Progression Map for Design and Technology

Purpose of study

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Aims

The national curriculum for design and technology aims to ensure that all pupils:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook.

DESIGN AND TECHNOLOGY							
		Designing	**Making**	**Evaluating**	**Technical Knowledge**	**Cooking and Nutrition**	**Breadth of Study**
EYFS	N	**Choose the right resources to carry out their own plan. For example, choosing a spade to enlarge a small hole they dug with a trowel. (DM PD)** **Collaborate with others to manage large items, such as moving a long plank safely, carrying large hollow blocks. (DM PD)**	**Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc (DM MA)** **Join different materials and explore different textures. (DM EAD)**		**Collaborate with others to manage large items, such as moving a long plank safely, carrying large hollow blocks. (PD DM)** **Combine shapes to make new ones - an arch, a bigger triangle etc. MA**	**Scoop** **Spread** **Use knife to cut and fork to spear fruit**	**Construction** **Cooking and nutrition**

		Develop their own ideas and then decide which materials to use to express them. EAD	**Use one-handed tools and equipment, for example, making snips in paper with scissors. (DM PD)** **Explore different materials freely, in order to develop their ideas about how to use them and what to make. EAD**				
	R	Connect one idea or action to another using a range of connectives. (DM CL 5)	**Create collaboratively sharing ideas, resources and skills. (DM EAD REC3)** **Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; (ELG EAD 16a)** **Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Suggested tools: pencils for drawing and writing, paintbrushes, scissors, knives, forks and spoons. (DM PD R4)**	**Ask questions to find out more and to check they understand what has been said to them.** **(DM CL 5)** **Return to and build on their previous learning, refining ideas and developing their ability to represent them. (DM EAD REC2)** **· Share their creations, explaining the process they have used; (ELG EAD 16b)**	**Learn new vocabulary (DM CL 2)**	**Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. (ELG4b)** **Know and talk about the different factors that support their overall health and wellbeing:** **- regular physical activity** **- healthy eating (DM PD R6)**	**Construction** **Cooking and nutrition**
KS1	Y1	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,	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,	Explore and evaluate a range of existing products Evaluate their ideas and products against design criteria	Build structures, exploring how they can be made stronger, stiffer and more stable **Textiles** • **Can they describe how**	Use the basic principles of a healthy and varied diet to prepare dishes Understand where food comes from. **Cooking and nutrition**	**Cooking and nutrition** **Structures**

		where appropriate, information and communication technology • Can they think of some ideas of their own? • Can they explain what they want to do? • Can they use pictures and words to plan?	textiles and ingredients, according to their characteristics • Can they explain what they are making? Which tools are they using?	• Can they describe how something works? • Can they talk about their own work and things that other people have done?	different textiles feel? • Can they make a product from textile by gluing? Construction • Can they talk with others about how they want to construct their product? • Can they select appropriate resources and tools for their building projects? Can they make simple plans before making objects, e.g. drawings, arranging pieces of construction before building?	• Can they cut food safely? • Can they describe the texture of foods? • Do they wash their hands and make sure that surfaces are clean? • Can they think of interesting ways of decorating food they have made, e.g, cakes?	Textiles
	Y2	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 -Think of ideas and plan what to do next? -Choose the best tools and materials -Give a reason why these are best -Describe their design by using pictures, diagrams, models and words?	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 Join things (materials/ components) together in different ways	Explore and evaluate a range of existing products Evaluate their ideas and products against design criteria What went well with their work? If they did it again, what would they want to improve?	Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. Mechanisms Can they join materials together as part of a moving product? Can they add some kind of design to their product? Use of materials • Can they measure materials to use	Use the basic principles of a healthy and varied diet to prepare dishes Understand where food comes from. Cooking and nutrition Can they describe the properties of the ingredients they are using? Can they explain what it means to be hygienic? Are they hygienic in the kitchen?	Mechanisms Cooking and nutrition Use of Materials

					in a model or structure? • Can they join material in different ways? • Can they use joining, folding or rolling to make materials stronger?		
LKS2	Y3	Can they show that their design meets a range of requirements? Can they put together a step-by-step plan which shows the order and also what equipment and tools they need? Can they describe their design using an accurately labelled sketch and words? How realistic is their plan? Generate, develop, model and communicate their ideas through discussion and annotated sketches.	Can they use equipment and tools accurately?	What did they change which made their design even better? Investigate and analyse a range of existing products.	Can they choose the appropriate material to meet the needs of the product? Can they choose textiles both for their appearance and also qualities? Do they select the most appropriate tools and techniques ouse for a given task?	Health awareness – continuous throughout KS2 know that a variety of food is needed in the diet because different foods provide different substances required for our health, namely nutrients (carbohydrate, protein, fat, vitamins and minerals), water and fibre. (SCIENCE LINK) -be aware that advertising can influence what they choose to eat. Food preparation skills - follow a simple recipe under guidance carrying out instructions with independence. - to use two spoon sizes to transfer ingredients into	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

						different sized containers building accuracy (eg mixture into baking case) - use a cutter considering placement to enable maximum amount produced. - cut medium resistance foods with a veg knife using a fork or grip to secure. - snip suitable foods (eg herbs, spring onions) into even pieces	- 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 -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. National curriculum (KS2)
	Y4	Can they come up with at least one idea about how to create their product? Do they take account of the ideas of others when designing? Can they produce a plan and explain it to others? Can they suggest some improvements and say what was good and not so good about their original design? Generate, develop, model and communicate their ideas	Can they tell if their finished product is going to be good quality? Are they conscience of the need to produce something that will be liked by others? Can they show a good level of expertise when using a range of tools and equipment?	Have they thought of how they will check if their design is successful? Can they begin to explain how they can improve their original design? Can they evaluate their product, thinking of both appearance and the way it works? Evaluate their ideas and products	Do they think what the user would want when choosing textiles? Have they thought about how to make their product strong? How have they attempted to make their product strong?	-recognise that different factors affect food preferences eg. Religious belief, ethical belief, culture as well as taste. Food preparation skills - follow a simple recipe modifying to personal taste - to transfer ingredients into different sized containers with increased accuracy	

		through cross sectional and exploded diagrams.		against their own design criteria and consider the views of others to help improve their work.		and minimum wastage (spoon/ pour). - Use a cutter with increased efficiency to make good use of material and avoid waste. - cut medium resistance foods with a veg knife using a bridge hold (or partially prepared food eg ½ tomato to quarters) - snip suitable foods (eg herbs, spring onions) with greater dexterity and control	
UKS2	Y5	Can they come up with a range of ideas after they have collected information? Do they take a user's view into account when designing? Can they produce a detailed step-by-step plan? Can they suggest some alternative plans and say what the good points and drawbacks are about each? Generate, develop, model and communicate their ideas through prototypes.	Can they explain why their finished product is going to be of good quality? Can they explain how their product will appeal to the audience? Can they use a range of tools and equipment expertly?	Do they keep checking that their design is the best it can be? Do they check whether anything could be improved? Can they evaluate appearance and function against the original criteria? Understand how key events in design technology have helped shape the world.	Do they think what the user would want when choosing materials? How have they made their product attractive and strong? Can they incorporate hydraulics and pneumatics? How have they ensured that their product is strong and fit for purpose?	- explore the factors involved in food and drink choice and how this may be influenced by availability, need, where the food is produced, culture, religion, allergy/intolerance and peer-pressure. Food preparation skills -modify a recipe due to a range of criteria (eg meat free) - to gauge quantities transferred into containers to ensure equal amounts in each. - cut higher resistance foods with a veg knife	Food Material Hydraulics and pneumatics

						- use bridge hold to cut from whole. - use a swivel peeler under supervision	
	Y6	Can they use a range of information to inform their design? Can they use market research to inform plans? Can they work within constraints? Can they follow and refine their plan if necessary? Can they justify their plan to someone else? Do they consider culture and society in their designs? Generate, develop, model and communicate their ideas through pattern pieces and computer aided design.	Can they use tools and materials precisely? Do they change the way they are working if needed?	How well do they test and evaluate their final product? Is it fit for purpose? What would improve it? Would different resources have improved their product? Would they need more or different information to make it even better? Understand how key individuals in design and technology have helped shape the world.	Have they thought about how their product could be sold? Can they justify why they selected specific materials? Can they hide joints so as to improve the look of their product?	… explore the factors involved in food and drink choice and how this may be influenced by availability, season, need, cost, minimal packaging, where the food is produced, culture, religion, allergy/intolerance and peer-pressure. Food preparation skills -Design a simple recipe with choice of modifications. - choose appropriate equipment to transfer ingredients, mix and combine ingredients. - use a swivel peeler to create food ribbons - choose appropriate tool/ technique for food preparation (snip, tear, cut ,peel, fold, stir, whisk).	