

Design and Technology Knowledge and Skills Progression

(Statements taken from DATA framework documents for EYFS and Primary 2020 -21)

	Design and Technology Progression of Learning						
	Reception (ELG) 30-50 months	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Key events and individuals	OVERVIEW: Children design and make products for a purpose and user using a variety of materials and engage in imaginative role-play where they create and use indoor and outdoor environments based n the designed and made world. Being imaginative – To create simple representations of events, people and objects. To choose particular colours to use for a purpose. Being imaginative – To use what they have learnt about media and materials in original ways, thinking about uses and purposes.			Across KS2 pupils should learn about: Inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products. (Dyson, Brunel, Gates, Heston Blumenthal – choose people that will interest your class).			
DESIGNING Design Understanding contexts, users and purposes.		Across KS1 pupils should: - Work confidently within a range of contexts, such as imaginary, story-based, home, schools, gardens, local community, industry and the wider environment. - State what products they are designing and making. - Say whether their products are for themselves or other users. - Describe what their products are for. - Say how they will work. - Say how they will make their products suitable for their intended users. - Use simple design criteria to help develop their ideas.		Across KS2 pupils should: - Work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment. - Describe the purpose of their products. - Indicate the design features of their products that will appeal to intended users. - Explain how particular parts of their products work.			
Assessment Criteria		By the end of Year 2 most children should: Use simple design criteria; state what their products are, who and what they are for and how they will work.		By the end of Year 4 most children should: Gather information about user needs; develop their own design criteria; describe the user, purpose and design features of their products and explain how they will work.		By the end of Year 6 most children should: Carry out research; develop a simple design specification; describe the user, purpose and design features of their products and explain how they will work.	
MAKING Planning	Exploring and using media and materials- To construct with a purpose in mind, using a variety of resources. To use simple tools and techniques competently and appropriately. To select appropriate resources to adapt their work where necessary. To select tools	Across KS1 pupils should: - Plan by suggesting what to do next. - Select from a range of tools and equipment, explaining their choices. - Select from a range of materials and components according to their characteristics.		Across KS2 pupils should: - Select tools and equipment suitable for the task. - Explain their choice of tools and equipment in relation to the skills and techniques they will be using. - Select materials and components suitable for the task. - Explain their choice of materials and components according to functional properties and aesthetic qualities.			

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	and techniques needed to shape, assemble and join materials they are using. Moving and Handling – To use simple tools to effect changes in materials. To handle tools, objects, construction and malleable materials safely and with increasing control. Health and Self-Care – Show the understanding of the need for safety when tackling new challenges and consider and manage some risks. Show understanding of how to transport and store equipment safely. To practice appropriate safety measure without direct supervision. Moving and Handling – To handle equipment and tools effectively, including pencils for writing. Expressive Arts and Design Exploring and using media and materials – To safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.		In LKS2 pupils should also: Order the main stages of making.	In UKS2 pupils should also: - Produce appropriate lists of tools, equipment and materials that they need. - Formulate step-by-step plans as a guide to making
Assessment Criteria		By the end of Year 2 most children should: Plan by suggesting what to do next; select from a range of tools, equipment, materials and components.	By the end of Year 4 most children should: Order the main stages of making; select suitable tools, equipment, materials and components and explain their choice.	By the end of Year 6 most children should: Formulate lists of resources and step-by-step plans; select suitable tools, equipment, materials and components and explain their choices.
Practical skills and techniques.		Across KS1 pupils should: - 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. - Use finishing techniques, including those from art and design.	Across KS2 pupils should: - Follow procedures for safety and hygiene. - Use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components.	
			In early KS2 pupils should also: - Measure, mark out, cut and shape materials and components with some accuracy. - Assemble, join and combine materials and components with some accuracy. - Apply a range of finishing techniques, including those from art and design, with some accuracy.	In late KS2 pupils should also: - Accurately measure, mark out, cut and shape materials and components. - Accurately assemble, join and combine materials and components. - Accurately apply a range of finishing techniques, including those from art and design. - Use techniques that involve a number of steps. - Demonstrate resourcefulness when tackling practical problems.
Assessment Criteria	Opportunities to create products that have to work in some way in order to be successful.	By the end of Year 2 most children should: Follow procedures for safety and hygiene; measure, mark out, cut, shape, assemble, join, combine and finish a range of materials and components.	By the end of Year 4 most children should: Follow procedures for safety and hygiene; use a wider range of materials and components; measure, mark out, cut, shape, assemble, join, combine and finish with some accuracy.	By the end of Year 6 most children should: Follow procedures for safety and hygiene; use a wider range of materials and components; measure, mark out, cut, shape, assemble, join, combine and finish with accuracy.

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<u>EVALUATING</u> Own ideas and products.	Think about the appearance, finish and texture of the product. Use senses to explore and evaluate characteristics of products.	Across KS1 pupils should: - Talk about their design ideas and what they are making. - Make simple judgements about their products and ideas against design criteria. - Suggest how their products could be improved.	Across KS2 pupils should: - Identify the strengths and areas for development in their ideas and products. - Consider the views of others, including intended users, to improve their work.	
			In LKS2 pupils should also: - Refer to their design criteria as they design and make. - Use their design criteria to evaluate their completed products.	In UKS2 pupils should also: - Critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make. - Evaluate their ideas and products against their original design specification.
Assessment Criteria		<u>By the end of Year 2 most children should:</u> Make simple judgements about their products and ideas against design criteria.	<u>By the end of Year 4 most children should:</u> Evaluate their ideas and products against their design criteria.	<u>By the end of Year 6 most children should:</u> Identify strengths and areas to develop in their ideas and products against their design specification; consider the views of others to make improvements.

<u>TECHNICAL KNOWLEDGE</u> Making products work.	That products can have a function and have to work in some way to be successful (wall strong enough for humpty dumpty to sit on)	Across KS1 pupils should know: - About the simple working characteristics of materials and components. - The correct vocabulary for the projects they are undertaking.		Across KS2 pupils should know: - How to use learning from science to help design and make products that work. - How to use learning from mathematics to help design and make products that work. - That materials have both functional properties and aesthetic qualities. - That materials can be combined and mixed to create more useful characteristics. - That mechanical and electrical systems have an input, process and output. - The correct technical vocabulary for the projects they are undertaking.			
Mechanism	Play and explore construction kits with moving parts such as wheels, levers and hinges. Play and explore a range of large and small construction kits that use different forms of joining. How can they stop structures falling over and make them stronger.	Movements of simple mechanisms such as levers, sliders and pivots. <i>Year 1 – sliders. pivots, levers</i>	Using pop mechanisms: v-fold and internal stand mechanisms. <i>Year 2 – pop-up card</i>	How mechanical systems such as levers and linkages create movement. How to make strong, stuff shell structures. <i>Year 3 – levers and linkages – geographical model</i>	How pneumatics are used to create movement, linked to a pivot. <i>Year 4 – pneumatics – making an animal with an opening mouth</i>	How pulleys reduce load in a lifting mechanism. <i>Year 5 – Pulleys. Linked to Shadufs.</i>	How cams affect the movement with a mechanism. How to reinforce and strengthen a 3D framework. <i>Year 6 – Cams. Make a model of a cold environment using cams.</i>
Textiles	Use senses to explore and evaluate materials, fabrics and components.	Understanding that there are a range of different joining techniques (sewing, sticking, stapling) <i>Year 1 – make a wall hanging</i>	Understand that some joining techniques are stronger than others. 3D textiles can be assembled from two identical fabric shapes. Running stitch	Understand that a 3D product can be made from a single fabric piece. Understand how to fill a 3D product and the important of stitching thoroughly.	Understand that a 3D product can be made from a single fabric piece. Understand that different stitches are used for strength or aesthetic effect.	Understand what a seam is and why seams are on the inside. Apply textile skills to producing an aesthetically appealing toy with character.	Produce accurate template for elements of their tablecloth square. Apply sewing/stitching techniques to context – applique.

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			Year 2 – Make a book bag	Over stitch Year 3 – Make a Christmas tree decoration	Choose an appropriate stitch. Correctly ordering stages in making. Making product inside out. Year 4 – Make a puppet.	Year 5 – sock toy	Year 6 – worship tablecloth
Assessment Criteria		By the end of Year 2 most children should: Know about the simple working characteristics of materials and components, the movement of simple mechanisms, how free-standing structures can be made stronger, stiffer, more stable; use the correct technical vocabulary.	By the end of Year 4 most children should: Know that materials have functional and aesthetic qualities; that systems have an input, process and output; how to programme a computer to control their products; how to make strong, stiff shell structures; use the correct technical vocabulary.		By the end of Year 6 most children should: Know that materials have functional and aesthetic qualities; that systems have an input, process and output; how to programme a computer to control and monitor their products; how to reinforce and strengthen a framework; use the correct vocabulary.		
<u>COOKING AND NUTRITION</u> Technical Knowledge	To explore and evaluate food using senses.	Across KS1 pupils should know: That food ingredients could be classified according to their sensory characteristics (e.g. dry and wet ingredients).	Across LKS2 pupils should know: That food ingredients can be fresh, precooked and processed.		Across UKS2 pupils should know: That a recipe can be adapted by adding or substituting one or more ingredients.		
Where food comes from.	They make observations of animals and plants and explain why some things occur, and talk about changes.	Across KS1 pupils should know: • That all food comes from plants or animals. • That food has to be farmed, grown elsewhere (e.g. home) or caught.	Across KS2 pupils should know: • That food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world.		Across UKS2 pupils should know: • That seasons may affect the food available. • How food is processed into ingredients that can be eaten or used in cooking.		
			By the end of Year 2 most children should: Know that food comes from plants or animals and that it is farmed or caught.	By the end of Year 4 most children should: Know that food grown, reared and caught in the UK, Europe and wider world.	By the end of Year 6 most children should: Know that food is grown, reared and caught in the UK, Europe and the wider world; that seasons may affect the food available; how food is processed into ingredients.		

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Food preparation, cooking and nutrition.	Know the importance for good health of physical exercise and a healthy diet.	Across KS1 pupils should know: • How to name and sort foods into the five groups in The eat-well plate. • That everyone should eat at least five portions of fruit and vegetables every day. • How to prepare simple dishes safely and hygienically, without using a heat source. • How to use techniques such as cutting, peeling and grating.	Across KS2 pupils should know: • How to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source. • How to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.	
		By the end of Year 2 most children should: Know how to prepare simple dishes safely and hygienically without a heat source, name and sort foods into groups; know that everyone should eat at least five portions of fruit and vegetables a day.	Across LKS2 pupils should know: • That a healthy diet is made up from a variety and balance of different food and drink, as depicted in the eat-well plate. • That to be active and healthy, food and drink are needed to provide energy for the body.	Across UKS2 pupils should know: • That recipes can be adapted to change the appearance, taste, texture and aroma. • That different food and drink contain different substances – nutrients, water and fibre – that are needed for health.
Assessment Criteria			By the end of Year 4 most children should: Know how to prepare a variety of dishes safely and hygienically; that a healthy diet is made from a variety and balance of different food and drink; that food and drink are needed to provide energy for the body.	By the end of Year 6 most children should: Know how to prepare and cook a variety of dishes safely and hygienically using, where appropriate, a heat source; that different food and drink contain nutrients, water and fibre that are needed for health.