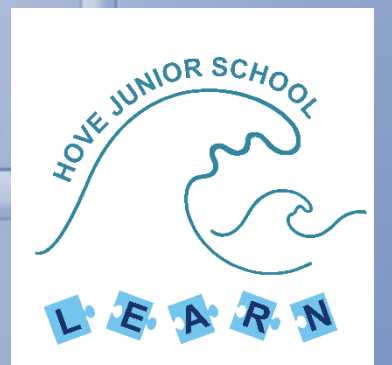


Design & Technology Progression Ladder

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INFANT SCHOOL
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	Year R (Creating with Materials, Being Imaginative & Expressive)		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6		
	Nursery	Reception								
Design	By the end of Reception: Through a variety of creative and practical activities, pupils should be taught how to express their ideas and feelings.		By the end of Year 2: Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing. They should work in a range of relevant contexts. Children design purposeful, functional, appealing products for themselves and other users based on design criteria. They generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.		By the end of Year 6: Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing. They should work in a range of relevant contexts. Children 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. They generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.					
	Explore different materials freely. Develop his/her own ideas and decide which materials to use to express them. Return to and build on his/her previous learning, refining ideas and developing his/her ability to represent them. Explore, use and refine a variety of artistic effects to express their ideas and feelings. (ELG)		Understand and follow simple design criteria.		Develop and follow simple design criteria.		Develop and follow simple design criteria.			
			Use their knowledge of existing products and their own experience to help generate their ideas.		Use their knowledge of a broad range of existing products to help generate their ideas.		Use their knowledge of a broad range of existing products to help generate their ideas.			
			Design products that have a purpose and are aimed at an intended user.		Design innovative and appealing products that have a clear purpose and are aimed at a specific user.		Design products that have a clear purpose and indicate the design features of their products that will appeal to the intended user.			
					Identify the design features of their products that will appeal to intended customers.		Use research to inform and develop detailed design criteria to inform the design of innovative, functional and appealing products that are fit for purpose and aimed at a target market.			
			Plan and test ideas using templates and mock-ups. <i>(Y1: moving dragons, windmills, puppets)</i> <i>(Y2: moon buggies, superheroes, sunglasses case)</i>		When designing, explore different initial ideas before coming up with a final design.		Generate a range of design ideas and clearly communicate final designs.			
					Test ideas out through using prototypes. <i>(Y3: pop-up books, Roman temples)</i> <i>(Y4: flag poles)</i>		Test ideas out through using prototypes. <i>(Y5: fairground rides, money containers)</i> <i>(Y6: Anderson shelters)</i>			
			Explain how their products will look and work through talking and simple annotated drawings.		Explain how particular parts of their products work.		Explain how particular parts of their products work.			
					Use annotated sketches and cross-sectional drawings to develop and communicate their ideas.		Use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas.			
					When planning, start to explain their choice of materials and components including function and aesthetics.		Consider the availability and costings of resources when planning out designs. <i>(Y6: apple pie ingredients)</i>			
							Use computer-aided design to develop and communicate their ideas. <i>(Y5: Mayan buildings)</i>			
			Work in a range of relevant contexts, for example imaginary, story-based, home, school and the wider environment.		Work in a broader range of relevant contexts, for example entertainment, the home, school, leisure, food industry and the wider environment.		Work in a broad range of relevant contexts, for example conservation, the home, school, leisure, culture, enterprise, industry and the wider environment.			
Vocabulary	idea, design, materials, use		idea, design, plan, materials, product, purpose, use, function, test		design brief, design criteria, innovative, functional, appealing, purpose, user, annotated, prototype, aesthetic qualities					

Make	By the end of Reception: Through a variety of creative and practical activities, pupils should be taught how to safely use and explore a variety of materials, tools and techniques.	By the end of Year 2: Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of making. Children select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. They select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.	By the end of Year 6: Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of making. Children select from and use a wider range of tools and equipment to perform practical tasks, accurately. They 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.	
	Begin to create, exploring shape and texture with modelling materials. Begin to manipulate materials to achieve a planned effect. Explore a variety of techniques. Practice using small tools, including scissors and paint brushes. With support from adults, develop proficiency, control and confidence. Measure using non-standard units of measurement. (ELG)		Place the main stages of making in a systematic order.	Independently plan by suggesting what to do next.
				Create step-by-step plans as a guide to making.
		Begin to select from a range of hand tools and equipment.	With growing confidence, carefully select from a range of tools and equipment, explaining their choices.	With growing confidence, select from a wide range of tools and equipment, explaining their choices.
			Learn to use a range of tools and equipment safely and appropriately. <i>(Y4: flag poles – saws)</i>	Learn to use a range of tools and equipment safely and appropriately.
		Select from a range of materials, textiles and components according to their characteristics.	Select from a range of materials and components according to their functional properties and aesthetic qualities.	Select from a range of materials and components according to their functional properties and aesthetic qualities.
		Use a range of materials and components.	Use a wider range of materials and components, including construction materials and kits, textiles and mechanical and electrical components.	Use a full range of materials and components, including construction materials and kits, textiles, and mechanical components.
		With help, measure and mark out.	With growing independence, measure and mark out to the nearest cm and millimetre.	Independently take exact measurements and mark out, to within 1 millimetre.
		Cut, shape and score materials with some accuracy.	Cut, shape and score materials with some degree of accuracy.	Cut a range of materials with precision and accuracy.
				Shape and score materials with precision and accuracy.
		Assemble, join and combine materials or components.	Assemble, join and combine material and components with some degree of accuracy.	Assemble, join and combine materials and components with accuracy.
		Demonstrate how to cut, shape and join fabric to make a simple product. <i>(Y1: puppets)</i> <i>(Y2: sunglasses case)</i>	Demonstrate how to measure, cut, shape and join fabric with some accuracy to make a simple product. <i>(Y4: flag poles)</i>	Demonstrate how to measure, make a seam allowance, tape, pin, cut, shape and join fabric with precision to make a more complex product. <i>(Y5: money containers)</i> <i>(Y6: T-Shirt bags)</i>
		Manipulate fabrics in simple ways to create the desired effect. <i>(Y1: puppets)</i> <i>(Y2: sunglasses case)</i>		
		Use a basic running stitch. <i>(Y1: puppets)</i> <i>(Y2: sunglasses case)</i>	Join textiles with an appropriate sewing technique. <i>(Y4: flag poles)</i>	Join textiles using a greater variety of stitches, such as backstitch, whip stitch, blanket stitch. <i>(Y5: money containers)</i> <i>(Y6: T-Shirt bags)</i>
		Begin to use simple finishing techniques to improve the appearance of their product, such as adding simple decorations.	Begin to select and use different and appropriate finishing techniques to improve the appearance of a product such as hemming, tie-dye, fabric paints and digital graphics.	Refine the finish of a product, using techniques to improve the appearance, such as sanding or a more precise scissor cut after roughly cutting out a shape.
Vocabulary	make, cut, rip, tear, join, measure	cut, shape, join, finish, measure, score, materials, characteristics, embellish	cut, shape, join, finish, measure, score, materials, assemble, adhesives, template, pattern, tacking	cut, shape, join, finish, measure, score, materials, template, pattern, pinking shears, fastening, mock up, seam allowance, aesthetics, wadding, reinforce

Evaluate	By the end of Reception: Through a variety of creative and practical activities, pupils should be taught to explore things in their immediate environment and share their finished creations.	By the end of Year 2: Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. Children explore and evaluate a range of existing products. They evaluate their ideas and products against design criteria.	By the end of Year 6: Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. Children investigate and analyse a range of existing products. They evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. They understand how key events and individuals in design and technology have helped shape the world.	
	Explore and describe things in their immediate environment using knowledge from observation. Talk about the differences between materials and changes they notice. Return to and build on their previous learning, refining ideas. Share their finished creations, explaining the process they have used. (ELG)	Explore and evaluate existing products mainly through discussions, comparisons and simple written evaluations.	Explore and evaluate existing products, explaining the purpose of the product and whether it is designed well to meet the intended purpose.	Complete detailed competitor analysis of other products on the market.
		Explore what materials products are made from.	Explore what materials/ingredients products are made from and suggest reasons for this.	Critically evaluate the quality of design, manufacture and fitness for purpose of products as they design and make.
		Explain positives and things to improve for existing products.	Evaluate the key events, including technological developments, and designs of individuals in design and technology that have helped shape the world.	Evaluate the key events, including technological developments, and designs of individuals in design and technology that have helped shape the world.
		Talk about their design ideas and what they are making.	Talk about their design ideas and what they are making.	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.	Consider their design criteria as they make progress and are willing to alter their plans, sometimes considering the views of others if this helps them to improve their product.	Consider their design criteria as they make progress and are willing to alter their plans, sometimes considering the views of others if this helps them to improve their product.
		Evaluate their products and ideas against their simple design criteria.	Evaluate their product against their original design criteria.	Evaluate their ideas and products against the original design criteria, making changes as needed.
		Start to understand that designing and making sometimes involves repeating different stages of the process.	Start to understand that designing and making sometimes involves repeating different stages of the process.	Start to understand that designing and making sometimes involves repeating different stages of the process.
Vocabulary	Ideas, feelings, changes, like and dislike	design criteria, discuss, assess, change, improve, modify	design brief, design criteria, function, purpose, user, discuss, assess, change, improve, modify	
Technical Knowledge	By the end of Reception: Children understand more about our technologically diverse world.	By the end of Year 2: Children build structures, exploring how they can be made stronger, stiffer and more stable. They explore and use mechanisms in their products.	By the end of Year 6: Children apply their understanding of how to strengthen, stiffen and reinforce more complex structures. They understand and use mechanical systems in their products. They understand and use electrical systems in their products. They apply their understanding of computing to program, monitor and control their products.	
	Through listening to a broad selection of stories, understand our technologically diverse world. Talk about the differences between materials and changes they notice. (ELG)	Talk about and start to understand the simple working characteristics of materials and components.	Understand that materials have both functional properties and aesthetic qualities.	Understand that materials have both functional properties and aesthetic qualities.
		Explore and create products using mechanisms, such as levers, sliders and wheels. <i>(Y1: moving dragons, windmills – sliders))</i> <i>(Y2: moon buggies – wheels, superhero card - levers)</i>	Use mechanical systems in their products.	Use mechanical systems in their products.
			Explain how mechanical systems, such as levers, linkages and pulleys, create movement. <i>(Y3: pop-up books – levers and linkages)</i> <i>(Y4: flag poles – pulleys)</i>	Explain how mechanical systems, such as cams, create movement. <i>(Y5: fairground rides)</i>
			Understand and demonstrate how mechanical and electrical systems have an input and output process. <i>(Y3: pop-up books – levers and linkages)</i> <i>(Y4: flag poles, light up signs)</i>	
		Build simple structures, exploring how they can be made stronger, stiffer and more stable. <i>(Y1: castles)</i>	Apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products. <i>(Y3: Roman temples)</i>	Apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products. <i>(Y6: Anderson Shelters)</i>

				Make and represent simple electrical circuits, such as a series and parallel, and components to create functional products. <i>(Y4: light up signs)</i>		
					Apply their understanding of computing to program, monitor and control a product. <i>(Y5: Mayan buildings)</i>	
Vocabulary	Textures, materials, changes	Stronger, stiffer, more stable, levers, sliders, wheels, axles	Construction: strengthen, stability, frame structure Mechanics: mechanism, mechanical system, pulley, lever, linkage, loose pivot, fixed pivot, slot, guide or bridge Computing: circuit, parallel circuit, system, output devices, input devices, conductor, insulator	Construction: shell structure, reinforce, triangulation, compression, strut, tension Mechanics: mechanism, mechanical system, gear, axle, drive belt, driver, follower, mesh, spindle, cam, spacer, rotary motion, oscillating motion, reciprocating motion Computing: CAD, CAM, working drawing, modify, template, pattern, shell structure, net, cuboid, prism, edge, face, vertex, scale, lettering, graphics, font		
Cooking & Nutrition	By the end of Reception: Children will learn how to look after their bodies, including healthy eating.	By the end of Year 2: Children use the basic principles of a healthy and varied diet to prepare dishes. They understand where food comes from.	By the end of Year 6: Children understand and apply the principles of a healthy and varied diet. They prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. They understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.			
	Through adult modelling and guidance, learn how to look after their bodies, including healthy eating. Sort and discuss which food would go into ‘sometimes’ and ‘every day’ categories. Know and talk about the different factors that support their overall health and wellbeing. With adult support, make various dishes and be able to suggest where ingredients have been sourced from. (ELG)	Explain where in the world different foods originate from. <i>(Y1: sandwich)</i>	Start to know when, where and how food is grown (such as herbs, tomatoes and strawberries) in the UK, Europe and the wider world. <i>(Y4: Roman banquet)</i>	Start to know when, where and how food is grown (such as herbs, tomatoes and strawberries) in the UK, Europe and the wider world.		
			Start to understand seasonality. <i>(Y3: oatcakes)</i>	Understand about seasonality, how this may affect the food availability and plan recipes according to seasonality. <i>(Y6: apple pie)</i>		
		Understand that all food comes from plants or animals. <i>(Y1: sandwich)</i>	Understand that all food comes from plants or animals. <i>(Y3: oatcakes)</i>	Understand that all food comes from plants or animals.		
		Understand that food has to be farmed, grown elsewhere (e.g. home) or caught. <i>(Y1: sandwich)</i>	Understand that food has to be farmed, grown elsewhere (e.g. home) or caught. <i>(Y3: oatcakes)</i>	Know, explain and give examples of food that is grown (such as pears, wheat and potatoes), reared (such as poultry and cattle) and caught (such as fish) in the UK, Europe and the wider world.		
				Understand that food is processed into ingredients that can be eaten or used in cooking. <i>(Y6: apple pie)</i>		
		Name and sort foods into the five groups in the Eat well Guide. <i>(Y2: pizza)</i>	Explain that a healthy diet is made up of a variety and balance of different food and drink, as represented in the Eat well Guide and be able to apply these principles when planning and cooking dishes. <i>(Y4: Roman banquet)</i>	Explain that a healthy diet is made up of a variety and balance of different food and drink, as represented in the Eat well Guide and be able to apply these principles when planning and cooking dishes.		
		Use what they know about the Eatwell Guide to design and prepare dishes. <i>(Y2: pizza)</i>				
		Understand that everyone should eat at least five portions of fruit and vegetables every day and start to explain why. <i>(Y1: fruit salad)</i>	Understand that to be active and healthy, nutritious food and drink are needed to provide energy for the body. <i>(Y4: Roman banquet)</i>	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.		
	With support, follow a simple plan or recipe.	Start to independently follow a recipe.	Independently follow a recipe.			

				Adapt and refine recipes by adding or substituting one or more ingredients to change the appearance, taste, texture and aroma. <i>(Y6: apple pie)</i>
		Learn to follow hygiene procedures.	Understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically.	Demonstrate how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source.
		Learn to use hand tools and kitchen equipment safely and appropriately.		
		Cut, peel and grate ingredients, including measuring and weighing ingredients using measuring cups.	Measure and weigh ingredients to the nearest gram and millilitre.	Measure accurately and calculate ratios of ingredients to scale up or down from a recipe.
			Prepare ingredients using appropriate cooking utensils.	Prepare ingredients using appropriate cooking utensils.
				Alter methods, cooking times and/or temperatures.
			Use a range of techniques such as mashing, whisking, crushing, grating, cutting, kneading and baking. <i>(Y3: oatcakes)</i> <i>(Y4: baking bread)</i>	Use a range of techniques such as mashing, whisking, crushing, grating, cutting, kneading and baking.
				Demonstrate how to use a range of cooking techniques, such as griddling, grilling, frying and boiling.
			With support, use a heat source to cook ingredients showing awareness of the need to control the temperature of the hob and/or oven.	With support, use a heat source to cook ingredients, showing awareness of the need to control the temperature of the hob and/or oven.
Vocabulary	sometimes, every day, healthy, ingredients <i>(Mindfulness with language surrounding food will be a constant focus. We aim to ensure that discussions are supportive of children having a healthy relationship with food. We will NOT use terms such as ‘healthy’ and ‘unhealthy’ to classify foods)</i>	hygiene, originate, farmed, grown, plants, animals, food groups	hygienic, edible, healthy, balanced diet, nutritious, seasonality, savoury, taste, texture	hygienic, nutrients, nutrition, seasonality, reared, processed, allergy, intolerance, substitute, dairy, gluten, aroma