Design & Technology Progression - Knowledge, Understanding & Skills
Reception & Key Stage 1

End of the EYFS Expectations	During the Early Years Foundation Stage, the essential building blocks of children's design and technology capability are established. There are many opportunities for carrying out D&T-related activities in all areas of learning in the EYFS. Specifically, 'Designing and Making' is identified as a strand within Knowledge and Understanding of the World. By the end of the EYFS, most children should be able to: •Construct with a purpose in mind, using a variety of resources •Use simple tools and techniques competently and appropriately •Build and construct with a wide range of objects, selecting appropriate resources and adapting their work when necessary •Select the tools and techniques they need to shape, assemble and join materials they are using
End of Key Stage Expectations Subject Content	KS1: 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. They should work in a range of relevant contexts, for example the home and school, gardens and playgrounds, the local community, industry and the wider environment. When designing and making, pupils will be taught to: Design ▪ design purposeful, functional, appealing products for themselves and other users based on design criteria. ▪ generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology. Make ▪ select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. ▪ select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. Evaluate ▪ explore and evaluate a range of existing products. ▪ evaluate their ideas and products against design criteria. Technical knowledge ▪ build structures, exploring how they can be made stronger, stiffer and more stable. ▪ explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. Cooking and nutrition ▪ use the basic principles of a healthy and varied diet to prepare dishes. ▪ understand where food comes from

	As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life. .	
	Year 1	Year 2
Background Research Exploring context and existing products	▪ Understand what a product is and who it is for ▪ Understand how a product works and how it is used ▪ Identify where you might find this product	▪ Understand what a product is and who it is for ▪ Understand how a product works and how it is used ▪ Identify where you might find this product ▪ Identify the materials used to make the product ▪ Express an opinion about the product
Design Criteria Understanding their intended users and their own product	▪ Explain what product they will be designing and making ▪ Explain who their product will be used by ▪ Describe what their product will be used for	▪ *Use own experiences and existing products to develop ideas* ▪ Explain what product they will be designing and making ▪ Explain who their product will be used by ▪ Describe what their product will be used for *and how it will work* ▪ *Explain why their product is suitable for the intended user*
Planning Communicating ideas and creating prototypes for product	▪ Discuss what their steps for making could be ▪ Represent ideas through talking and drawing	▪ Discuss what their steps for making could be ▪ Represent ideas through talking, drawing and *computing – (where appropriate)* ▪ *Choose materials to use based on suitability of their properties* ▪ *Create templates/pattern pieces and explore materials whilst developing ideas*
Making Selecting the tools and applying the practical skills and techniques	Across KS1: Use materials - construction materials and kits, textiles, food and mechanical components ▪ Choose suitable tools for making ▪ Follow safety and food hygiene procedures ▪ Measure, mark, cut and shape materials and components ▪ Join, assemble and combine materials and components	Across KS1: Use materials -construction materials and kits, textiles, food and mechanical components ▪ Choose suitable tools for making whilst explaining why they should be used ▪ Follow safety and food hygiene procedures ▪ Measure, mark, cut and shape materials and components ▪ Join, assemble and combine materials and components ▪ *Use finishing techniques, including skills learnt in Art*
Evaluation Referring to planning and initial ideas in evaluating their product	▪ Talk about their design ideas and what they have made ▪ Make simple judgements of how the product met their design ideas	▪ Talk about their design ideas and what they have made ▪ Make simple judgements of how the product met their design ideas ▪ *Suggest how their product could be improve*

Technical Knowledge **Making products work**	Across KS1 pupils should know: ▪ about the simple working characteristics of materials and components ▪ about the movement of simple mechanisms such as levers, sliders, wheels and axles ▪ how freestanding structures can be made stronger, stiffer and more stable ▪ that a 3-D textiles product can be assembled from two identical fabric shapes ▪ that food ingredients should be combined according to their sensory characteristics ▪ the correct technical vocabulary for the projects they are undertakin
Teaching cooking and nutrition **Understanding food and food preparation**	Across KS1: ▪ Understand that food comes from plants or animals ▪ Understand that food has to be farmed, caught, or grown
Teaching cooking and nutrition **Food preparation, cooking and nutrition**	Across KS1: ▪ Sort foods into the 5 groups using The Eatwell Plate ▪ Identify that people should eat at least 5 portions of fruit and vegetables a day ▪ Prepare simple dishes hygienically and safely without a heat source ▪ Use cooking techniques such as: cutting, peeling and grating

Design Technology Progression - Knowledge Understanding & Skills
Key Stage 2

KS2 End of Key Stage Expectations Subject Content	Key stage 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. They should work in a range of relevant contexts, for example, the home, school, leisure, culture, enterprise, industry and the wider environment. When designing and making, pupils will be taught to: Design ▪ 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. ▪ generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. Make ▪ select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. ▪ 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. Evaluate ▪ investigate and analyse a range of existing products. ▪ evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. ▪ understand how key events and individuals in design and technology have helped shape the world. Technical knowledge ▪ apply their understanding of how to strengthen, stiffen and reinforce more complex structures. ▪ understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]. ▪ understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]. ▪ apply their understanding of computing to program, monitor and control their products. Cooking and nutrition ▪ understand and apply the principles of a healthy and varied diet ▪ prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. ▪ understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed

	Year 3	Year 4	Year 5	Year 6
Background Research **Exploring context and existing products**	▪ Identify who made the product, when it was made and what its purpose is ▪ Identify what the product has been made from ▪ Evaluate the product on design and use ▪ Brain Builders: Research facts about famous inventors/ chefs / designers etc linked to product	▪ Identify who made the product, when it was made and what its purpose is ▪ Identify what the product has been made from ▪ Evaluate the product on design and use ▪ Brain Builders: Research facts about famous inventors/ chefs / designers etc linked to product	▪ Identify who made the product, when it was made and what its purpose is ▪ Identify what the product has been made from and how ***environmentally friendly the materials are*** ▪ Evaluate the product on design, appearance and use ▪ ***Identify the cost to make the product*** ▪ Brain Builders: Research facts about famous inventors/ chefs / designers etc linked to product	▪ Identify who made the product, when it was made and what its purpose is ▪ Identify what the product has been made from and how environmentally friendly the materials are ▪ Evaluate the product on design, appearance and use ▪ Identify the cost to make the product ***and whether it has any other purposes eg. Leading innovation of the time, trend setting*** ▪ Brain Builders: Research facts about famous inventors/ chefs / designers etc linked to product
Design Criteria **Understanding their intended users and their own product**	Brain Builders: ▪ Understand and gather information about what a particular group or people want from a product ▪ Describe the purpose of their product and how it will work ▪ Identify design features that will appeal to intended users ▪ Explain how parts of their product works ▪ Generate realistic ideas that meet needs of user	Brain Builders: ▪ Understand and gather information about what a particular group or people want from a product ▪ Describe the purpose of their product ▪ Identify design features that will appeal to intended users ▪ Explain how parts of their product works ▪ ***Develop their own design criteria and use for planning ideas*** ▪ Generate realistic ideas that meet needs of user ***and take into account availability of resource***	Brain Builders: ▪ Understand and gather information about what a particular group or people want from a product, ***using questionnaires, surveys etc*** ▪ Describe the purpose of their product ▪ Identify design features that will appeal to intended users ▪ Explain how parts of their product will work ▪ Develop their own design criteria and use for planning ideas ▪ Generate ***innovative ideas*** that meet needs of user and take into account availability of resources	Brain Builders: ▪ Understand and gather information about what a particular group or people want from a product, using questionnaires, surveys etc ▪ Describe the purpose of their product ▪ Identify design features that will appeal to intended users ▪ Explain how parts of their product will work ▪ ***Create a design description for their product*** ▪ ***Highlight the impact of time, resources and cost within their design ideas*** ▪ Generate innovative ideas that meet needs of user

Planning **Communicating ideas and creating prototypes for product**	▪ Share and discuss ideas with others ▪ Order the main stages of making ▪ Choose materials to use based on suitability of their properties ▪ Represent ideas in diagrams, annotated sketches and computer based programmes (where appropriate) ▪ Create pattern pieces and prototypes	▪ Share and discuss ideas with others ▪ Order the main stages of making ▪ Choose materials to use based on suitability of their properties ▪ Represent ideas in diagrams, annotated sketches and computer based programmes (where appropriate) ▪ Create pattern pieces and prototypes	▪ Share and discuss ideas with others ▪ ***Record a step by step plan for making*** ▪ ***Produce lists for the tools, equipment and materials they will be using*** ▪ Choose materials to use based on suitability of their properties ***and aesthetic qualities*** ▪ Represent ideas in diagrams, annotated sketches and computer based programmes (where appropriate) ▪ Create pattern pieces and prototypes	▪ Share and discuss ideas with others ▪ Record a step by step plan for making ▪ Produce lists for the tools, equipment and materials they will be using ▪ Choose materials to use based on suitability of their properties and aesthetic qualities ▪ Represent ideas in diagrams, annotated sketches and computer based programmes (where appropriate) ▪ Create pattern pieces and prototypes
Making **Selecting the tools and applying the practical skills and techniques**	Across KS2: Use materials - construction materials and kits, textiles, food, mechanical and electrical components ▪ Choose suitable tools for making whilst explaining why they should be used Use design criteria whilst making ▪ Follow safety and food hygiene procedures ▪ Measure, mark, cut and shape materials and components with some accuracy ▪ Join, assemble and combine materials and components with some accuracy ▪ Use finishing techniques, including skills learnt in Art with some accuracy	Across KS2: Use materials - construction materials and kits, textiles, food, mechanical and electrical components ▪ Choose suitable tools for making whilst explaining why they should be used Use design criteria whilst making ▪ Follow safety and food hygiene procedures ▪ Measure, mark, cut and shape materials and components with some accuracy ▪ Join, assemble and combine materials and components with some accuracy ▪ Use finishing techniques, including skills learnt in Art with some accuracy	Across KS2: Use materials - construction materials and kits, textiles, food, mechanical and electrical components ▪ Choose suitable tools for making whilst explaining why they should be used Use design criteria whilst making ▪ Follow safety and food hygiene procedures ▪ Measure, mark, cut and shape materials and components accurately ▪ Join, assemble and combine materials and components accurately ▪ ***Demonstrate problem solving skills when encountering a mistake or practical problem*** ▪ Use finishing techniques, including skills learnt in ***Art accurately***	Across KS2: Use materials- construction materials and kits, textiles, food, mechanical and electrical components ▪ Choose suitable tools for making whilst explaining why they should be used Use design criteria whilst making ▪ Follow safety and food hygiene procedures ▪ Measure, mark, cut and shape materials and components accurately ▪ Join, assemble and combine materials and components accurately ▪ Demonstrate problem solving skills when encountering a mistake or practical problem ▪ Use finishing techniques ***that involve a number of steps,*** including skills learnt in Art accurately

Evaluation **Referring to planning and initial ideas in evaluating their product**	▪ Use design criteria to evaluate product – identifying both strengths and areas for development ▪ Consider the views of others, including intended user, whilst evaluating product	▪ Use design criteria to evaluate product – identifying both strengths and areas for development ▪ Consider the views of others, including intended user, whilst evaluating product	▪ Use design criteria to evaluate product – identifying both strengths and areas for development ▪ Consider the views of others, including intended user, whilst evaluating product	▪ Use design criteria to evaluate product – ***looking at quality of end product and design and whether it is fit for its intended purpose*** ▪ Consider the views of others, including intended user, whilst evaluating product
Technical Knowledge **Making products work**	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 In early KS2 pupils should also know: ▪ how mechanical systems such as levers and linkages or pneumatic systems create movement • how simple electrical circuits and components can be used to create functional products ▪ how to program a computer to control their products ▪ how to make strong, stiff shell structures ▪ that a single fabric shape can be used to make a 3D textiles product ▪ that food ingredients can be fresh, pre-cooked and processed In late KS2 pupils should also know: ▪ how mechanical systems such as cams or pulleys or gears create movement ▪ how more complex electrical circuits and components can be used to create functional products ▪ how to program a computer to monitor changes in the environment and control their products ▪ how to reinforce and strengthen a 3D framework ▪ that a 3D textiles product can be made from a combination of fabric shapes ▪ that a recipe can be adapted by adding or substituting one or more ingredient			
Teaching cooking and nutrition **Understanding food and food preparation**	Lower KS2: ▪ Understand which foods are reared, caught, or grown and that this happens in the UK and across the globe ▪ Understand that recipes can be changed by adding or taking away ingredients ▪ Understand that the seasons can affect food produce		Upper KS2: ▪ Understand which foods are reared, caught, or grown and that this happens in the UK and across the globe ▪ Understand that the seasons can affect food produce ▪ ***Understand that sometimes raw ingredients need to be processed before they can be used in cooking (eg. De-feathering a chicken)*** ▪ ***Understand that recipes can be adapted to change the appearance, taste and aroma of a dish***	

Teaching cooking and nutrition **Food preparation, cooking and nutrition**	Lower KS2: ▪ Sort foods into the 5 groups using The Eatwell Plate and identify that this makes up a healthy diet ▪ Identify that food and drink are needed to provide energy for a healthy and active lifestyle ▪ Identify that people should eat at least 5 portions of fruit and vegetables a day ▪ Prepare simple dishes hygienically and safely, where needed with a heat source ▪ Use cooking techniques such as: chopping, peeling, grating slicing, mixing, spreading, kneading and baking	Upper KS2: ▪ Sort foods into the 5 groups using The Eatwell Plate and identify that this makes up a healthy diet ▪ Identify that food and drink ***provide certain nutritional and health benefits*** which support a healthy lifestyle ▪ Identify that people should eat at least 5 portions of fruit and vegetables a day ▪ Prepare simple dishes hygienically and safely, where needed with a heat source ▪ Use cooking techniques such as: chopping, peeling, grating slicing, mixing, spreading, kneading and baking