St Columb Minor Design Technology Progression Map

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design	Children design purpose appealing products for users based on design of They generate, develop communicate their idea drawing, templates, mo appropriate, information communication technotom Children can: use their knowledge of and their own experier generate their ideas; design products that hare aimed at an intendexplain how their products through talking an annotated drawings; design models using sir software; plan and test ideas using and mock-ups; understand and follow criteria; work in a range of relevample imaginary, storand the wider environments.	themselves and other criteria. o, model and as through talking, ck-ups and, where and logy. dexisting products are to help ave a purpose and ded user; ucts will look and and simple and templates make the purpose and dead user; ucts will look and and simple are templates simple design vant contexts, for any-based, home, school	example entertainment,	design of innovative, roducts that are fit for articular individuals or model and shrough discussion, ass-sectional and totypes, pattern ided design. The products of their all to intended a broad range of a generate their ideas; appealing lear purpose and user; coarts of their products and communicate their edifferent initial and communicate their explain their choice onents including its sing prototypes; asign to develop and rideas ple design criteria; et of relevant contexts, for the home, school,	the design of innovative, furthat are fit for purpose, aimer groups. They generate, develop, modideas through discussion, annosectional and exploded diagroieces and computer-aided Children can: use research to inform and a criteria to inform the design of appealing products that are a target market; use their knowledge of a broth to help generate their ideas; design products that have a	otated sketches, cross- rams, prototypes, pattern design. develop detailed design of innovative, functional and efit for purpose and aimed at ead range of existing products of clear purpose and indicate products that will appeal to the of their products work; coss-sectional drawings and exincluding computer-aided functional aideas; ideas and clearly costings of resources when evant contexts, for example pool, leisure, culture, enterprise,
	Begin to draw on	Start to generate	leisure, food industry and With growing	Start to generate	Start to generate, develop,	Generate, develop, model
	their own	ideas by drawing on	confidence,	ideas, considering	model and communicate	and communicate their

experience to help generate ideas and research conducted on criteria.

Start to suggest ideas and explain what they are going to do.

Begin to understand the development of existing products: explain what they are for, how they work, what materials have been used.

Understand how to identify a target group for what they intend to design and make based on a design criteria.

Begin to develop their ideas through talk and simple drawings.

Communicate with others about how they want to construct their product.

their own and other people's experiences.

Begin to develop their design ideas through discussion, observation, drawing and modelling.

Identify a purpose for what they intend to design and make.

Understand how to identify a target group for what they intend to design and make based on a design criteria.

Develop their ideas through talk and drawings and label parts.

Pupils begin to explain why they chose a certain material. generate ideas for an item considering its purpose and the user.

When planning, explain their choice of materials and components including function and aesthetics.

Start to order the main stages of making a product.

Put together a step by step plan which shows the order and what equipment and tools they need. the purposes for which they are designing.

When planning, explain their choice of materials and components including function and aesthetics considering the views of others to improve their work.

Confidently make labelled drawings from different views showing specific features.

Develop a clear plan on the process and how to use materials, equipment and suggesting alternative methods if the first attempt fails. their ideas through discussion, annotated sketches and diagrams.

With growing confidence select appropriate materials, tools and techniques.

Start to understand how much products cost to make, how sustainable and innovative they are and the impact products have beyond their intended purpose.

Begin to use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose.

Draw up a specification for their design-link with Mathematics and Science.

Produce a detailed step-by step plan.

Suggest some alternative plans and say what the good points and drawbacks are about each.

With growing confidence, apply a range of finishing techniques, including those from art and design

Explain how their product will appeal to the audience

ideas through discussion, annotated sketches, cross sectional and exploded diagrams, prototypes, and pattern.

Confidently use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose.

Know how much products cost to make, how sustainable and innovative they are and the impact products have beyond their intended purpose.

Use market research to inform plans.

Suggest ideas about how their product could be sold and work within a given budget.

Confidently draw up a specification for their design- link with Mathematics and Science.

Suggest alternative methods of making if the first attempts fail.

Plan the order of their work, choosing appropriate materials,

Accurately apply a range of finishing techniques, including those from art and design.

Identify the strengths and areas for development in their ideas and products.

Children select from and use a range of tools

Children select from and use a wider range of

Children select from and use a wider range of tools and

	and equipment to perfo [for example, cutting, sh	•	tools and equipment to tasks [for example, cutting	•	equipment to perform practice cutting, shaping, joining and fi	
	finishing].		and finishing] accurately		They select from and use a wider range of materials and	
	They select from and use materials and compone construction materials, to	nts, including extiles and	They select from and use materials and compone construction materials, to	nts, including extiles and	components, including construent and ingredients, according to and aesthetic qualities.	uction materials, textiles
	ingredients, according to	o their	ingredients, according to		Children can:	
characteristics.		properties and aesthetic	qualities.	<u>Planning</u>		
	Children can:		Children can:		independently plan by sugge	esting what to do next;
Make	<u>Planning</u>		<u>Planning</u>		with growing confidence, sele	· ·
	with support, follow a si	mple plan or recipe;	with growing confidence		tools and equipment, explain	0
	begin to select from a range of hand tools		from a range of tools are explaining their choices		select from a range of materi	als and components
	and equipment, such a		select from a range of r		according to their functional	properties and aesthetic
	zesters, safe knives, juicer; select from a range of materials, textiles and		components according		qualities;	
	components according		properties and aestheti		create step-by-step plans as	a guide to making;
	characteristics;	g 10 111011	place the main stages	of making in a	<u>Practical skills and technique</u>	<u>s</u>
	Practical skills and tech	niques	systematic order;		learn to use a range of tools and equipment safely and	
	learn to use hand tools and kitchen		<u>Practical skills and tech</u>	<u>niques</u>	appropriately and learn to follow hygiene procedures;	
		equipment safely and appropriately and		tools and equipment	independently take exact measurements and mark out, to within 1 millimetre;	
	learn to follow hygiene procedures; use a range of materials and components,		safely, appropriately and accurately and learn to follow hygiene procedures;		use a full range of materials and components, including construction materials and kits, textiles, and mechanical	
including textiles and food ingredients;		use a wider range of materials and components, including construction		components;		
	with help, measure and mark out; cut, shape and score materials with some accuracy; assemble, join and combine materials,		materials and kits, textiles and mechanical and electrical components; with growing independence, measure and		cut a range of materials with	precision and accuracy;
					shape and score materials with precision and accuracy;	
					assemble, join and combine materials and components	
	components or ingredie		mark out to the nearest cm and millimetre;		with accuracy;	
	demonstrate how to cu	ut, shape and ioin	cut, shape and score magnetic degree of accuracy;	naterials with some	demonstrate how to measure, make a seam allowance,	
	fabric to make a simple	product;	assemble, join and combine material and components with some degree of accuracy;		tape, pin, cut, shape and join fabric with precision to make a more complex product;	
	manipulate fabrics in sir	mple ways to create				
	the desired effect;		demonstrate how to me	· ·	join textiles using a greater variety of stitches, such as backstitch, whip stitch, blanket stitch;	
	use a basic running stic	h;	and join fabric with some accuracy to make a simple product; join textiles with an appropriate sewing		refine the finish using techniques to improve the appearance of their product, such as sanding or a more	
	cut, peel and grate ing					
	measuring and weighin measuring cups;	ig ingredients using				
			technique; begin to select and use different and			
		begin to use simple finishing techniques to improve the appearance of their product,		chniques to improve		
such as adding		the appearance of a p				
	simple decorations.	simple decorations.		c paints and digital		
	Regin to marks thesis	Regin to sole at	graphics.	Calact and	Coloot appropriate	Confidently as Is at
	Begin to make their design using	Begin to select tools and materials:	Select a wider range of tools and	Select and use a wider range of tools	Select appropriate materials, tools and	Confidently select appropriate tools,
	appropriate	use correct	techniques for	and techniques for	techniques e.g. cutting,	materials, components
	techniques.	vocabulary to	making their	making their	shaping, joining and	and techniques and use
	De aire de la villal	name and	product.	product safely.	finishing, accurately.	them with accuracy.

Explain their choice

Know how to

Select from and use a

Begin to build

structures,

describe them.

Aim to make and to

exploring how they Build structures. of tools and measure, mark out, wider range of materials achieve a quality can be made exploring how they equipment in cut and shape a and components. product stronger, stiffer and can be made relation to the skills range of materials, including construction more stable. stronger, stiffer and and techniques using appropriate materials, textiles and Demonstrate when to more stable tools equipment ingredients, according to make modifications as they will be using. Explore and use and techniques. their functional properties they go along. mechanisms [for Measure, mark out, Start to use simple and aesthetic aualities. example, levers, cut and shape a electrical circuits Begin to combine Know how to combine sliders, wheels and and mechanical components and Combine components range of materials. complex electrical axles], in their systems. materials in and materials in different circuits and components products. Explore using tools different ways. ways with accuracy. to create functional e.g. scissors and a Measure, mark out, products. Identify and talk hole punch safely. Demonstrate how Know how more complex cut, score and about products assemble to measure, tape, electrical circuits and Make decisions and which use Begin to assemble, components with pin, cut and join components can be select the most electricity to make join and combine with accuracy. used to create functional appropriate mechanical more accuracy. them work materials and products. system for a particular components Select the most Use some finishing purpose. With help. together using a appropriate too techniques to Use a variety of finishing measure, mark out, variety of and techniques for strengthen and techniques to strengthen Use finishing techniques cut and shape a temporary the given task. improve the and improve the to strengthen and improve the range of materials. methods e.g. glues appearance of appearance of their or masking tape. Begin to make their product using product using a range of appearance of their Explore using tools choices of a range of product using a range of equipment. materials both for e.g. scissors and a With help, equipment. equipment. hole punch safely. measure, cut and its appearance Demonstrate score with some and qualities. Use a range of motivation/perseverance Demonstrate Begin to assemble, different stitches to to refine and improve motivation/perseverance accuracy. ioin and combine Begin to use some ioin fabric. their products. to refine and improve materials and Start to assemble. simple stitches. their products. components join and combine together using a materials in order to make a product. variety of temporary methods e.g. glues Begin to use simple or masking tape. finishing techniques to improve the Beain to use simple appearance of finishing techniques their product. to improve the appearance of Start to choose their product and use appropriate finishing techniques based on their own ideas. Join fabric using a running stitch, glue and tape. Children investigate and analyse a range of Children investigate and analyse a range of existing Children explore and evaluate a range of existing products. They evaluate their ideas and products. They evaluate their ideas and products against

products against their own design criteria and

their own design criteria and consider the views of others to

existing products. They evaluate their ideas and

Evaluate	products against design criteria. Children can: explore and evaluate existing products mainly through discussions, comparisons and simple written evaluations; explain positives and things to improve for existing products; explore what materials products are made from; talk about their design ideas and what they are making; as they work, start to identify strengths and possible changes they might make to refine their existing design; evaluate their products and ideas against their simple design criteria; start to understand that the iterative process sometimes involves repeating different stages of the process.		They understand how kein design and technology world. Children can: explore and evaluate explaining the purpose whether it is designed wintended purpose; explore what materials/products are made from reasons for this; consider their design criprogress and are willing sometimes considering helps them to improve the evaluate their product design criteria; evaluate the key event technological developmindividuals in design and	xisting products, of the product and rell to meet the ingredients in and suggest teria as they make to alter their plans, the views of others if this heir product; against their original is, including tents, and designs of	improve their work. They understand how key events and individuals in design and technology have helped shape the world. Children can: complete detailed competitor analysis of other products on the market; critically evaluate the quality of design, manufacture and fitness for purpose of products as they design and make; evaluate their ideas and products against the original design criteria, making changes as needed.	
	Start to evaluate their product by discussing how well it works in relation to the purpose. When looking at existing products, explain what they like and dislike about the products and why. Begin to evaluate their products as they are developed, identifying	Evaluate their work against their design criteria. Look at a range of existing products explain what they like and dislike about products and why. Evaluate their products as they are developed, identifying what went well and possible changes they	helped shape the world. Start to evaluate their product against their original design criteria. Begin to evaluate familiar products and consider the views of others to improve them. Suggest improvements to their final design.	Evaluate their product throughout the process making some simple changes where necessary. Evaluate their products, thinking of both appearance and function. Evaluate their products carrying out simple tests. Identify improvements to their final design explaining why these would improve the final design.	Start to evaluate a product against the original design specification and by carrying out appropriate tests. Evaluate their work both during and at the end of the assignment and seek evaluation from others. Evaluate appearance and function against original criteria, suggesting improvements and refinements.	Evaluate their work continuously both during and at the end of the assignment and frequently seek evaluation from others. Evaluate their products, identifying strengths and areas for development, and carry out appropriate tests. Record their evaluations using drawings with labels – clearly identifying improvements and refinements.

	strengths and possible	might make next time.				
	changes they might					
	make next time.					
Technical Knowledge			Children apply their understanding of how to strengthen, stiffen and reinforce more complex structures. They understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]. They understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]. They apply their understanding of computing to program, monitor and control their products. Children can: understand that materials have both functional properties and aesthetic qualities; apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products; understand and demonstrate how mechanical and electrical systems have an input and output process; make and represent simple electrical circuits, such as a series and parallel, and components to create functional products; explain how mechanical systems such as levers and linkages create movement;		stiffen and reinforce more continuous and use may products [for example, gear linkages]. They understand and use eleptroducts [for example, series switches, bulbs, buzzers and They apply their understanding program, monitor and controducted and their understanding of reinforce more complex struseful characteristics of products and and demonstrated electrical systems have an explain how mechanical systems.	echanical systems in their rs, pulleys, cams, levers and ectrical systems in their s circuits incorporating motors]. ing of computing to rol their products. of how to strengthen, stiffen and ructures in order to create more oducts; ate that mechanical and input, process and output; ystems, such as cams, create anical systems in their products; of computing to program,
	Children use the basic prand varied diet to prepa		Children understand and of a healthy and varied		Children understand and ap and varied diet.	oply the principles of a healthy
Cooking and Nutrition	They understand where f Children can: explain where in the way originate from; understand that all food animals;	ood comes from.	They prepare and cook predominantly savoury or range of cooking technic They understand season and how a variety of ing reared, caught and proceed the control of the contr	a variety of ishes using a ques. ality, and know where redients are grown, cessed.	They prepare and cook a vosavoury dishes using a range They understand seasonality variety of ingredients are graprocessed. Children can: know, explain and give exceptions are graphical seasonality variety of ingredients are graphical seasonality variety of ingredients are graphical seasonality.	e of cooking techniques. , and know where and how a

	understand that food h grown elsewhere (e.g.	•	grown (such as herbs, strawberries) in the UK, world;		poultry and cattle) and caught (such as fish) in the UK, Europe and the wider world;	
	name and sort foods in groups in the Eatwell G	uide;	understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically;		understand about seasonality, how this may affect the food availability and plan recipes according to seasonality;	
	understand that everyone should eat at least five portions of fruit and vegetables every day and start to explain why; use what they know about the Eatwell Guide to design and prepare dishes.		with support, use a heat source to cook ingredients showing awareness of the need to control the temperature of the hob and/or oven; use a range of techniques such as mashing, whisking, crushing, grating, cutting, kneading and baking; explain that a healthy diet is made up of a variety and balance of different food and drink, as represented in the Eatwell Guide and be able to apply these principles when planning and cooking dishes; understand that to be active and healthy, nutritious food and drink are needed to provide energy for the body; prepare ingredients using appropriate cooking utensils; measure and weigh ingredients to the nearest gram and millilitre;		understand that food is processed into ingredients that can be eaten or used in cooking; demonstrate how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source; demonstrate how to use a range of cooking techniques, such as griddling, grilling, frying and boiling; explain that foods contain different substances, such as protein, that are needed for health and be able to apply these principles when planning and preparing dishes; adapt and refine recipes by adding or substituting one or more ingredients to change the appearance, taste, texture and aroma; alter methods, cooking times and/or temperatures; measure accurately and calculate ratios of ingredients to scale up or down from a recipe; independently follow a recipe.	
			start to independently start to understand seas			
	Begin to understand that all food comes from plants or animals. Start to understand	Understand that all food comes from plants or animals. Develop understanding of	Start to know that food is grown, reared and caught in the UK, Europe and the wider world.	Know that food is grown, reared and caught in the UK, Europe and the wider world.	Begin to explain how ingredients are grown, reared and caught in the UK, Europe and the wider world.	Explain how ingredients are grown, reared and caught. Understand that seasons may affect the food available.
	how to name and sort foods into the five groups. Know that everyone should eat at least	where different foods come from and also food from native to different countries.	Know that a healthy diet is made up from a variety and balance of different food and drink.	Understand why a healthy diet is important. Know that to be active and healthy,	Begin to understand that seasons may affect the food available. Evaluate a meal and	Know different food and drink contain different substances that are needed for health.
						Plan a healthy and

	and vegetables every day. Know how to prepare simple dishes safely and hygienically, without using a heat source. Begin to use techniques such as cutting, peeling and grating. Measure and weigh food items using nonstandard measures (e.g. spoons and cups).	into the five groups in Recognise the need for a variety of food in a diet. Demonstrate how to prepare simple dishes safely and hygienically, without using a heat source. Demonstrate how to use techniques such as cutting, peeling and grating	Begin to know that to be active and healthy, food and drink are needed to provide energy. Understand how to prepare and cook a variety of dishes including having experience of using a heat source. Begin to understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.	needed to provide energy. Understand how to prepare and cook a variety of predominantly savoury dishes including having experience of using a heat source. Understand what to do to be safe and hygienic. Understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. Measure and weigh ingredients accurately.	contribute towards a balanced diet Begin to understand that different food and drink contain different substances that are needed for health. Explain what times of year particular foods are eaten in. Understand how food is processed into ingredients that can be eaten or used in cooking. Know how to prepare and cook a variety of predominantly savoury dishes including the use of a heat source. Demonstrate increasing confidence in how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. Begin to use appropriate tools and equipment, weighing and measuring with scales.	affordable diet. Explain how food is processed into ingredients that can be eaten or used in cooking. Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including the use of a heat source. Confidently use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. Use appropriate tools and equipment, weighing and measuring with scales.
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