

Lightmoor Village Primary School Progression of Knowledge and Skills in Design Technology

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Substantive Knowledge	<p>Children will know:</p> <p>Food Recognise that food comes from plants or animals.</p> <p>Begin to recognise that everyone should eat at least five portions of fruit and vegetables every day.</p> <p>Begin to know how to use techniques e.g. cutting, peeling and grating.</p> <p>Materials Begin to use scissors correctly to cut and shape (such as tearing and cutting)</p>	<p>Children will know:</p> <p>Food How to weigh using measuring cups or electronic scales</p> <p>How to peel or grate ingredients safely and hygienically</p> <p>Materials How to demonstrate a range of cutting and shaping techniques.</p> <p>Textiles How to shape textiles using templates.</p>	<p>Children will know:</p> <p>Food How to assemble or cook ingredients. How to cut ingredients safely and hygienically.</p> <p>Materials Cut materials safely using tools provided.</p> <p>Measure and mark out to the nearest centimetre.</p> <p>Demonstrate a range of joining techniques.</p> <p>Textiles How to join textiles using running stitch.</p> <p>Colour and decorate textiles</p>	<p>Children will know:</p> <p>Food How to measure ingredients to the nearest gram accurately.</p> <p>How to follow a recipe.</p> <p>Materials Cut materials accurately and safely by selecting appropriate tools.</p> <p>Select appropriate joining techniques.</p> <p>Textiles How to join textiles with appropriate stitching.</p> <p>Computing Know how to begin to control</p>	<p>Children will know:</p> <p>Food How to prepare ingredients hygienically using appropriate utensils.</p> <p>Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking)</p> <p>Materials Measure and mark out to the nearest millimetre.</p> <p>Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs).</p> <p>Textiles Understand the need for a seam allowance.</p>	<p>Children will know:</p> <p>Food How to demonstrate a range of baking and cooking techniques.</p> <p>Create and refine recipes, including ingredients, methods, cooking times and temperatures</p> <p>Materials How to show an understanding of the qualities of materials to choose appropriate tools to cut and shape.</p> <p>Textiles How to 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).</p> <p>Electricals and electronics</p>	<p>Children will know:</p> <p>Food Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms) and seasonal food and food origins.</p> <p>Measure accurately and calculate ratios of ingredients to scale up or down from a recipe. Cut materials with precision and refine the finish with appropriate tools.</p> <p>Textiles Create objects (such as a cushion) that employ a seam allowance. Join textiles with a combination of stitching techniques</p> <p>Electricals and electronics</p>

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	<p>Electricals and electronics Begin to recognise that electricity is used in homes and schools.</p> <p>Computing How to select and use particular technology to operate simple equipment eg: Ipad, and beebots</p> <p>Construction To use a range of joining techniques to join materials.</p> <p>Mechanics Explore toys with moving parts, take them apart and look at what moves to make them work.</p>	<p>Electricals and electronics Begin to diagnose faults in battery operated devices (such as low battery, water damage or battery terminal</p> <p>Computing Know that they can use software to model designs.</p> <p>Construction Begin to use materials to make and strengthen products.</p> <p>Mechanics Work towards creating products using pulleys or levers.</p>	<p>using a number of techniques (such as dyeing, adding sequins or printing).</p> <p>Electricals and electronics Diagnose faults in battery operated devices (such as low battery, water damage or battery terminal damage).</p> <p>Computing Know that they can model designs using software.</p> <p>Construction To know how to join materials to make and strengthen products.</p> <p>Mechanics Create products using wheels and axels.</p>	<p>and monitor models using software designed for this purpose.</p> <p>Construction Choose suitable techniques to construct products or to repair items.</p> <p>Mechanics Begin to use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears).</p>	<p>Select the most appropriate techniques to decorate textiles.</p> <p>Electricals and electronics Create series and parallel circuits</p> <p>Computing Know how to Control and monitor models using software designed for this purpose.</p> <p>Construction Strengthen materials using suitable techniques.</p>	<p>Begin to create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips)</p> <p>Computing Begin to write code to control and monitor models or products.</p> <p>Construction Begin to develop a range of practical skills to create products such as cutting, screwing, nailing, gluing.</p> <p>Mechanics Convert rotary motion to linear using cams.</p>	<p>Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips).</p> <p>Computing Write code to control and monitor models or products.</p> <p>Construction Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filling and sanding).</p> <p>Mechanics Use innovative combinations of electronics (or computing) and mechanics in product designs.</p>
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<p>Disciplinary Knowledge knowledge of how quality and value have been expressed by experts</p>	<p>Know that: Food is what we eat, that animals and plants are living things, we eat them when they are dead, know the difference between food types and recognise fruit and vegetables, know what healthy means, develop grip and control of tools to peel, cut and grate food.</p> <p>Know that materials can be changed by actions. Know that items need power to make them work.</p> <p>Know that we can complete</p>	<p>Know that: It is important to measure and weigh and that if we do not do this it will affect the outcome. Know how to read the numbers on a scale, know that we need to wash hands and clean surfaces and tools used when cooking. Know that it is important to follow modelled safe use of tools. Know that to safely use a tool they must grip and control.</p> <p>They can cut and shape by tearing, cutting, folding and curling.</p>	<p>Know that: To complete a dish we must bring all of the ingredients together. Know that we can ask questions and complete research to make sure our product meets the brief and user requirements.</p> <p>know that we need to wash hands and clean surfaces and tools used when cooking. Know that it is important to follow modelled safe use of tools. Know that to safely use a tool they must grip and control. Know how to read a scale and use ruler or tape measure.</p>	<p>Know that: Measuring equipment has scales, we must read to the nearest line or point. Know that grams are represented by lines or dots, know how to read a scale and that accurately means to the point or line. Know that it is important to read and follow each step of the recipe. Know that if something is missed it will impact the result.</p> <p>Know that accurately means to the design and know how to control the tool used to do this.</p> <p>Know that they can join using</p>	<p>Know that: The range of utensils has names and purposes. Know the purposes and correct and safe use of each utensil. Know how to conduct research to find out how to use each utensil. Know how to make the oven or hob hotter or cooler. Know how to read a dial and understand oc or gas mark.</p> <p>Know that the perimeter is the edge, know that slits and cut outs are different and how to use control to make them.</p> <p>Know the components of a series and parallel circuit, know how to draw and make circuits. Know how to complete circuits</p>	<p>Know that: Baking and cooking are chemical reactions. Know that savoury and sweet are different. Know that ingredients and method are different. Know how to make the temperature hotter or cooler. Know how to read the dials for temperatures. Know how to change ingredients and evaluate.</p> <p>The nature of fabric may require sharper scissors than would be used to cut paper, know the properties of fabric and required tool to cut.</p> <p>Know that circuits previously used can be adapted and have components added to them. Know that circuits must still be complete to work. Know the job of the components and</p>	<p>Know that: Know that food must be stored in categories to ensure food hygiene is followed. Know which foods should be stored how. Know that raw meat must not touch, cross contamination. Know the effect of mould on food. Know where food for chosen dishes comes from. Know when food grows and the difference between climates. Know how to read scales and measure to the accurate point. Know how to work out ratios.</p> <p>Sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape will add finished look.</p> <p>Know that different components and types of circuits are</p>
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<p>actions and processes to make electronic items work, such as putting in a battery, or turning on a switch.</p> <p>Recognise that a range of technology is used in places such as homes and schools. Know that technology can be used in a range of ways for a range of things.</p>	<p>Know that the battery makes the power work on items, know what a battery looks like and how it should look if correctly inserted. Know what a damaged product might look like, and how it might have been damaged. Know that faulty products do not work as you would expect and that this is a problem.</p> <p>They can show ideas and designs using computers or Ipads. Begin to model designs using software. They will know what a design</p>	<p>They can join materials by gluing, adding hinges or combining materials to strengthen.</p> <p>Recognise what a fault is, and that the product is not working as expected. Identify what might be the cause of the fault, is the product damaged? Did it get wet? What could cause this? Know that they can model designs using software, know how to use the software and how to represent their designs, know the importance of designs when making products.</p>	<p>glue, tape, resources and can combine to strengthen, practice and research into the best possible resource.</p> <p>Software can move models and that we can control and monitor this. Know that we can move and direct using software. Know properties of suitable products and how to decide which to use. Know a range of joining techniques and strengths and weaknesses of these.</p> <p>Know the scientific forces and how they</p>	<p>and test that they works, know which circuit to choose and why. Software gives instructions in order to control and monitor. Know how to use programmes to give and follow the instructions and adapt if outcome is not correct.</p> <p>Know that materials can be joined in a range of ways to become stronger. Know the joining materials and techniques and begin to identify best choices.</p>	<p>explore where to add them into a circuit. Know that instructions given can be shortened to codes, know that codes give the instruction. Know that we can write codes to complete simple instruction.</p> <p>Know that they must measure and cut precisely, that joins must be measured with precision to be effective. Know how to safely use cutting apparatus such as scissors, fabric scissors, snips, craft knife and measuring tools. Begin to explore the use of screws and nails.</p> <p>Know what a cam and follower are and identify cams and followers on mechanisms. Children will learn how rotary motion is converted into linear motion in a mechanical system.</p>	<p>used for different purposes. Know which components to choose to complete a circuit to match a given brief. Codes and instructions can control and monitor a range of devices.</p> <p>Know that we can design, control and write out own code and know the steps to take to order and save code. Know how to strengthen materials by joining, correctly and safely cutting with saws and joining with drilling or nailing and finishing a product by filing. Know the names and jobs of tools and materials and how to safely use them.</p> <p>Develop a design specification for a functional product that responds</p>
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		<p>is and why we use them.</p> <p>Children will explore and use a range of joining materials and know how to glue and tape and secure.</p> <p>Toys, books or products with moving parts have a pulley or a lever. Know how they move an object.</p>	<p>Children will know how to join materials to make them stronger using gluing techniques, they will begin to explore how to use sticking and piercing techniques.</p> <p>Wheels move on an axel, that they must be able to make full turns to move an object.</p>	<p>impact movement.</p>		<p>A cam is part in a mechanical linkage, it can rotate or slide.</p> <p>Know how many types of cam are there? How does a cam work?</p>	<p>automatically to changes in the environment. Formulate a step-by-step plan to making, listing tools, equipment, materials and components.</p> <p>Use a computer control program to enable an electrical product to work automatically in response to changes in the environment. Test and evaluate the system to demonstrate effectiveness for the intended user and purpose. Know and use technical vocabulary relevant to the project.</p>
Outcomes	<p>Progression EYFS ELG Creating with materials</p> <p>Safely use and explore a</p>	<p>Progression Year 1 Design, make, evaluate and improve.</p>	<p>Progression by the end of key stage 1 Design, make, evaluate and improve products,</p>	<p>Progression Y3 Design, make, evaluate and improve Produce designs with a clear purpose</p>	<p>Progression Y4 Design, make, evaluate and improve Refine methods and design as work</p>	<p>Progression Y5 Design, make, evaluate and improve a design by considering the user, prioritising good function before profit.</p>	<p>Progression by the end of key stage 2 Design, make, evaluate and improve. Produce a good quality finish to products using art</p>

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<p>variety of materials, tools and techniques.</p> <p>Explain the process share their creations, explaining the process they have been through.</p> <p>Make use of props and materials when role playing characters and narratives in stories.</p>	<p>Design products that have a definite function for a particular person (xmas card).</p> <p>Make products to meet basic design brief. Food Select from and use ingredients according to their characteristics (Healthy sandwich)</p> <p>Textiles Use a running stitch to join fabric. Use methods such as dyeing, adding sequins or printing alter the appearance of fabric. Make use of template to</p>	<p>modifying the product as the project evolves.</p> <p>Food Cut, peel or grate ingredients in a hygienic manner (fruit salad), Use measuring cups or electronic scales to measure the required amounts, combine ingredients to produce food.</p> <p>Mechanics Explore and use mechanisms in their products , wheels and axles</p> <p>Materials Demonstrate safe use of a given tool (saw). Perform a range of cutting and shaping techniques eg</p>	<p>having explored needs, food packaging. Select materials carefully to suit the design and use.</p> <p>Textiles Use correct stitch to join materials, add decorative finish using a suitable technique.</p> <p>Construction Select appropriate techniques to construct products.</p> <p>Food Use correct utensils to hygienically prepare food. Combine and or cook.</p> <p>Historical Inspiration Know the work of some</p>	<p>progresses, constantly reassessing design.</p> <p>Electricals and electronics Use computer packages to design and model products.</p> <p>Mechanics Apply understanding of forces to select a suitable mechanism eg levers, winding mechanism, pulleys and gears.</p> <p>Materials Use suitable cutting and shaping techniques. Choose suitable joining techniques</p> <p>Historical Inspiration Make improvements to established designs and be</p>	<p>Produce several prototypes each building upon the previous to optimise design.</p> <p>Electricals and Electronics Create circuits using electronics kits that combine a number of parts (e.g. LEDs, resistors, chips etc.).</p> <p>Construction Practice practical skills to a reasonable standard to produce products</p> <p>Textiles Use a variety of stitching techniques to join fabrics. Understand the purpose of and include a seam allowance.</p> <p>Historical Inspiration Combine designs from several significant designers explaining the selections.</p>	<p>techniques. Include design processes such as prototypes, cross-sectional diagrams and CAD.</p> <p>Food Understand how to store and handle food ingredients properly. Invent and modify own recipes including ingredients, methods, cooking times and temperatures.</p> <p>Materials Cut with precision and produce a good finish. Select appropriate tools to cut and shape a particular type of material.</p> <p>Mechanics Combine electronics and mechanics to produce original designs. Use cams to change a rotation into a push/pull movement</p>
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		<p>produce shapes. Construction Practice techniques to join and/or strengthen materials eg, gluing and reinforcing card.</p> <p>Historical Inspiration Investigate historic designs to find their strengths and weaknesses</p>	<p>tearing, cutting, folding and curling Bird boxes. Use a range of joining techniques eg gluing, hinges or combining materials to strengthen.</p> <p>Historical Inspiration Take an existing design and propose improvements plants. Explore the processes used to create products planted pot.</p>	<p>recognised designers in all areas of study (including pioneers in horticultural techniques to stimulate ideas for designs).</p>	<p>able to explain why. Disassemble designs to discover how they work.</p>		<p>Historical Inspiration Start with existing designs and invent improved ones. Evaluate the design of products and identify possible further changes to improve the performance.</p>
<p>To design, make, evaluate and improve</p>	<p>Talk about their designs and what they're making. Talk about how to make their products better. Explore what products are, who they are for, how they</p>	<p>Design products that have a clear purpose and an intended user.</p>	<p>Design products that have a clear purpose and an intended user. Make products, refining the design as work progresses.</p> <p>Use software to design.</p>	<p>Design with purpose by identifying opportunities to design.</p>	<p>Make products by working efficiently (such as by carefully selecting materials).</p> <p>Refine work and techniques as work progresses, continually evaluating the product design.</p>	<p>Design with the user in mind, motivated by the service a product will offer (rather than simply for profit).</p> <p>Ensure products have a high quality finish, using art skills where appropriate.</p>	<p>Make products through stages of prototypes, making continual refinements.</p> <p>Use prototypes, cross-sectional diagrams and computer aided designs to represent designs.</p>

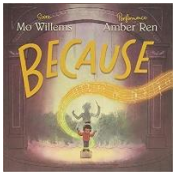
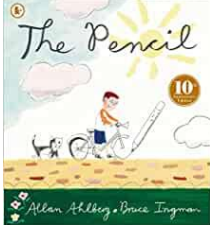

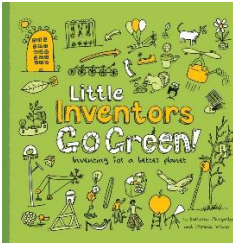
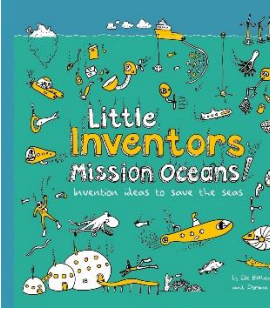


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	are used and where they are from. Talk about likes and dislikes of existing products and own product created.				Use software to design and represent product designs.		
Key Vocabulary – Topic specific	Ideas, apron, cut, stick, Mix, Stir, Spoon, Scissors, Tape, Glue, Build, Make, Draw, Material, Switch, Handle, Knob, Dial	Apron Chop Cut Equipment Fork Knife Mix Spoon Bead Button Fabric Felt Scissors Sew Cello tape Glue Stick Masking Tape Paper Clip Plasticine Ruler Straws Build Make	Basin Chopping Board Cleaning cloths Grater Ingredients Masher Measuring jug Measuring spoons Mixing bowl Peeler Pizza tray Scales Wooden spoon Fabric crayons Needle Pattern Ribbon Silk Tape measure Velcro Wool Zip 2-D 3-D	Amount Baking Sheet Chopping Board Cleaning cloths Grater Ingredients Knead Masher Measure Measuring jug Measuring spoons Method Mixing bowl Pastry cutters Peeler Pizza tray Recipe Saucepans Scales Sieve Weigh Wooden spoon Centimetre/metre	Pinking Shears Press stud Running stitch Seam allowance Sewing machine Tacking Thimble Tenon saw Vice Wire Strippers Screws Nails Accurate Marking out Jointer Junior Hacksaw Motor Pliers Rotary Cutter Safety ruler Screwdriver Side cutters Snips Spanner Stapler	Grams/Kilograms Hygiene Ladle Millilitre/Litre Spatula Temperature Whisk Back stitch Binca Bodkin Cotton thread Cross stitch Hook and eye Loom Pinking Shears Press stud Running stitch Seam allowance Sewing machine Tacking Thimble Tenon saw Vice Wire Strippers Screws	Grams/Kilograms Hygiene Ladle Millilitre/Litre Spatula Temperature Whisk Back stitch Binca Bodkin Cotton thread Cross stitch Hook and eye Loom Pinking Shears Press stud Running stitch Seam allowance Sewing machine Tacking Thimble Tenon saw Vice Wire Strippers Screws

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			Clay Cut Materials Plastic PVA glue Wood Design Plan Product	Fabric crayons Fabric pens Needle Pattern Pin Ribbon Silk Stitch Tape measure Thread Velcro Wool Zip 2-D 3-D Clay Cut Materials Metal Plastic PVA glue Wire Wood Design Plan Product	Dowel Battery Battery Holder Light Bulb Bulb Holder Buzzer Gears Glass paper Sand paper Bench Hook Bradawl Crocodile Clip Coping saw Disassemble Cutting Mat Drill Drill bits File G-Clamp Goggles Safety glasses Hammer Hole Punch Compass Pulley Switches Wheel	Nails Accurate Marking out Jointer Junior Hacksaw Motor Pliers Rotary Cutter Safety ruler Screwdriver Side cutters Snips Spanner Stapler Dowel Battery Battery Holder Light Bulb Bulb Holder Buzzer Gears Glass paper Sand paper Bench Hook Bradawl Crocodile Clip Coping saw Disassemble Cutting Mat Drill Drill bits File G-Clamp Goggles Safety glasses Hammer	Nails Accurate Marking out Jointer Junior Hacksaw Motor Pliers Rotary Cutter Safety ruler Screwdriver Side cutters Snips Spanner Stapler Dowel Battery Battery Holder Light Bulb Bulb Holder Buzzer Gears Glass paper Sand paper Bench Hook Bradawl Crocodile Clip Coping saw Disassemble Cutting Mat Drill Drill bits File G-Clamp Goggles Safety glasses Hammer
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Enrichment	Careers – what could you do on a building site?	Careers – what could you do in the food industry?	Local trip – Ironbridge and industrial revolution.	Careers and local business engagement	Local trip – ironworks	Local trip – enginuity. Engage with local businesses.	Engage with local businesses for food project.
Reading and storytelling across DT							

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<p>Diversity and inspiration from design through history.</p>	<p>Ensure a diverse range of designers and inventors are explored. Ensure product briefs cater for a diverse user.</p>	<p>Explore how products have been created from origins. Ensure a diverse range of designers and inventors are explored. Ensure product briefs cater for a diverse user.</p>	<p>Explore objects and designs to identify likes and dislikes of the designs.</p> <p>Suggest improvements to existing designs. Ensure a diverse range of designers and inventors are explored. Ensure product briefs cater for a diverse user.</p>	<p>Improve upon existing designs, giving reasons for choices.</p> <p>Disassemble products to understand how they work. Ensure a diverse range of designers and inventors are explored. Ensure product briefs cater for a diverse user.</p>	<p>Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs. Ensure a diverse range of designers and inventors are explored. Ensure product briefs cater for a diverse user.</p>	<p>Create innovative designs that improve upon existing products. Ensure a diverse range of designers and inventors are explored. Ensure product briefs cater for a diverse user.</p>	<p>Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices.</p> <p>Evaluate the design of products so as to suggest improvements to the user experience. Ensure a diverse range of designers and inventors are explored. Ensure product briefs cater for a diverse user.</p>
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