Primary Design and Technology Progression Map

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum *Pupils should be taught to:*	1. *Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.* 2. *Share their creations, explaining the process they have used.* 3. *Make use of props and materials when role playing characters in narratives and stories.*	1. *Design purposeful, functional, appealing products for themselves and other users based on design criteria.* 2. *Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.* 3. *Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing].* 4. *Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.* 5. *Explore and evaluate a range of existing products.* 6. *Evaluate their ideas and products against design criteria.* 7. *Build structures, exploring how they can be made stronger, stiffer and more stable.* 8. *Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.* 9. *Use the basic principles of a healthy and varied diet to prepare dishes.* 10. *Understand where food comes from.*		1. *Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.* 2. *Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.* 3. *Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.* 4. *Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.* 5. *Investigate and analyse a range of existing products.* 6. *Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.* 7. *Understand how key events and individuals in design and technology have helped shape the world.* 8. *Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.* 9. *Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].* 10. *Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].* 11. *Apply their understanding of computing to program, monitor and control their products.* 12. *Understand and apply the principles of a healthy and varied diet.* 13. *Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.* 14. *Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.*		
By the end of the year, children should be able to…							
Generating and developing the skills of creative, technical and practical expertise.	**Nursery** Develop their own ideas and then decide which materials to use to express them. Begin to develop complex stories using small world equipment like animal sets, dolls and dolls houses, etc. Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park. **Reception**	Develop ideas within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds and the local community State what products they are designing and making and why. Say whether their products are for themselves or other users. Generate some of their own ideas by drawing on their own experiences. Develop and communicate ideas by talking and drawing.	Developing within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment. Describe what their products are for and how they will work. Use simple design criteria to help develop their ideas. Use knowledge of existing products to help come up with ideas and explain why their products are suitable for the intended users. Choose the best tools and materials and give reasons why these are best	Work confidently within a range of contexts, such as the home, school and leisure. Show that their design meets a range of requirements? Begin to put together a step-by-step plan which shows the order and also what equipment and tools they need? Indicate the design features of their products that will appeal to intended users and how realistic their plans are? Begin to describe their design using an accurately labelled sketch, cross-	Work confidently within a range of contexts, such as the home, school, leisure and culture Explain how particular parts of their products work. Gather information about the needs and wants of particular individuals and groups and use these to inform their ideas. Produce a step-by step plan Develop their own design criteria and use these to inform their ideas. Model their ideas using prototypes and pattern pieces.	Work confidently within a range of contexts, such as the home, school, leisure, culture and enterprise, Describe the purpose of their products. Begin to carry out research, using surveys, interviews, questionnaires and web-based resources to come up with a range of ideas. Begin to identify the needs and wants. Produce a detailed step-by-step plan Share and clarify ideas through discussion. Also suggest some alternative plans and say what the good	Work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment Indicate the design features of their products that will appeal to intended users and how they will meet their needs. Begin to identify the needs, wants, preferences and values of particular individuals and groups. Carry out research, using surveys, interviews, questionnaires and web-based resources.

			Describe their design by using pictures, diagrams, models and words. (Plan by suggesting what to do next).	sectional drawing or exploded diagram	Use annotated sketches, cross-sectional drawings or exploded diagrams to develop and communicate their ideas. Suggest some improvements and say what was good and not so good about their original design Make design decisions that take account of the availability of resources.	points and drawbacks are about each Use annotated sketches, cross-sectional drawings or exploded diagrams to develop and communicate their ideas. Use computer-aided design to develop and communicate their ideas.	Develop a simple design specification to guide their thinking. Model their ideas using prototypes and pattern pieces. Use computer-aided design to develop and communicate their ideas. Generate innovative ideas, drawing on research. Make design decisions, taking account of constraints such as time, resources and cost.
Building and applying a repertoire of knowledge and skills to make products	**Nursery** Notice patterns with strong contrasts and be attracted by patterns resembling the human face. Start to make marks intentionally. Express ideas and feelings through making marks, and sometimes give a meaning to the marks they make. Explore different materials, using all their senses to investigate them. Manipulate and play with different materials. Use their imagination as they consider what they can do with different materials. Make simple models which express their ideas. **Explore different materials freely, in order to develop their ideas about how to use them and what to make.** Join different materials and explore different textures.	With support, select from a range of tools and equipment, explaining their choices. With support, 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, food ingredients and mechanical components. With support, measure, mark out, cut, shape and join materials and components developing perseverance and adaptability when mistakes are made.	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, food ingredients and mechanical components. Measure, mark out, cut and shape materials and components. Assemble, join and combine materials and components developing perseverance and adaptability when mistakes are made. With support use finishing techniques, including those from art and design.	Select tools and equipment suitable for the task. Follow procedures for safety and hygiene. Use a wide range of materials and components, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components. Begin to measure, mark out, cut and shape materials and components with some accuracy. Begin to assemble, join and combine materials and components with some accuracy demonstrating perseverance and adaptability when mistakes are made. Apply a range of finishing techniques, including those from art and design.	Explain their choice of tools and equipment in relation to the skills and techniques they will be using. Explain their choice of materials and components according to functional properties and aesthetic qualities. Follow procedures for safety and hygiene. Use a wide range of materials and components, including construction materials and kits, textiles, food ingredients, 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 demonstrating perseverance and adaptability when mistakes are made. Refer to their design criteria as they design and make. Apply a range of finishing	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. Produce appropriate lists of tools, equipment and materials that they need. Follow procedures for safety and hygiene. Use a wide range of materials and components, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components. Accurately measure, mark out, cut and shape materials and components. Accurately assemble, join and combine materials and components demonstrating perseverance and adaptability when mistakes are made.	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. Explain their choice of materials and components according to functional properties and aesthetic qualities. Produce appropriate lists of tools, equipment and materials that they need. Formulate step-by-step plans as a guide to making. Follow procedures for safety and hygiene. Use a wide range of materials and components, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components. Accurately measure, mark out, cut and shape materials and components.

	Create closed shapes with continuous lines, and begin to use these shapes to represent objects. Draw with increasing complexity and detail, such as representing a face with a circle and including details. Use drawing to represent ideas like movement or loud noises. Show different emotions in their drawings and paintings, like happiness, sadness, fear etc. Explore colour and colour-mixing. Show different emotions in their drawings – happiness, sadness, fear etc. Take part in simple pretend play, using an object to represent something else even though they are not similar. **Reception** Explore, use and refine a variety of artistic effects to express their ideas and feelings.				techniques, including those from art and design, with some accuracy.	Accurately apply a range of finishing techniques, including those from art and design.	Accurately assemble, join and combine materials and components demonstrating perseverance and adaptability when mistakes are made. Accurately apply a range of finishing techniques, including those from art and design. Use techniques that involve a number of steps. Demonstrate resourcefulness when tackling practical problems.
Evaluating Skills of Judgement and Evaluation	**Nursery** Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively sharing ideas, resources, and skills. **Reception** Return to and build on their previous learning, refining ideas and developing their ability to represent them.	Talk about their design ideas and what they are making Make simple judgements about their products and ideas against design criteria. Begin to suggest how their products could be improved. Begin to evaluate existing products considering: **what products are,* **who products are for,* **what products are for,* **how products are used,* **where products might be*	Talk about their design ideas and what they are making and comment on things others have done. Make judgements about their products and ideas against design criteria and suggest improvements. Evaluate existing products considering: **what products are,* **who products are for,* **what products are for,* **how products are used,* **where products might be*	Identify the strengths and areas for development in their ideas and products and suggest improvements throughout the process. Begin to consider the views of others, including intended users, to improve their work. With support, use their design criteria to evaluate their completed products and suggest improvements	Identify the strengths and areas for development in their ideas and products and suggest improvements throughout the process. Consider the views of others, including intended users, to improve their work. Use their design criteria to evaluate their completed products. Evaluate existing products considering:	Identify the strengths and areas for development in their ideas and products and suggest improvements throughout the process. Consider the views of others, including intended users, to improve their work. Begin to critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make.	Identify the strengths and areas for development in their ideas and products and suggest improvements throughout the process. Consider the views of others, including intended users, to improve their work. Critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make.

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	Create collaboratively sharing ideas, resources, and skills.	*used,* **what materials products are made from.* .	*used,* **what materials products are made from.*	Begin to evaluate existing products considering: *how well products have been designed, **how well products have been made,* **why materials have been chosen,* **what methods of construction have been used,* **how well products work,* **how well products achieve their purposes,* **how well products meet user needs and wants,* **who designed and made the products,* **where products were designed and made,* **when products were designed and made,* **whether products can be recycled or reused.*	**how well products have been designed,* **how well products have been made,* **why materials have been chosen,* **what methods of construction have been used,* **how well products work,* **how well products achieve their purposes,* **how well products meet user needs and wants,* **who designed and made the products,* **where products were designed and made,* **when products were designed and made,* **whether products can be recycled or reused.*	Begin to evaluate their ideas and products against their original design specification. Investigate and analyse existing products considering: **how well products have been designed,* **how well products have been made,* **why materials have been chosen,* **what methods of construction have been used,* **how well products work,* **how well products achieve their purposes,* **how well products meet user needs and wants,* **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.*	Evaluate their ideas and products against their original design specification. Investigate and analyse existing products considering: **how well products have been designed,* **how well products have been made,* **why materials have been chosen,* **what methods of construction have been used,* **how well products work,* **how well products achieve their purposes,* **how well products meet user needs and wants,* **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.*

Knowledge

	Autumn	Spring	Summer
EYFS	Baseline	Do all traditional tales have a baddie? Focus Designer: Jim Henson	Oh I do like to be Beside the Seaside. Focus Designer: Mary Berry
		LO: To design and make a split pin puppet character of a traditional tale character.	LO: To design and make an ice lolly.
Year 1	Under My Umbrella Samuel Fox	Bridges Focus Designer: Isambard Kingdom Brunel	Super Smoothies Focus Designer: Richard Reed
	LO: To say what I am making and why. LO: To select and use tools safely. LO: To select materials for their properties. LO: To use scissors with increasing precision. LO: To record my material findings. LO: To work within a group to create a joint outcome. LO: To evaluate existing umbrellas. LO: To evaluate final product against design brief.	LO: To say what I am making and why. LO: To describe shapes and structures of existing bridges. LO: To select and use tools safely. LO: To name materials and their properties. LO: To record observations about materials. LO: To create a labelled plan for a prototype. LO: To use a plan to create a prototype. LO: To evaluate final product against design brief.	LO: To know how to use equipment safely. LO: To know how to work hygienically in the kitchen. LO: To say whom the product is designed for. LO: To know what makes a healthy balances diet. LO: To know where foods come from and how they are grown. LO: To use techniques including chopping, cutting and grating. LO: To evaluate existing products LO: To evaluate my product against a design brief.
Year 2	**Autumn** Terrific Towers Focus Designers: Gustafe Eiffel, Anish Kapoor & Cecil Balmon	**Autumn** Dynamic Drawbridges Focus Designers: Sir John Wolfe Barry, Sir Horace Jones and Joseph Strauss	**Spring** Wonderful Wool Focus Designer: Edmund Cartwright
	LO: To understand what towers are, what they can be built from and what their Purpose and functions are.	LO: To understand what a drawbridge is, how it works and what it is for.	LO: To understand where wool comes from and explain how wool can be turned into a product.

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	LO: To identify and understand what makes towers structurally stable and strong. Including suitability of materials used. LO: To research using a variety of techniques. LO: To apply knowledge gained from research to their own design ideas. LO: To adapt designs based on own and group feedback. LO: To make final tower and test.	LO: To understand how the drawbridge has evolved to meet a purpose over time. LO: To demonstrate the understanding of a basic mechanism to lift and lower. LO: To analyse different mechanisms and how they are used. LO: To apply research to own designs and prototypes.	LO: To follow simple design criteria for a product to be made including materials, patterns and tools. LO: To draw a basic design and pattern. LO: To follow a set of written instructions. LO: To apply knowledge gained to join the material to create a product. LO: To test and evaluate product against design criteria.
Year 3	Ready to Pop Focus Designer: Matthew Reinhart	You've Been Framed Focus Designer: Ikea	I'm in Love with my Car Focus Designer: Henry Ford
	LO: To explain what I am making and why. LO: To develop design criteria for an effective pop-up book. LO: To understand how to use equipment safely. LO: To use an annotated diagram to plan a design. LO: To select tools and materials appropriate to the task. LO: To measure out and cut components. LO: To explain the functions of the key mechanisms used. LO: To identify the audience for the product. LO: To evaluate the finished design according to the design criteria.	LO: To say what I am making and who it is for. LO: To discuss the design criteria for a successful photo frame. LO: To identify risks during woodworking and use tools safely. LO: To create an annotated exploded drawing. LO: To create a step-by-step plan. LO: To use a plan to create a prototype. LO: To evaluate a prototype according to the design criteria. LO: To use wood tools to shape and join materials. LO: To conduct and use market research to develop design ideas. LO: To evaluate final product against design criteria.	LO: To understand the different types of cars and their uses. LO: To understand how mechanical cars, work and how they are made. LO: To demonstrate an understanding of mechanisms including pushing and pulling, levers and lowering. LO: To analyse different mechanisms and how they are used. LO: To apply research to own designs and prototypes.
Year 4	**(Spring)** Quizzical Quilting Focus Designer: Michele Walker	**(Summer 1)** Create a Buzz Focus Designer: Joseph Henry	**(Summer 2)** On a Roll Focus Designer: Nadiya Hussain
	LO: To understand what a quilt is, it's historical origins and purpose and how they are made. LO: To research and identify suitable materials for quilt making. LO: To use a range of research techniques. LO: To apply knowledge gained from research into quilt designer Michele Walker to their own design ideas. LO: To create a range of drawn designs/ patterns using correct tools and measurements. LO: To make a final quilt panel piece based on the design criteria and research. Include a range of shapes and joining techniques. LO: To show and understanding of how to safely use equipment (e.g. needles and scissors).	LO: To understand how an electrical buzzer has evolved over time. LO: To understand what an electrical component is and how it applies to games. LO: To understand how games have been successful based on design and meet a set design criterion. LO: To draw designs including explanations of choices involving materials and tools. LO: To apply knowledge of circuits and buzzers/ lights into a game product. LO: To test and evaluate product against a design criteria including appearance and purpose.	LO: To understand where bread and flour comes from and how it is made. LO: To understand how yeast or baking soda is used in the proving process. LO: To understand how different types of bread are made and used for different purposes across different cultures. LO: To analyse how different types of flour and ingredients effect the taste and appearance of bread. LO: To apply research to own designs and bread making. LO: To evaluate the type of flour used and appearance and taste of bread product.
Year 5	Roving Robots Focus Designer: Mars Rover Engineering Team	**Summer** Marble Run Focus Designer: George Rhoads	**Summer** Pinball Wizard Focus Designer: David Gottlieb
	LO: To describe what I am making and its purpose. LO: To evaluate the functions of a robotic rover. LO: To discuss the design criteria for a successful robotic rover. LO: To identify and share the functions of mechanical/electrical systems. LO: To use software to create a programming sequence.	LO: To use techniques that increase stability and strength of design. LO: To use techniques to reinforce component joins. LO: To be able to recognise and set a design criteria. LO: To be able to create and use cross section diagrams and exploded diagrams.	LO: To understand the different types of pinball machines and their uses LO: To understand how mechanical pinball machines, work and how they are made LO: To demonstrate an understanding of mechanisms including pushing and pulling, levers and lowering.

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	LO: To create an exploded drawing to plan a robotic rover. LO: To use a plan to create a robotic rover. LO: To test and troubleshoot a programming sequence. LO: To evaluate final product against design criteria.		LO: To analyse different mechanisms and how they are used LO: To apply research to own designs and prototypes
Year 6	Take a Seat Focus Designer: Robin and Lucienne Day	Hats (Tents) off to You Focus Designer: Hilleberg	Great British Menu Focus Designer: Angela Hartnett
	LO: To understand what an upholstered padded seat is what it's historical origins and purpose and how they are made. LO: To explore/research and Identify suitable materials for seat making. LO: To take part in a range of research techniques, including identifying materials, pattern making and tools needed. LO: To apply knowledge gained from research into textile print designer Lucienne day and Chair designer Robin Day and apply this to their own design ideas. LO: To research logos and then design a simple logo that can be applied to the seat design by printing. (optional). LO: To create a range of drawn designs/patterns using correct tools and measurements. LO: To make a final padded seat cushion based on the design criteria and research. Include a range of printed, appliquéd or embellished pattern detail and joining techniques. LO: To show an understanding of how to safely use equipment (e.g. needles and scissors).	LO: To define the structure and use of a tent over time. LO: To identify suitable processes, materials, structures and patterns for tent making. LO: To apply knowledge gained from research into structures in prior years and research/information and apply this to their own design ideas. LO: To design and create prototypes. LO: To use design plan to create a tent. LO: To evaluate final product against design criteria and audience feedback LO: To show an understanding of how to safely use equipment.	LO: To understand what a menu is and its origins. LO: To understand produce, seasonality, rearing animals and growing. LO: To understand a healthy and balanced menu. LO: To research food and how it is processed. LO: To understand tastes, flavour and how it makes an enjoyable dish. LO: To review their dish against their own specification.

	By the end of EYFS, children should be able to…	By the end of KS1, children should be able to…	By the end of KS2, children should be able to…
Cooking and Nutrition	Know the importance for good health of a healthy diet.	Explain that food has to be farmed, grown elsewhere (e.g. home) or caught. Know that everyone should eat at least five portions of fruit and vegetables every day. Name and sort foods into the five groups. Prepare simple dishes safely and hygienically, without using a heat source. Use techniques such as cutting, peeling and grating. Explain that food ingredients should be combined according to their sensory characteristics.	Explain 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. Explain that a healthy diet is made up from a variety and balance of different foods and drinks. Explain that to be active and healthy, food is needed to provide energy for the body. Explain that seasons may affect the food available and give examples. 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. Adapt recipes to change the appearance, taste, texture and aroma. Explain that different foods contain different substances - nutrients, water and fibre - that are needed for health.