Duckmanton Primary School – Design & Technology Progression of skills

This document outlines how we will cover all of the relevant Design & Technology knowledge and skills across our school.

	Designing		Making		Evaluating		Cooking and Nutrition		Technical Knowledge
Year Group	**Understanding contexts, users and purposes**	**Generating, developing, modelling and communicating ideas**	**Planning**	**Practical skills and techniques**	**Own ideas and products**	**Existing products**	**Where food comes from**	**Food preparation, cooking and nutrition**	**Making products work**
Early Years	•To create simple representations of events, people and objects. •To choose particular colours to use for a purpose.	•To understand that different media can be combined to create new effects. •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 and adapt work where necessary. • To develop their own narratives and explanations by connecting ideas.	• To use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.	• To use one-handed tools and equipment, e.g. makes snips in paper with child scissors. • To understand that equipment and tools have to be used safely. • To use simple tools to effect changes to materials. • To handle tools, objects, construction and malleable materials safely and with increasing control. •To explore what happens when they mix colours. •To experiment to create different textures. •To manipulate materials to achieve a planned effect.	• To express themselves effectively, showing awareness of listener's needs • To capture experiences and responses with a range of media, such as music, dance and paint and other materials or words. • Children can talk about the plans they have made to carry out activities and what they might change if they were to repeat them.	•To handle equipment and tools effectively, including pencils for writing. •To select tools and techniques needed to shape, assemble and join materials they are using. •To safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.	• To begin to understand that all food comes from plants or animals.	• To show understanding of the need for safety when tackling new challenges and consider and manage some risks. •To show understanding of how to transport and store equipment safely. • To practise some appropriate safety measures without direct supervision. • Eats a healthy range of foodstuffs and understands the need for variety in food. • To know the importance for a healthy diet. • To make healthy choices in relation to healthy eating.	•To show an interest in technological toys with knobs or pulleys, or real objects. •To show skill in making toys work by pressing parts or lifting flaps to achieve effects, such as sound, movements or new images.
Year 1	• To work confidently within a range of contexts, such as imaginary, storybased, home, school, gardens, playgrounds, local community, industry and the wider environment	• To generate ideas by drawing on their own experiences • To use knowledge of existing products to help come up with ideas • To develop and communicate ideas by talking and drawing	• To plan by suggesting what to do next • To select from a range of tools and equipment, explaining their choices • To select from a range of materials and components according to their characteristics	• To follow procedures for safety and hygiene • To use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components	• To talk about their design ideas and what they are making • To make simple judgements about their products and ideas against design criteria • To suggest how their products could be improved	• To explore what products are and who or what they are for. • To explore how products work and how or where they might be used. • To explore what materials products are made from	• To know that all food comes from plants or animals • To know that food has to be farmed, grown elsewhere (e.g. home) or caught	• To know how to name and sort foods into the five groups in The Eatwell Plate • To know that everyone should eat at least five portions of fruit and vegetables every day • To know how to prepare simple dishes	• To know about the simple working characteristics of materials and components • To know about the movement of simple mechanisms such as levers, sliders, wheels and axles • To know how freestanding structures can be made stronger, stiffer and more stable

Year 2	• To state what products they are making • To say whether their products are for themselves or other users • To describe what their products are for • To say how their products will work • To say how they will make their products suitable for their intended users • To use simple design criteria to help develop their ideas	• To model ideas by exploring materials, components and construction kits and by making templates and mockups • To use ICT, where appropriate, to develop and communicate their ideas		• To measure, mark out, cut and shape materials and components • To assemble, join and combine materials and components • To use finishing techniques, including those from art and design		• To explore what they like and dislike about products		safely and hygienically, without using a heat source • To know how to use techniques such as cutting, peeling and grating	• To know that a 3-D textiles product can be assembled from two identical fabric shape • To know that food ingredients should be combined according to their sensory characteristics • To know the correct technical vocabulary for the projects they `are undertaking
Year 3 **Year 4**	• To work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment • To describe the purpose of their products • To indicate the design features of their products that will appeal to intended users • To explain how particular parts of their products work • To gather information about needs and wants of particular individuals and groups • To develop their own design criteria and use these to inform their ideas	• To share and clarify ideas through discussion • To model their ideas using prototypes and pattern pieces • To use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • To use computer-aided design to develop and communicate their ideas • To generate realistic ideas, focusing on the needs of the user • To make design decisions that take account of the availability of resources	• To select tools and equipment suitable for the task • To explain their choice of tools and equipment in relation to the skills and techniques they will be using • To select materials and components suitable for the task • To explain their choice of materials and components according to functional properties and aesthetic qualities • To order the main stages of making	• To follow procedures for safety and hygiene • To use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components • To measure, mark out, cut and shape materials and components with some accuracy • To assemble, join and combine materials and components with some accuracy • To apply a range of finishing techniques, including those from art and design, with some accuracy	• To identify the strengths and areas for development in their ideas and products • To consider the views of others, including intended users, to improve their work • To refer to their design criteria as they design and make • To use their design criteria to evaluate their completed products • To know about inventors, designers, engineers, chefs and manufacturers who have	• To say how well products have been designed and made • To explain why materials have been chosen • To describe what methods of construction have been used • To analyse how well products work to achieve their purposes • To investigate how well products meet user needs and wants • To investigate who designed and made the products • To explore where and when products were designed and made • To analyse whether products can be recycled or reused	• To 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	• To know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source • To know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking • To know that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The Eatwell Plate • To know that to be active and healthy, food and drink are needed to provide energy for the body visual vocabulary.	• To understand how to use learning from science and maths to help design and make products that work • To know that materials have both functional properties and aesthetic qualities • To know that materials can be combined and mixed to create more useful characteristics • To know that mechanical and electrical systems have an input, process and output • To use the correct technical vocabulary for the projects they are undertaking • To know how mechanical systems such as levers and linkages or pneumatic systems create movement • To know how simple electrical circuits and components can be used to create functional products • To know how to program a computer to control their products • To know how to make strong, stiff shell structures • To know that a single fabric shape can be used to make a 3D textiles product
Year 5	• To work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment D2 describe the purpose of their products • To indicate the design features of their products that will appeal to intended users	• To share and clarify ideas through discussion • To model their ideas using prototypes and pattern pieces • To use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • To use computer-aided design to develop	• To select tools and equipment suitable for the task • To explain their choice of tools and equipment in relation to the skills and techniques they will be using • To select materials and components suitable for the task • To explain their choice of materials and components according to functional properties	• To follow procedures for safety and hygiene • To use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components • To accurately measure, mark out, cut and shape materials and components	• To identify the strengths and areas for development in their ideas and products • To consider the views of others, including intended users, to improve their work • To critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make	• To investigate how well products have been designed and made • To analyse why materials have been chosen • To analyse what methods of construction have been used • To analyse how well products work to achieve their purposes	• To 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 • To know that seasons may affect the food available • To know how food is processed into ingredients that can be	• To know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source • To know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking • To know that recipes can be adapted to	• To know how to use learning from science and maths to help design and make products that work • To know that materials have both functional properties and aesthetic qualities • To know that materials can be combined and mixed to create more useful characteristics • To know that mechanical and electrical systems have an input, process and output

Year 6	• To explain how particular parts of their products work • To carry out research, using surveys, interviews, questionnaires and web-based resources • To identify the needs, wants, preferences and values of particular individuals and groups • To develop a simple design specification to guide their thinking	and communicate their ideas • To generate realistic ideas, focusing on the needs of the user • To make design decisions that take account of the availability of resources	and aesthetic qualities • To produce appropriate lists of tools, equipment and materials that they need • To formulate step-by-step plans as a guide to making	• To accurately assemble, join and combine materials and components • To accurately apply a range of finishing techniques, including those from art and design • To use techniques that involve a number of steps • To demonstrate resourcefulness when tackling practical problems	• To evaluate their ideas and products against their original design specification • To know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products	• To investigate how well products meet user needs and wants • To analyse how much products cost to make • To analyse how innovative products are • To investigate how sustainable the materials in products are • To analyse what impact products have beyond their intended purpose	eaten or used in cooking	change the appearance, taste, texture and aroma • To know that different food and drink contain different substances – nutrients, water and fibre – that are needed for health	• To know the correct technical vocabulary for the projects they are undertaking • To know how mechanical systems such as cams or pulleys or gears create movement • To know how more complex electrical circuits and components can be used to create functional products • To know how to program a computer to monitor changes in the environment and control their products • To know how to reinforce and strengthen a 3D framework • To know that a 3D textiles product can be made from a combination of fabric shapes • To know that a recipe can be adapted by adding or substituting one or more ingredients