram, Function, Input, Linkage, Mechanism, Motion, Output, Pivot, Prototype, Slider, Structure, Template
--------------	---	---	--

Our Disciplinary Knowledge Progression

Key Area	EYFS	Y1	Y2	Y3	Y4	Y5	Y6
----------	------	----	----	----	----	----	----

Design	Know that ideas are the 1 st step in the making process.	Know that a plan/ design draws together ideas to make a product	Know that a plan/ design can be created and adapted.	Know that research can inform plans/ design criteria which can be altered and improved for range of purposes.	Know that the outcome from a design will be affected by the designers choice.	Know that the design of a product can be revisited and reshaped in stages and sections.	Know that purpose and audience subsequently shapes the design of a product.
	Know that a product can be made from a plan.	Know that there are different ways of creating a design.	Know how to design purposeful and appealing products based on criteria. Know that some ways of developing, modelling and communicating ideas are more appropriate than other in the design process.	Know some ways to communicate their design ideas.	Know how to design products that are fit for purpose and be able to communicate their design ideas.	Know how to design products that are fit for purpose, aimed at particular individuals or groups. Know how to communicate their ideas through discussion, sketches and diagrams.	Know how to design and innovate functional products that are fit for a purpose aimed at particular individuals or groups. Know how to communicate ideas through discussion, annotated sketches, diagrams, prototypes and pattern pieces.

Making	Know, primarily through their own experiences, that tools and materials can be safely used to make things.	Know that there are a range of different tools and materials which can be used to create a product. [for example, cutting, shaping, joining and finishing].	Know that some tools and materials are more useful than others when creating a product.	Know that the characteristics of tools and materials informs their use in the making process.	Know that the success of the making process is reliant on the accurate selection and use of appropriate tools and materials.	Know and select from a wider range of tools and equipment to perform practical tasks. Such as cutting, shaping, joining, finishing.	Know and accurately select from and use a wide range of tools and materials.
		Know how to build structures and explore how to make them stronger.	Know how to select from and use a range of tools, materials and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]	Know how to select materials for their aesthetic qualities.	Know how to select materials for their functional and aesthetic qualities.	Know that a prototype is an experimental process and that preliminary versions can inform the final product.	Know that a prototype can be refined, is a key part of the making process and can be tested out on a wide range of users so that the final product is fit for purpose.
		Know how to use a mechanism [for example, a lever, slider, wheel], in their products.	Know how to build structures, exploring how they can be made stronger, stiffer and more stable	Know how to use a mechanical system in their product [for example, gears, pulleys]	Know how to use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]	Know and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]	Know and understand electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
			Know how to use				

<p>Evaluating</p>	<p>Know that an evaluation is a judgement.</p>	<p>Know that a simple evaluation can be used to improve a product.</p>	<p>Know that in order to evaluate ideas and products a set of design criteria is needed.</p> <p>Know how to explore and evaluate a range of</p>	<p>Know that the purpose of evaluation is for reflection and to help inform any changes required to make a product more effective.</p>	<p>Know that their own evaluation and the views of others can lead to modifications to the criteria and the creation of a new and improved design.</p>	<p>Know that products have evolved over time as a result of constant evaluation and modification in line with the changing world.</p>	<p>Know that evaluation of past and present DT leads to an understanding about its impact on modern day life.</p> <p>Know how the views of others can improve their</p>
--------------------------	--	--	---	--	--	---	---