







Design and Technology Long Term Plan

Journeying together with hope and aspiration

*At Parish, we value each person as they are, seeing every member of our school family as a precious, unique individual and treating them with **dignity**. Seeking first to understand through the building of relationships, we live in a **community** of **hope**. We aspire to enable each person to be a curious learner, inspired to develop the knowledge and **wisdom** to make the world a better place. We strive to encourage all to fulfil their God-given potential, having a confidence in transformation for the better.*

How does our vision impact Design and Technology at Parish?

Inspired by our Church school vision, we use our core four values to guide all aspects of our thinking and practice. Below is an explanation of how each of the core four impacts upon the teaching and learning of DT at Gainsborough Parish.

 <p>Dignity</p> <p>We ensure that all children of all abilities can access the teaching and learning of design and technology. We recognise the need for respecting each individual and responding to their needs, ideas and voice.</p>	 <p>Community</p> <p>We work together to meet a goal or design brief. We encourage each other by questioning and evaluating design. We celebrate the participation of each individual and value their contributions.</p>
 <p>Hope</p> <p>Our Design and Technology curriculum enables children to draw upon the skills through maths, science, computing and art. We hope to be innovators of the future and develop our resourcefulness and enterprising skills.</p>	 <p>Wisdom</p> <p>Our design and technology curriculum is an inspiring and practical subject where children use their creativity and imagination to design and make a variety of products that solve relevant problems within a variety of context.</p>

EYFS	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
<u>Characteristics of effective learning</u>	<p>Children will engage in their learning through the characteristics of effective teaching and learning. The three characteristics of effective teaching and learning are:</p> <ul style="list-style-type: none"> ● Playing and exploring – children investigate and experience things and have a go ● Active learning – children concentrate and keep on trying if they encounter difficulties and enjoy achievements ● Creating and thinking critically – children have and develop their own ideas, make links between their ideas and develop strategies for doing things 					
EYFS Statutory Educational Programmes: Expressive Arts and Design	<p>Expressive Arts and Design – statutory framework</p> <p>The development of children’s artistic and cultural awareness supports their imagination and creativity. It is important that children have regular opportunities to engage with the arts, enabling them to explore and play with a wide range of media and materials. The quality and variety of what children see, hear and participate in is crucial for developing their understanding, self-expression, vocabulary and ability to communicate through the arts. The frequency, repetition and depth of their experiences are fundamental to their progress in interpreting and appreciating what they hear, respond to and observe.</p>					
How might DT look within EYFS? Development Matters statements in bold (Examples of what this could look like)	<p>Explore, use and refine a variety of artistic effects to express their ideas and feelings. <i>(Teach children to develop their colour mixing techniques to enable them to match the colours they see and want to represent, with step-by-step guidance when appropriate.)</i></p> <p>Return to and build on their previous learning, refining ideas and developing their ability to represent them. <i>(Provide opportunities to work together to develop and realise creative ideas. Provide children with a range of materials for children to construct with. Encourage them to think about and discuss what they want to make. Discuss problems and how they might be solved as they arise. Reflect with children on how they have achieved their aims.)</i></p> <p>Create collaboratively sharing ideas, resources and skills <i>(Teach children different techniques for joining materials, such as how to use adhesive tape and different sorts of glue. Provide a range of materials and tools and teach children how to use them with care and precision. Promote independence, taking care not to introduce too many new things at once. Some skills that could be taught but not limited to colour mixing, pencil drawings, portraits, use of mixed media e.g. collage, scissor skills, different joins e.g. split pins, Sellotape, masking tape, PVA glue, staples, paper clips, treasury tags, hole punch. Evaluate and improve their designs, deciding which materials/joins etc are most appropriate, select and use materials safely and sensibly, provide opportunities for children to construct dens, building blocks, playdough, magnetic blocks, polydron, large construction e.g. tyres, guttering. Creating recipes in the mud kitchen using a variety of natural resources, use of moulding tools for playdough and clay. Children to be exposed to textiles and basic sewing, children to prepare simple recipes with food)</i></p>					
Vocabulary	<p>Vocabulary – enriching and widening (subject specific relating to overarching topics)</p> <p>Design Technology vocabulary children will be exposed to:</p>					

	Appearance, design, make, build, model, cut, join, shape, create, decorate, tools, ingredients, recipe, materials, purpose, texture, function, stable, durable, improve, safe, secure, develop, attach, thread, Key vocab concepts supported by Word Aware
End of year Expectations: (ELG)	ELG: Creating with Materials <i>Children at the expected level of development will:</i> - Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; - Share their creations, explaining the process they have used; - Make use of props and materials when role playing characters in narratives and stories.

Long Term Overview

All DT is taught through the DT association – Projects on a Page resources and pedagogy. For further information about progression in substantive and disciplinary knowledge, as well as vocabulary please see this documentation.

Year A	Y 1 and 2	Y 3 and 4	Y 5 and 6
Autumn term 2	Textiles – puppets <i>Projects on a page – Templates and joining</i>	Textiles – book marks/book cover <i>Projects on a page – 2D to 3D product</i>	Textiles – stuffed toys <i>Project on a page – combining different fabric shapes</i>
Spring term 4	Mechanisms – wheels and axles <i>Projects on a page – wheels and axles</i>	Electrical systems – circuits <i>Projects on a page – simple circuits and switches</i>	Electrical systems – automatic toy <i>Projects on a page – complex switches</i> <i>Projects on a page - cams</i>
Summer term 6	Cooking and nutrition – Smoothies <i>Projects on a page – preparing fruit and vegetables</i>	Cooking and nutrition – Eating seasonally <i>Projects on a page – healthy and varied diet</i>	Cooking and nutrition – developing a recipe <i>Projects on a page – celebrating culture and seasonality</i>

Year B	Y 1 and 2	Y 3 and 4	Y 5 and 6
Autumn term 2	Mechanisms – moving parts in a book	Mechanisms – levers and linkages <i>Projects on a page – pneumatics and linkages</i>	Textiles – Egyptian collars <i>Projects on a page – combining different fabric shapes</i>

	<i>Projects on a page – Sliders and levers</i>		
Spring term 4	Structures – windmills <i>Projects on a page – freestanding structures</i>	Structures – constructing a castle <i>Projects on a page – shell structure/CAD</i>	Structures/CAD design – Bridges <i>Projects on a page – frame structures/pulleys and gears</i>
Summer term 6	Cooking and nutrition – balanced diet <i>Projects on a page – preparing fruit and vegetables</i>	Cooking and nutrition – adapting a recipe <i>Projects on a page – healthy and varied diet</i>	Cooking and nutrition – come dine with me <i>Projects on a page – celebrating culture and seasonality</i>

Design Technology Curriculum Cycle A

KS1 Focus	Why this, why now?	Lower KS2 Focus	Why this, why now??	Upper KS2 Focus	Why this, why now?
Textiles – Puppets <i>Projects on a page – Templates and joining</i>	Building on from the EYFS strands, pupils learn fundamental textile skills such as cutting fabric accurately, using simple templates, and joining materials with glue or simple stitches. These foundational skills prepare pupils to work with more complex textiles in KS2 units Book cover and stuffed toys .	Textiles – Book marks <i>Projects on a page 2D to 3D product</i>	This builds from KS1 Puppets , as pupils now develop precision in cutting and joining fabric and are introduced to concepts like seam allowances and 2D to 3D design. This unit progresses their ability to plan and create functional textile products, preparing them for combining more complex shapes in UKS2 Stuffed Toys and Egyptian Collars . Book cover purpose linked to love of reading.	Textiles – Stuffed toys <i>Project on a page – combining different fabric shapes</i>	This builds on from Book Cover in LKS2 as pupils advance their textile skills by combining different fabric shapes, understanding accurate measuring, and securely joining materials using sewing techniques. This prepares pupils for designing and making textiles in KS3.
Mechanisms – Wheels and axles <i>Projects on a page – wheels and axles</i>	Building on from EYFS exploration of wheeled toys, pupils are introduced to key mechanical concepts, including how wheels and axles allow movement. They learn to design and construct simple mechanisms, developing their understanding of stability and alignment, which prepares them for Levers and linkages in LKS2.	<i>Electrical systems -</i> Circuits <i>Projects on a page – circuits and switches</i>	This builds on from LKS2 Science work on electrical circuits as pupils develop technical knowledge of electrical systems, including creating simple circuits with components such as bulbs, batteries, and switches. This unit teaches pupils to work safely with electrical components and lays the groundwork for more complex circuit design in UKS2 unit Automatic toy .	Electrical systems – Automatic toy <i>Projects on a page – complex switches</i> <i>Projects on a page - cams</i>	This builds on from LKS2 Circuits unit as pupils combine knowledge of circuits with mechanisms, applying complex switches and designing a product with an automated function. This unit advances their understanding of inputs, outputs, and control systems, preparing them for more advanced electronics and automation in secondary D&T.

<p>Cooking and nutrition – Smoothies <i>Projects on a page – preparing fruit and vegetables</i></p>	<p>Building on from the EYFS exploration of the world around them, pupils will gain skills in food preparation, such as safely using tools to chop, peel, and blend fruit. They begin to understand the importance of hygiene and develop basic knowledge of healthy eating, preparing them for KS2 units Eating seasonally and Adapting a recipe. End product could be linked to courageous advocacy – selling for charity.</p>	<p>Cooking and nutrition – Eating seasonally <i>Projects on a page – healthy and varied diet</i></p>	<p>This builds on from the KS1 unit Smoothies and Balanced Diet as pupils build on their food preparation skills by learning about seasonality and its impact on food choices. They develop an understanding of food sources, while improving their ability to follow recipes and use tools with increasing control. Linked to science and PSHE healthy diets. This prepares them for UKS2 work Developing a recipe and Come dine with me.</p>	<p>Cooking and nutrition – Developing a recipe <i>Projects on a page – celebrating culture and seasonality</i></p>	<p>This builds on from LKS2 learning Eating seasonally and Adapting a recipe as pupils refine their cooking skills by developing and adapting their own recipes. This unit focuses on accuracy, measuring ingredients, and understanding food functionality, building confidence in preparing more complex dishes in KS3 Food technology.</p>
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Design Technology Curriculum Cycle B

KS1 Focus	Why this, why now?	Lower KS2 Focus	Why this, why now??	Upper KS2 Focus	Why this, why now?
<p>Mechanisms – Moving parts in a book <i>Projects on a page – Sliders and levers</i></p>	<p>Building on from the EYFS exploration of how things move, pupils develop an understanding of sliders and levers, learning how to create simple moving parts in a product. This unit introduces precise cutting, folding, and joining skills, which are essential to prepare them for Levers and linkages in LKS2. Could be a Christmas card.</p>	<p>Mechanisms – Levers and linkages <i>Projects on a page – pneumatics and linkages</i></p>	<p>Pupils build on from KS1 learning Moving parts in a book by designing and creating linkages and levers that produce movement. They learn about pivots and fixed/loose joints, progressing their mechanical design skills in preparation for Bridges in UKS2.</p>	<p>Textiles – Egyptian collars <i>Projects on a page – combining different fabric shapes</i></p>	<p>This builds on from LKS2 Book cover unit as pupils further develop their textile skills by combining different fabric shapes and using decorative techniques such as embellishment and layering. This unit enhances precision, accuracy, and aesthetic design skills, preparing pupils for more complex textile projects as they move to KS3. Linked to History unit about Egyptians.</p>
<p>Structures – Windmills <i>Projects on a page – freestanding structures</i></p>	<p>Building on from the EYFS strands where children explore the world around them in different ways, pupils learn about stability and balance by creating freestanding structures. They develop skills in measuring, cutting, and joining materials with increasing accuracy, laying the groundwork for Constructing a castle in LKS2. Linked with English texts.</p>	<p>Structures – Constructing a castle <i>Projects on a page – shell structure/CAD</i></p>	<p>This builds on from KS1 learning in Windmills as pupils apply prior knowledge of freestanding structures to design and create a shell structure. They develop skills in measuring, scoring, and assembling materials, while being introduced to computer-aided design (CAD) as a tool for planning their structures. This prepares pupils for Bridges in UKS2.</p>	<p>Structures/CA D design – Bridges <i>Projects on a page – frame structures/pulleys and gears</i></p>	<p>This builds on from Levers and linkages in LKS2 as pupils advance their knowledge of structures by exploring frame structures and incorporating mechanical components like pulleys and gears. They use CAD software to refine their designs, preparing for engineering-based D&T tasks in secondary school.</p>
<p>Cooking and nutrition – Balanced diet</p>	<p>Building on from the EYFS where pupils explore food and learn about their own preferences, pupils build on their food</p>	<p>Cooking and nutrition –</p>	<p>This builds on from the KS1 unit Smoothies and Balanced Diet as pupils develop their ability to evaluate</p>	<p>Cooking and nutrition –</p>	<p>This builds on from LKS2 learning Eating seasonally and Adapting a recipe as pupils apply their knowledge of food</p>

<i>Projects on a page – preparing fruit and vegetables</i>	preparation skills, learning to handle and combine ingredients safely. They are introduced to the concept of a balanced diet and gain precision in measuring and preparing food. This prepares pupils for KS2 units Eating seasonally and Adapting a recipe . Could be used for a fruit salad or kebab.	Adapting a recipe <i>Projects on a page – healthy and varied diet</i>	and adapt recipes, improving their understanding of nutrition and food combinations. They refine measuring, cutting, and cooking skills, which prepares them for Developing a recipe and Come dine with me in UKS2.	Come dine with me <i>Projects on a page – celebrating culture and seasonality</i>	preparation, nutrition, and recipe adaptation to plan and prepare a complete meal. They develop advanced practical skills, including timing and presentation, ensuring readiness for further food technology challenges at secondary level.
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National curriculum in England

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.

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.

The progression grid outlines the specific knowledge which pupils are expected to learn in each phase, along with specific vocabulary to support this understanding.

Master Practical Skills

<p>At EYFS:</p>	<p>At Key Stage 1:</p> <ul style="list-style-type: none"> ✓ Cut, peel or grate ingredients safely and hygienically ✓ Measure or weigh using measuring cups or electronic scales <li style="padding-left: 20px;">Assemble or cook ingredients ✓ Cut materials safely using tools provided ✓ Measure and mark out to the nearest centimetre ✓ Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling) ✓ Demonstrate a range of joining techniques (such as gluing, using hinges or combining materials to strengthen) ✓ Shape textiles using templates ✓ Join textiles using running stitch ✓ Colour and decorate textiles using number of techniques (such as dyeing, adding sequins or printing) ✓ Diagnose faults in battery operated devices (such as low battery, water damage) ✓ Model designs using software ✓ Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products ✓ Create products using levers, wheels and winding mechanisms 	<p>At Lower Key Stage 2:</p> <ul style="list-style-type: none"> ✓ Prepare ingredients hygienically using appropriate utensils ✓ Measure ingredients to the nearest gram accurately ✓ Follow a recipe ✓ Assemble or cook ingredients ✓ Cut materials accurately and safely by selecting appropriate tools ✓ Measure and mark out to the nearest millimetre ✓ Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material ✓ Select appropriate joining techniques ✓ Understand the need for a seam allowance ✓ Join textiles with appropriate stitching ✓ Select most appropriate techniques to decorate textiles ✓ Create series and parallel circuits ✓ Control and monitor models using software designed for this purpose ✓ Choose suitable techniques to construct products or to repair items ✓ Strengthen materials using suitable techniques Use scientific knowledge of the transference forces to choose appropriate mechanisms for a product (e.g. levers) 	<p>At Upper Key Stage 2:</p> <ul style="list-style-type: none"> ✓ Understand the importance of correct storage and handling of ingredients ✓ Measure accurately and calculate ratios of ingredients to scale up or down from a recipe ✓ Demonstrate a range of baking and cooking techniques ✓ Create and refine recipes, including ingredients, methods, cooking times and temperatures ✓ Cut materials with precision and refine the finish with appropriate tools ✓ Show an understanding of the qualities of materials to choose appropriate tools to cut and shape ✓ Create objects that employ a seam allowance ✓ Join textiles with a combination of stitching techniques ✓ Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles ✓ Create circuits using electronic kits that employ a number of components ✓ Write code to control and monitor models or products ✓ Develop a range of practical skills to create products ✓ Convert rotary motion to linear using cams ✓ Use innovative combinations of electronics and mechanics in product design
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Design, Make, Evaluate and Improve

<p>At EYFS:</p>	<p>At Key Stage 1:</p> <ul style="list-style-type: none"> ✓ Design products that have a clear purpose and intended user ✓ Make products, refining the design as work progresses ✓ Use software to design 	<p>At Lower Key Stage 2:</p> <ul style="list-style-type: none"> ✓ Design with purpose by identifying opportunities to design ✓ Make products by working efficiently ✓ Refine work and techniques as work progresses, continually evaluating the product design ✓ Use software to design and represent product designs 	<p>At Upper Key Stage 2:</p> <ul style="list-style-type: none"> ✓ Design with the user in mind, motivated by the service a product will offer ✓ Make products through stages of prototypes, making continual refinements ✓ Ensure products have a high-quality finish, using art skills, where appropriate ✓ Use prototypes, cross-sectional diagrams and computer-aided designs to represent designs
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Take Inspiration from design throughout history

<p>At EYFS:</p>	<p>At Key Stage 1:</p> <ul style="list-style-type: none"> ✓ Explore objects and designs to identify likes and dislikes of the designs ✓ Suggest improvements to existing designs ✓ Explore how products have been created 	<p>At Lower Key Stage 2:</p> <ul style="list-style-type: none"> ✓ Identify some of the great designers in all of the areas of study to generate ideas for designs ✓ Improve upon existing designs, giving reasons for choices ✓ Disassemble products to understand how they work 	<p>At Upper Key Stage 2:</p> <ul style="list-style-type: none"> ✓ Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices ✓ Create innovative designs that improve upon existing designs ✓ Evaluate the design of products so as to suggest improvements to the user experience
	<p>Design, Designer, Materials, Tools, Brief, Product, Evaluate, Label, Technology, Problem-solving</p>	<p>Design, Technology, Product, Intended User, Annotated Sketch, Component, Design Criteria, Computer-Aided Design</p>	<p>Design, Technology, Product, Intended User, Design Criteria, Cross-Sectional Diagram, Exploded Diagram, Innovation</p>

DT – Milestone 1 (KS1)						
Learning Objective		Success Criteria	Basic (Y1)	Advancing (Y1/2)	Deep (Y2)	
To master practical skills	Food	Cut, peel or grate ingredients safely and hygienically.	With the support of a teacher, ingredients are prepared safely and hygienically.	There is a growing awareness of safety and hygiene procedures when preparing food.	There is a good understanding of the need to work safely and hygienically when preparing food.	
		Measure or weigh using measuring cups or electronic scales.	With the support of a teacher, weighing and measuring is accurate.	There is a growing ability to weigh and measure accurately.	There is a good understanding of how to weigh and measure accurately using a range of scales.	
	Materials	Cut materials safely using tools provided.	With the support of the teacher, materials are cut safely.	There is a growing ability to cut materials safely.	There is a good level of control of tools so that materials are cut safely.	
		Measure and mark out to the nearest centimetre.	When supported by a teacher, maths skills are sometimes used to help measure and mark to the nearest centimetre.	Maths skills are often used to help measure and mark to the nearest centimetre.	There is a good application of maths skills to help measure and mark to the nearest centimetre.	
		Demonstrate a range of cutting and shaping skills (such as tearing, cutting, folding and curling).	During structured activities, a range of cutting and shaping techniques are used.	There is a growing use of a range of cutting and shaping techniques.	There is a wide use of a range of cutting and shaping techniques.	
		During structured activities, a range of joining techniques are used.	During structured activities, a range of joining techniques are used.	There is a growing use of a range of joining techniques.	There is a wide use of a range of joining techniques.	
	Textiles	Shape textiles using templates.	With the support of a teacher, textiles are shaped using templates.	Templates are beginning to be created and used to shape textiles.	Templates are created to a good standard and used to shape textiles effectively.	
		Join textiles using a running stitch.	With the support of a teacher, textiles are shaped using templates.	A basic running stitch is used well to join textiles.	A controlled running stitch is used to securely join textiles.	
		Colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing).	With the support of a teacher, a number of decoration techniques are experienced.	A growing number of decoration techniques are used.	Effective decoration techniques are chosen and applied to good effect.	
	Electrical and electronics	Diagnose faults in battery-operated devices (such as low battery, water damage or battery terminal damage).	With the support of a teacher, a range of common faults are identified.	A growing range of faults are correctly identified.	A wide range of faults are identified, and possible solutions suggested.	
	Construction	Use materials to practise drilling, screwing, gluing and nailing materials to make products (such as wheeled vehicles).	With the support of a teacher, materials are combined to make products.	With growing independence, materials are combined to make products.	Good choices of materials and how to combine them are made when making a wide range of products.	
	Mechanics	Create products using levers and winding mechanisms.	With the support of a teacher, products using levers and winding mechanisms are made.	With growing independence, and a developing understanding of mechanisms, products using levers and winding mechanisms are made.	With a high level of independence and a good understanding of mechanisms, good-quality products using levers and mechanisms are made.	
	To design, make, evaluate and improve		Design products that have a clear purpose and an intended user.	When supported by a teacher, designs meet a purpose are created.	With growing independence, designs that have a clear purpose and intended user are created.	With a high level of independence and a good understanding that designs require a purpose and user, very good designs are created.

	Make products, refining and design as work progresses.	When encouraged by a teacher, designs are improved as the making process develops.	Generally, good-quality products are made by process of refinement during the making process.	High-quality products are made through a process of constant refinement throughout the making process.
To take inspiration from design throughout history	Explore objects and designs to identify likes and dislikes of the designs.	With structured activities, designs of others are evaluated to identify likes and dislikes.	With growing independence of design features, likes and dislikes of the designs of others are identified.	With a high level of independence and a good understanding of design features, likes and dislikes are identified, explained and justified with examples.
	Suggest improvements to existing designs.	When prompted, basic improvements to existing designs are suggested.	Suitable and appropriate improvements to existing designs are generally identified.	Thoughtful and well-reasoned improvements to existing designs are identified.

Learning Objective		Success Criteria	Basic (Y3)	Advancing (Y3/4)	Deep (Y4)
To master practical skills.	Food	Prepare ingredients hygienically using appropriate utensils.	When reminded, appropriate utensils are chosen to safely and hygienically prepare food.	Appropriate utensils are generally chosen to safely and hygienically prepare food.	Appropriate utensils are chosen to safely and hygienically prepare food, with clear explanations for the choices made.
		Measure ingredients to the nearest grain accurately.	With support from a teacher, accurate measurement, to the nearest gram, is experienced.	There is generally accurate measurement to the nearest gram.	There is accurate measurement to the nearest gram using a variety of scales.
	Materials	Cut materials accurately and safely by selecting appropriate tools.	When reminded, appropriate tools are chosen to safely cut materials.	Appropriate tools are generally chosen to safely cut materials.	Appropriate tools are chosen to safely cut materials, with clear explanations for the choices made.
		Measure and mark out to the nearest millimetre.	With support from a teacher, accurate measurement and marking, to the nearest millimetre, is experienced.	There is generally accurate measurement and marking to the nearest millimetre.	There is accurate measurement and marking to the nearest millimetre using a variety of scales.
		Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut-outs).	With support from a teacher, appropriate techniques are used to cut and shape material.	Appropriate techniques are generally chosen to cut and shape materials.	Appropriate techniques are chosen to cut and shape material, with clear explanations for the choices made.
		Select appropriate joining techniques.	When reminded, appropriate joining techniques are used.	Appropriate joining techniques are generally selected and used well.	Appropriate joining techniques are selected and used to good effect, with reasons for choices clearly explained.
To master practical skills.	Textiles.	Understand the need for a seam allowance.	When demonstrated by a teacher, and support provided, appropriate allowances are made when joining fabrics.	Generally, appropriate allowances for joining fabrics are used.	Accurate and well-planned allowances for joining fabrics are used.

		Join textiles with appropriate stitching.	When demonstrated by a teacher, appropriate stitching is attempted with some good effects.	Generally, stitching is appropriate to the product and effective.	Confident and carefully chosen stitching, suitable for the product's purpose, is well executed.
		Select the most appropriate techniques to decorate textiles.	When reminded, appropriate techniques are used to decorate textiles.	Generally, interesting and appropriate techniques are used to decorate textiles.	Excellent choices of appropriate techniques provide interesting and eye-catching textile decorations.
	Electricals and electronics	Create series and parallel circuits.	When reminded, knowledge of science is applied to create series and parallel circuits in products.	Generally, science knowledge is applied well to create series and parallel circuits in products.	Science knowledge is readily applied to good effect in creating series and parallel circuits in products.
	Construction	Chose suitable techniques to construct products or to repair items.	When reminded, knowledge of science is applied to creating mechanism products or repair items.	Suitable techniques are generally used to construct or repair items.	Suitable techniques are chosen and justified when constructing ore repairing items.
	Mechanics	Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears).	When reminded, knowledge of science is applied to creating mechanism products.	Generally, knowledge of science is applied to creating mechanism products.	Knowledge of science is readily applied when creating mechanism products.
To design, make, evaluate and improve		Design with purpose by identifying opportunities to design.	During structured activities, opportunities for designs are realised.	Generally, there is a good understanding of opportunities for design.	Excellent examples of suggestions for design and show an in-depth understanding of the need for design.
		Make products by working efficiently (such as carefully selecting materials).	When supported by a teacher, appropriate materials are selected.	Planning of workflows and careful selection of materials mean work is generally carried out sufficiently.	Very efficient workflows and well-reasoned choices of materials make work very efficient.
		Refine work and techniques as work progresses, continually evaluating the product design.	When encouraged, techniques are refined throughout a project to improve the design.	Generally, designs are evaluated and refined throughout a project.	Designs are continually evaluated and improved throughout a project, resulting in high-quality products.
To take inspiration from design throughout history.		Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs.	With support from a teacher, some of the most notable designers' work is examined to provide inspiration for ideas.	A growing knowledge of a range of notable designers is used to provide inspiration for designs.	An in-depth knowledge of some notable designers provides inspiration and ideas for design.
		Improve upon existing designs, giving reasons for choices.	With support from a teacher, existing designs are evaluated, and improvements made.	Generally, some opportunities for improving existing designs are made, giving reasons for choices.	Many good opportunities for developing existing designs are noticed and acted upon.

Learning Objective		Success Criteria	Basic (Y5)	Advancing (Y5/6)	Deep (Y6)
To master practical skills	Food	Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms).	There is some awareness of the principles and practises of safe food storage and handling.	Science knowledge is applied to the safe storage and handling of ingredients.	A thorough scientific understanding of micro-organisms is rigorously applied to the practices of storage and handling of ingredients.

		Measure accurately and calculate ratios of ingredients to scale up or down from a recipe.	When reminded, mathematical knowledge is applied to accurately calculate ratios of ingredients.	Mathematical knowledge is generally applied to calculate ratios of ingredients.	Knowledge of mathematics is readily applied to calculate ratios of ingredients.
		Demonstrate a range of baking and cooking techniques.	When guided, a range of baking and cooking techniques is demonstrated.	A developing range of baking and cooking techniques is demonstrated.	A good range of baking and cooking techniques is demonstrated.
		Create and refine recipes, including ingredients, methods, cooking times and temperatures.	With support from a teacher, a range of recipes are created.	A developing range of interesting recipes is created.	A wide repertoire of recipes with interesting combinations of ingredients is created.
	Materials	Cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape).	There are some good examples of precision cutting.	There are many good examples of precision cutting using a growing range of cutting implements.	There are widespread examples of precision cutting using a wide variety of cutting implements.
		Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (such as the nature of fabric may require sharper scissors than would be used to cut paper).	When reminded, the qualities of materials are considered when selecting tools.	The properties of materials are generally considered in choosing tools.	An in-depth understanding of the properties of materials is used to carefully select appropriate tools.
	To master practical skills	Textiles	Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration).	There are some good examples of effective joins.	There is a growing range of examples of effective joining techniques that show control and come precision.
Use the qualities of materials to create suitable visual and tactile effects in the decoration in textiles (such as a soft decoration for comfort on a cushion).			There are some good examples of art skills being used to provide decoration.	There are many good examples of art skills being applied to good effect to provide visual and tactile decoration.	Well-chosen art skills are used to create eye-catching decoration.
Electricals and electronics		Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistor and chips).	With support, and reminders of science knowledge, a range of circuits is created and used in products.	Science knowledge is generally applied to the design process to create products that employ a range of electronic components.	Science knowledge is readily applied to the design process, creating high-quality products that employ a broad range of electronic components.
Construction		Develop a range of practical skills to create products and repair items (such as cutting, drilling and screwing, nailing, gluing, filling and sanding).	With support, a range of practical skills are emerging to help create or repair products.	A growing range of practical skills are used effectively to make or repair products.	A wide range of practical skills are put to very effective use to make or repair a wide variety of products.
Mechanics		Convert rotary motion to linear using cams.	With support, cams are created.	A range of differently shaped cams are created.	Combinations of differently shaped cams are used to create interesting and useful movement.
		Use innovative combinations of electronics (or computing) and mechanics in product designs.	With support, combinations of design components are used in product designs.	There is some interesting experimentation with combinations of design components in product designs.	There are some innovative combinations of design components in product designs.

To design, make, evaluate and improve	Design with the user in mind, motivated by the service a product will offer (rather than simply for profit).	With guidance, products are designed with some reference to the user experience.	Generally, the user experience is used as a rationale for design choices.	The experience of the user drives the design process. There are many excellent examples and explanations of how choices improve the user experience.
	Make products through stages of prototypes, making continual refinements.	With support prototypes are made and later developed.	Generally, improvements are continual throughout the making process, with initial prototypes often changed radically through a number of refinements.	Initial prototypes and alternative designs are thoroughly explored and explained. Refinements are continually made throughout the making process.
	Ensure products have a high-quality finish, using art skills where appropriate.	When reminded, a high-quality finish is achieved by applying art skills.	Art skills are generally applied and, along with attention to detail, create a high-quality finish.	Impeccable attention to detail and the extremely effective application of art skills create a professional quality finish.
To take inspiration from design throughout history	Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices.	With support, elements of design from notable designers are incorporated into designs.	Generally, there are some well-reasoned choices for combining elements from a range of designers.	An in-depth knowledge of some designers' work is reflected in some striking designs. The rationale and background to the design ideas are explained thoughtfully.
	Create innovative designs that improve upon existing products.	There are some good examples of designs that improve upon existing products.	There is a growing range of examples of designs that improve upon existing products.	There are some notable examples of how the design of an existing product has been greatly improved.
	Evaluate the design of products so as to suggest improvement to the user experience.	When reminded, evaluations are carried out throughout and at the end of the design process.	Evaluations are generally ongoing and thorough. They relate to the user experience.	The user experience drives critical self-evaluation and helps to identify current and future improvements.