Design and Technology Knowledge and Skills Progression

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

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].

National Curriculum Area: Design	**Year 1** **Design purposeful products for themselves model and communicate their ideas through talking, drawing.**	**Year 2** **Design purposeful, functional, appealing products for 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**	**Year 3** **Use research and develop design criteria to inform the design of functional, appealing products that are fit for purpose.** **Generate, develop, model and communicate their ideas through discussion, annotated sketches.**
Skills Progression	Explore what a product actually is. Explore a relevant product and its purpose / function / audience / looks Create simple designs for a product with an identified purpose Use pictures and words to describe what will be needed to do and how it will work (+annotated photos) Explore simple program and control e.g. BeeBot	Compile a list of design criteria for an identified / specifies product – who, what / how, which materials Create a purposeful, functional and appealing design based on criteria Generate, develop, model and communicate their ideas through talking, drawing, using templates, mock-ups Communicate ideas through information and communication technology where appropriate (e.g. write a program for BeeBot)	Use research (e.g. exploring existing products, reading product descriptions) to gain knowledge of a product, its uses and audience Use this knowledge to form a design criteria Use design criteria when designing a functional and appealing product that will work Create designs using annotated sketches, cross-sectional diagrams, computer if appropriate

National Curriculum Area: Make	**Year 1** **Use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]** **Use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics**	**Year 2** **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**	**Year 3** **Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]** **Use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties**
Skills Progression	Use a range of simple tools and equipment to perform practical tasks eg to cut, join and combine materials and/or components Use a range of materials and components, including construction materials, textiles and ingredients, according to their characteristics	Select from and use a range of suitable tools and equipment to perform practical tasks eg cutting, shaping, joining and finishing with greater accuracy / care / control Select from and use a <u>wide</u> range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.	Make suitable choices from a wide range of tools and equipment to perform a practical task with developing accuracy and control Use a wider range of materials (not basic ones) and components to suit / dependant on their functional properties. Assemble and join these appropriately
National Curriculum Area: Evaluate	**Explore a range of existing products** **Evaluate their product**	**Explore and evaluate a range of existing products** **Evaluate their ideas and products against design criteria**	**Investigate a range of existing products** **Evaluate products against their own design criteria** **Understand how key individual / event in design and technology have helped shape the world**
Skills Progression	Handle, explore and talk about an existing product's features, functions, materials and qualities. Answer simple questions about existing products and those that he/she has made	Explore and evaluate a range of existing products. Communicate these clearly explaining their comments Evaluate and assess existing products and those that they have made using a design criterion – include strengths and areas that need improvement or development	Explore and answer simple questions about existing products Evaluate the product against their own design criteria Find out about how a relevant key individual / event in design and technology helped to shape the world. Begin to understand their impact / contributions.

National Curriculum Area: Technical knowledge	**Year 1** **Build structures, exploring how they can be made stronger, stiffer and more stable** **Explore and use mechanisms [for example, levers, sliders) in their products.**	**Year 2** **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.**	**Year 3** **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]** **Use electrical systems [for example, series circuits incorporating switches, bulbs, buzzers and motors]**
Skills Progression	Build structures, exploring how they can be made stronger, stiffer and more stable (e.g. construction, cardboard) Explore products that use mechanisms (e.g. toys with buttons, books with sliders) Begin to understand the movement of, and use, simple mechanisms such as levers, flaps and sliders in their products Use appropriate technical vocabulary for their project. Explore how to program and control e.g. Bee Bot	Begin to understand how freestanding structures can be made stronger, stiffer and more stable. Explore wheels and axles in sets and own model / component making Apply and use knowledge of the movement of simple mechanisms such as levers, sliders, wheels and axles in their products. Use the correct technical vocabulary for projects. Use age appropriate computer products to program and control. Use technical vocabulary to describe what they did / need to do	Explore and apply strengthening and reinforcing techniques in more complex structures Explore, make and begin to know how mechanical systems such as levers and linkages create movement. Begin to know that simple electrical circuits and components can be used to create functional products. Explore computing program and control software.

National Curriculum Area Cooking and Nutrition	**Year 1** **Use the basic principles of a healthy and varied diet to prepare dishes** **Understand where food comes from.**	**Year 2** **Use the basic principles of a healthy and varied diet to prepare dishes** **Understand where food comes from.**	**Year 3** **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.**
Skills and Progression	Talk about what they eat at home and begin to discuss what healthy foods are Say where some foods come from and give examples of food that is grown Use simple tools with help to prepare food safely	Understand the need for a variety of food in a healthy diet Understand that all food has to be farmed and grown or caught Use a wider range of cookery techniques to prepare food safely e.g. whisk, blend, grate	Talk about the different food groups and name food from each group Explore and research British seasonal fruit and vegetables Use a wider variety of ingredients and techniques to prepare and combine ingredients safely