Melsonby Methodist Primary School

The Federation of North and South Cowton Community and Melsonby Methodist Primary Schools

North and South Cowton Community Primary School

Deign and Technology
Curriculum and Progression

National Curriculum 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.

Subject content

Key stage 1
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 should 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.

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 should 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
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.

Pupils should be taught to:

Key stage 1

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from.

Key stage 2

- 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
-

Intent:
At The Federation of North and South Cowton Community Primary School and Melsonby Methodist Primary School we aim to deliver an imaginative and practical Design and Technology curriculum to inspire pupils' creativity. We use the Mixed Age Kapow Scheme of work to support with the planning and delivery of this subject.

Pupils' research, design and make products that solve problems across a variety of real-life contexts, drawing upon their knowledge from other subject areas. We want to inspire pupils to explore the world around them, carefully considering problems and how technology and resources can be used creatively to develop solutions.

Aims:

- To research, critique and test the ideas of other designers.
- To design prototypes, products and solutions to a variety of real-world problems, carefully considering the design, functionality and audience needs.
- To develop and apply the creative, technical and practical skills needed to make a wide range of products.

- To evaluate their solutions, considering ways in which they could be further improved.
- To understand and apply the principles of nutrition and cooking to make a variety of dishes in order to prepare children for a healthy lifestyle now and later in life.

Children work creatively and practically to design purposeful, functional and appealing products to solve a problem, drawing upon the world around them and the ideas of other key designers. They are able to communicate their ideas in a variety of ways, including discussions, drawings, templates, prototypes, writing and technology.

They make informed decisions about the materials and tools that they use. Children are able to apply their knowledge, skills and understanding of a range of mechanisms, technology and design properties, in order to inform their decisions. Children explore and evaluate their own ideas and those of others, considering ways of improving the product. As part of Design & Technology, children learn the principles of nutrition and healthy eating, developing crucial life skills and a love for cooking.

Reception and Key Stage 1				
	Autumn	**Spring**	**Summer**	
Year A	**Textiles** Puppets Textiles: Puppets - Kapow Primary	**Structures** Constructing a Windmill KS1 Y1 Design & Technology Constructing Windmills- Kapow Primary	**Mechanisms** Making a moving story book Mechanisms: Making a moving story book - Kapow Primary	**Cooking and Nutrition** Making a Smoothie D&T Fruit and Vegetables KS1 Y1 - Kapow Primary
Year B	**Textiles** Making a Pouch Textiles: Pouches - Kapow Primary	**Structures** Baby Bears Chair Structures: Baby Bear's chair - Kapow Primary	**Mechanisms** Making a moving monster Mechanisms: Making a moving monster - Kapow Primary	**Cooking and Nutrition** Making a wrap Food: A balanced diet - Kapow Primary

KS2 (Year 3,4,5,6)				
	Autumn	**Spring**	**Summer**	
Year A	**Textiles** Cushions Textiles: Cushions - Kapow Primary	**Structures** Creating a castle D&T Structures: Constructing a castle KS2 - Kapow Primary	**Mechanical systems** Making pneumatic toys Mechanical Systems: Pneumatic toys - Kapow Primary	**Cooking and Nutrition** Eating seasonally Food: Eating seasonally - Kapow Primary
Year B	**Electrical systems** Electronic greeting card Electrical systems: Electronic greetings cards - Kapow Primary	**Structures** Bridges D&T KS2 Structure: Bridges - Kapow Primary	**Digital World** Monitoring devices KS2 Year 5: D&T: Digital World: Monitoring devices - Kapow Primary	**Cooking and Nutrition** Make their own meal Food: What could be healthier? - Kapow Primary
Year C	**Textiles** Pouches Textiles: Pouches - Kapow Primary	**Structures** Creating a pavilion Structure: Pavilions - Kapow Primary	**Mechanical systems** Making a sling shot car Mechanical systems: Making a slingshot car - Kapow Primary	**Cooking and Nutrition** Adapting a recipe Food: Adapting a recipe - Kapow Primary
Year D	**Electrical systems** Steady hand game Electrical systems: Steady hand game - Kapow Primary	**Structures** Playgrounds Structure: Playgrounds - Kapow Primary	**Digital World** Navigating the world KS2 Year 6: D&T: Digital World: Navigating the World - Kapow Primary	**Cooking and Nutrition** Come dine with me Food: Come dine with me - Kapow Primary

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
DESIGN	Talk about my ideas, describing key design elements.	Create a simple design for my product. Use pictures and words to describe what I want to do.	Design useful, pleasing products for myself and other users based on a design brief. Generate, develop, model and communicate my ideas through talking, drawing, templates, mock ups and ICT.	Use my knowledge of existing products to design my own functional product. Use my knowledge of existing products to design functional and appealing products for a particular purpose or audience. Create designs using annotated sketches, cross sectional diagrams and simple computer programmes. Create designs using exploded diagrams.		Use my research into existing products and market research to inform the design of my own innovative product. Use research I have done into different designers and inventors to inform my designs. Create prototypes to show my own ideas. Generate, develop, model and communicate my ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, patterned pieces and CAD.	
MAKE	Use a range of small tools with increasing control and accuracy. Explore ways to cut, join and combine materials and components safely.	Select from and use a range of tools and equipment to perform practical tasks. Use a range of simple tools to cut, join and combine materials and components safely. (such as paper clips, tape, different glues)	choose tools to use and select materials based on my knowledge of their properties Safely measure, mark out, cut and shape materials using a range of tools.	safely measure, mark out, cut, assemble and join with some accuracy use techniques which require more accuracy to cut, shape, join, and finish my work make suitable choices from a wide range of tools & unfamiliar materials & plan out the main stages of use use my knowledge of techniques and the functional and aesthetic qualities of wide range of materials to plan how to use them		make careful and precise measurements so that joins, holes and openings are in exactly the right place apply their knowledge of materials and techniques to refine and rework their product to improve its functional properties and aesthetic qualities produce step by step plans to guide their making, demonstrating that they can apply their knowledge of different materials, tools and techniques use their technical knowledge and accurate skills to problem solve during the making process	
EVALUATE	Talk about existing products and their own creations.	Make simple judgements about existing products and those that I have made. Suggest how a product could be improved.	Evaluate and assess existing products and those that I have made using a design criterion.	Investigate and analyse existing products and those I have made, considering a wide range of factors including who, where and when products were designed. Consider how existing products and my own existing products might be improved and how they meet the needs of the intended user.		Make detailed evaluations, including eco credentials, about existing products and my own considering the views of others to improve my work. Use my knowledge of famous designs to further explain the effectiveness of existing products and products that I have made.	

TECHNICAL KNOWLEDGE	Begin to build structures from a range of materials. Recognise that wheels need to turn. Explore the properties of different fabrics using all their senses.	build structures, exploring how they can be made stronger, stiffer and more stable explore and use mechanisms such as flaps and hinges and wheels & axels in kit form Explore, cut, join and make using different fabrics	investigate different techniques for stiffening materials & stabilising structures explore and use mechanisms such as levers, sliders, wheels and axels in products Understand how simple 3-D textile products are made, using a template to create two identical shapes.	Know how to make strong, stiff shell structures apply techniques I have learnt to strengthen structures and explore my own ideas understand how mechanical systems such as levers and linkages create movement understand and use electrical systems in my products Know that a single fabric shape can be used to make a 3D textiles product	build more complex 3D structures and apply my knowledge of strengthen techniques to make them stronger or more stable use a wide range of methods to strengthen, stiffen and reinforce complex structures and use them accurately and appropriately apply my understanding of computing to program, monitor and control my products understand how to use more complex mechanical and electrical systems understand how pulleys and gears create movement Know that a 3D textiles product can be made from a combination of fabric shapes
FOOD TECHNOLOGY & NUTRITION	Make links between health and food choices Know that food can be grown Use cutlery to prepare and eat food	Talk about what I eat at home and begin to discuss what healthy foods are Know the importance of '5 a day' portions of fruit and veg Say where food comes from and give examples of food that is grown. Use simple tools to help prepare food safely	Understand the need for a variety of food in a diet. Name and sort foods into the five groups of the 'eat well' plate. Understand that all food has to be farmed, grown or caught. Use a wider range of cookery techniques to prepare food safely.	understand that food has to be farmed, grown or caught in Europe and the wider world talk about the different food groups and name food from each group understand what makes a healthy and balanced diet, and that different foods and drinks provide different substances the body needs to be healthy and active understand seasonality and the advantages of eating seasonal and locally produced food use a wider variety of ingredients and techniques to prepare and combine ingredients safely read and follow recipes which involve several processes, skills and techniques	understand the main food groups and the different nutrients that are important for heath understand how a variety of ingredients are grown, reared, caught and processed to make them safe and palatable select appropriate ingredients and use a wide range of techniques to combine them use information on food labels to inform choice confidently plan a series of healthy meals based on the principles of a varied and healthy diet research, plan & prepare & cook a savoury dish, applying my knowledge of ingredients & my technical skills