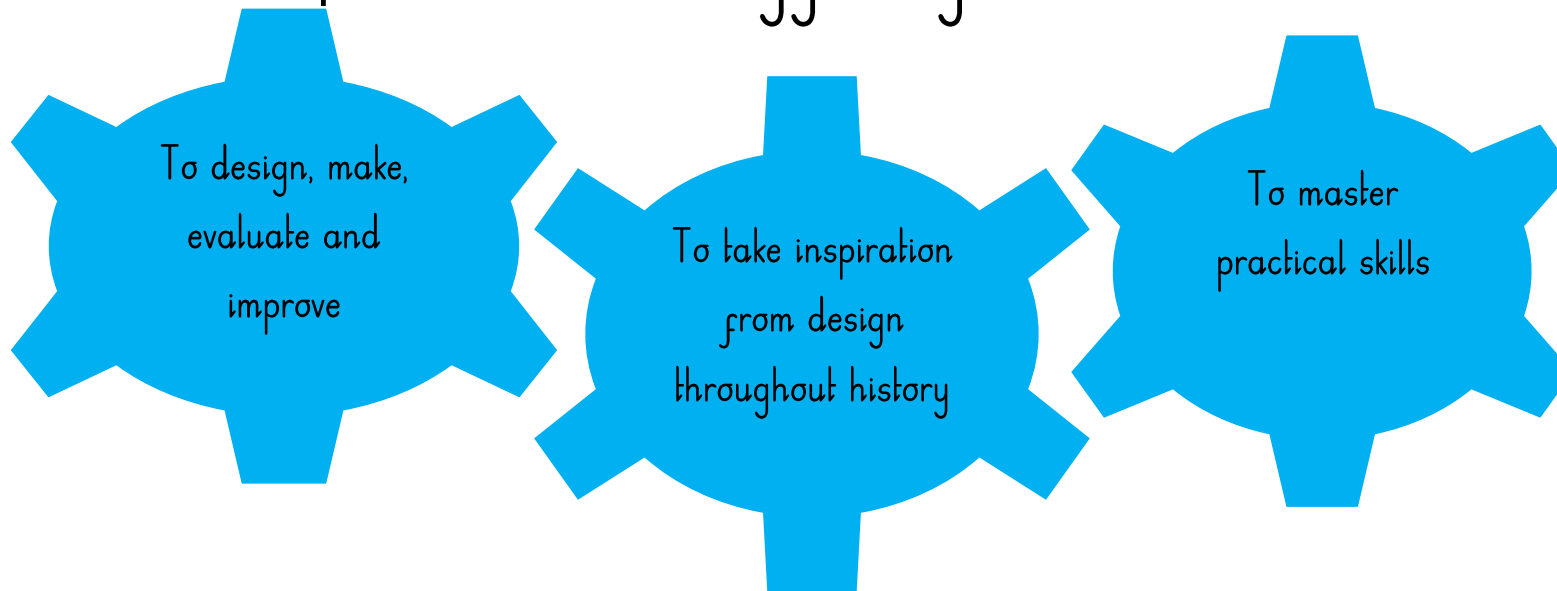


Lumbertubs Primary School

Design and Technology Progression Document



At Lumbertubs Primary School we want our children to become creative thinkers and problem solvers who can work creatively both on individual and shared DT projects. Our children take inspiration from designers both today and in the past to influence their work.

Our DT curriculum provides children with opportunities to research, represent their ideas, explore and investigate, develop their ideas, use tools and techniques to make a product and evaluate their work. Children will be exposed to a wide range of DT opportunities including mechanics, textiles and food. Children will have the opportunity to develop important life skills such as cooking, sewing and joining materials. Most importantly, in DT, pupils learn how to take risks, helping them to become resourceful, innovative, and resilient.

Early Learning Goals	
Physical Development/ Fine Motor Skills - Use a range of small tools, including scissors, paintbrushes and cutlery.	Expressive Arts and Design/ Creating with Materials - 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.
The National Curriculum – Key Stage One	The National Curriculum – Key Stage Two
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	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

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.

Cooking and nutrition

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

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

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.

<u>Concept 1: Take inspiration from design throughout history.</u> This concept involves appreciating the design process that has influenced the products we use in everyday life.							
Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Begin to make comments about aspects of their familiar world. Begin to talk about some of the things they have observed such as plants, animals, natural and found objects. Talk about why things happen and how things work with adult support.	To make comments and asks questions about aspects of their familiar world. Can talk about some of the things they have observed such as plants, animals, natural and found objects. Talks about why things happen and how things work.	Explore objects and designs to identify likes and dislikes of the designs. Suggest some improvements to existing designs. Explore how products have been created.	Explore objects and designs to identify and begin to explain likes and dislikes of the designs Suggest improvements to existing designs Explore and understand how products have been created for purpose.	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.	Identify some of the great designers in all of the areas of study to generate imagination ideas for designs. Improve upon existing designs, giving considered reasons for choices. Explore and disassemble products to understand how they work.	Explore of design from a range of inspirational designers throughout history, giving reasons for choices. Create innovative designs that improve upon existing products. Evaluate the design of products so as to suggest improvements to the user experience.	Combine elements of design, with increasingly independence, from a range of inspirational designers throughout history, giving considered reasons for choices. Create imaginative and innovative designs that improve upon existing products. Evaluate the design of products so as to suggest improvements to the user experience and fit for purpose.

Concept 2- Design, make, evaluate and improve This concept involves developing the process of design thinking and seeing design as a process.							
Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Make an item of own choice or from a given idea. Use a variety of given materials to make a product. Explain in simple terms, the features and use of finished product.	Make own version of an existing product. Select materials and tools to make a product. Explain in simple terms, the features and use of finished product, and if they would do anything different next time.	Design products that have a clear purpose. Make products and think about simple improvements to solve problems if they arise. Begin to use software to design.	Design products that have a clear purpose and an intended user. Make products, refining the design and troubleshooting problems as work progresses. Use software to design	Design with purpose by identifying opportunities to design. Make products by selecting materials. Refine work and techniques as work progresses, continually evaluating the product design. Use software to design and represent product designs.	Design with purpose by identifying opportunities to design. Make products by working efficiently and carefully selecting materials. Refine work and techniques as work progresses, continually evaluating the product design. Use software to design and represent product designs.	Start to consider the user and need for a product when designing, motivated by the service a product will offer Make products using an initial prototype, making continual refinements. Consider how to improve the quality of the finish, using art skills where appropriate. Explore and begin to use prototypes, cross-sectional diagrams and computer aided designs to represent designs.	Design with the user in mind, motivated by the service a product will offer (rather than simply for profit). Make products through stages of prototypes, making continual refinements. Consider and apply high quality finish, using art skills where appropriate. Select and use prototypes, cross-sectional diagrams and computer aided designs to represent designs.

Concept 3: Developing practical skills: This concept involves developing the skills needed to make high quality products.

Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<u>Materials and construction</u> Begin to constructs using a variety of resources. Uses simple tools and techniques with the support of an adult Selects appropriate resources and begin to adapt their work when prompted. Begin to selects some tools and techniques needed to shape, assemble and join materials they are using. <u>Mechanics</u> Begin to show curiosity in technological toys	<u>Materials and construction</u> Constructs with a purpose in mind, using a variety of resources. Uses simple tools and techniques competently and appropriately. Selects appropriate resources and adapts work where necessary. Selects tools and techniques needed to shape, assemble and join materials they are using. <u>Mechanics</u> Shows an interest in technological toys with knobs or pulleys, or real objects such as	<u>Materials and construction</u> 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, hinges or combining materials to strengthen).	<u>Materials and construction</u> Cut materials safely using tools provided appropriately. Measure and accurately mark out to the nearest centimetre. Demonstrate a range of cutting and shaping techniques with increasing confidence (such as tearing, cutting, folding and curling). Demonstrate a range of joining techniques and consider when to join appropriately (such as gluing, hinges or	<u>Materials and construction</u> 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 (such as slots or cut outs). Select appropriate joining techniques. Choose suitable techniques to	<u>Materials and construction</u> Cut materials accurately and safely by independently selecting appropriate tools. Accurately measure and mark out to the nearest millimetre to ensure some precision. Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs) and make some alterations to check accuracy.	<u>Materials and construction</u> Cut materials with precision using appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape). 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). Develop a range of practical skills to	<u>Materials and construction</u> 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). Explore and understand about 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).

with knobs or pulleys, or real objects such as cameras or mobile phones. Start to show a basic skill in making toys work by pressing parts or lifting flaps to achieve an effect such as sound, movements or new images <u>Food</u> Begin to display some understanding of how to use basic equipment safely. Roll out, stir, spoon, mix ingredients. Understand danger of hot food and ovens. Cut food with adult supervision.	cameras or mobile phones. Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images <u>Food</u> Shows understanding of how to use basic equipment safely. Roll out, stir, spoon, mix ingredients with confidence. Understand and recognise the danger of hot food and ovens. Cut a range of food with adult supervision.	Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products. <u>Mechanics</u> Create moving products using wheels and axles <u>Food</u> Cut, peel or grate ingredients safely and hygienically. Measure or weigh using measuring cups or electronic scales. Assemble or cook ingredients. <u>Textiles</u> Shape textiles using templates.	combining materials to strengthen). Understand when to use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products with increasing independence. <u>Mechanics</u> Create moving products using wheels and axles and making alterations as problems arise. <u>Food</u> Cut, peel or grate ingredients safely and understand the basics of hygiene. Measure or weigh using measuring cups or electronic scales	construct products or to repair items. Strengthen materials using suitable techniques. <u>Mechanics</u> Create products using levers, wheels and winding mechanisms. <u>Food</u> Prepare ingredients hygienically using utensils. Measure ingredients to the nearest gram accurately. Follow a recipe. Assemble or cook ingredients (controlling the temperature of the	Confidently select appropriate joining techniques. Explore suitable techniques to construct products or to repair items. Explore techniques to strengthen materials. <u>Mechanics</u> Create products using wheels and coding. <u>Food</u> Prepare ingredients hygienically using appropriate utensils. Measure ingredients to the nearest gram accurately and confidently.	create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding). <u>Mechanics</u> Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears). <u>Food</u> Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms). Measure accurately and calculate ratios	Master a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding). <u>Mechanics</u> Explore and use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears). <u>Food</u> Confidently understand and explain the importance of correct storage and handling of ingredients
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		Join textiles using running stitch. Colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing).	with increasing confidence. Assemble or cook with a wide range of ingredients. <u>Textiles</u> Shape textiles using templates and begin exploring their own idea. Develop joining textiles using running stitch. Colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing) using their imagination.	oven or hob, if cooking). <u>Textiles</u> Understand the need for a seam allowance. Join textiles with appropriate stitching. Select the most appropriate techniques to decorate textiles.	Confidently follow a recipe. Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking) considering safety. <u>Textiles</u> Explain the need for a seam allowance. Join textiles with appropriate stitching with increasing confidence. Consider the most appropriate techniques to decorate textiles.	of ingredients to scale up or down from a recipe. Demonstrate a range of baking and cooking techniques. Create recipes, including ingredients, methods, cooking times and temperatures. <u>Textiles</u> Create objects (such as a cushion) that employ a seam allowance. Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration). Use the qualities of materials to	(using knowledge of micro-organisms). Confidently measure accurately and calculate ratios of ingredients to scale up or down from a recipe. Explore and demonstrate a range of baking and cooking techniques. Create and refine recipes, including ingredients, methods, cooking times and temperatures. <u>Textiles</u> Create objects (such as a cushion) that employ a seam allowance and understand the need for it.
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						create suitable visual and tactile effects in the decoration of textiles (such as a soft decoration for comfort on a cushion)	Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration) with increasing confidence. Explore and use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles (such as a soft decoration for comfort on a cushion)
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