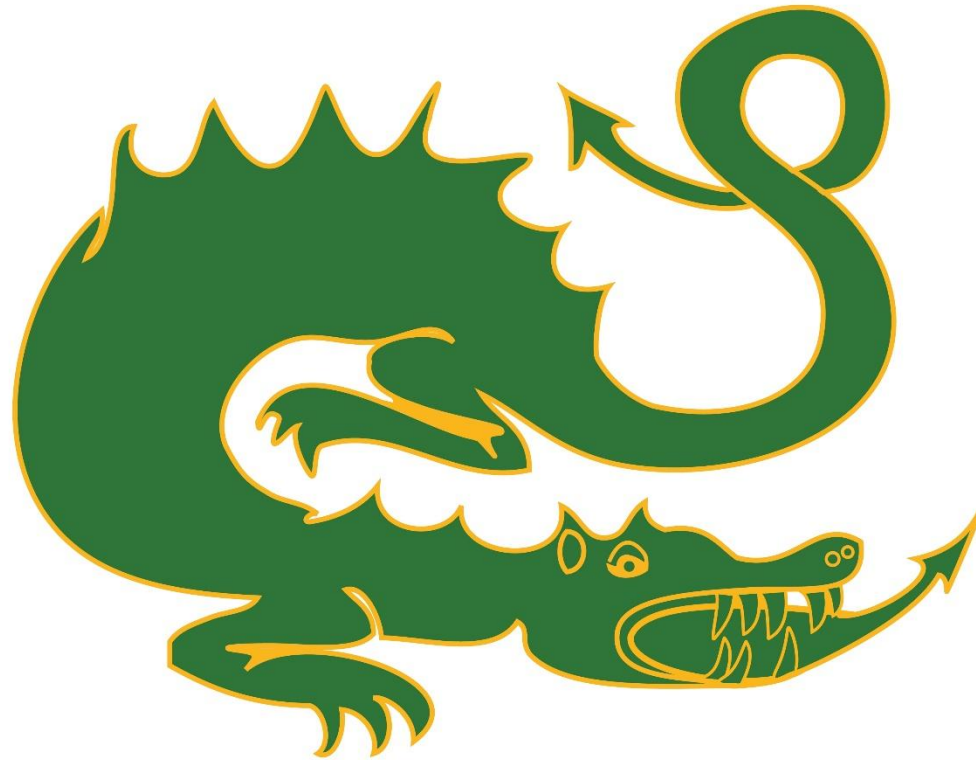


Leechpool Design Technology Knowledge and Skills Progression



Design Technology: AGE RELATED STATUTORY COVERAGE		
EYFS	KEY STAGE ONE LEARNING	KEY STAGE TWO LEARNING
<p><u>PSED</u> - managing self Manage their own basic hygiene and personal needs; washing hands before food prep or eating, and understanding the importance of healthy food choices an</p> <p><u>Physical development</u> - fine motor Use a range of small tools, including scissors, paint brushes, cutlery and large needles (sewing with Binca).</p> <p><u>Expressive arts and design</u> - 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; - Make use of props and materials when role playing characters in narratives and stories</p>	<ul style="list-style-type: none"> • 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 • 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 • explore and evaluate a range of existing products • evaluate their ideas and products against design criteria • 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. • use the basic principles of a healthy and varied diet to prepare dishes • understand where food comes from. 	<ul style="list-style-type: none"> • 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 • 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 • 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 • 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

Leechpool Design Technology Skills and Knowledge Progression and Overview

		<p>incorporating switches, bulbs, buzzers and motors]</p> <ul style="list-style-type: none"> • apply their understanding of computing to program, monitor and control their products • 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.
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Skills Map – Design Technology

Early Years – Design technology

- Draw on their own experience to help generate ideas
- In discussion with an adult, suggest ideas and explain what they are going to do
- Cut materials safely using tools provided (scissors, hole punch)
- Through exploration, demonstrate a range of cutting and shaping techniques (such as tearing, cutting and folding)
- Use construction kits and building blocks
- Use programmable toys
- Discuss healthy food choices
- Cut ingredients safely and hygienically (with a butter knife).
- With support, assemble ingredients
- Thread items in a variety of ways
- Explore different joining techniques (gluing, sellotape, staples, masking tape, treasury tags)
- With support, use materials to practise sawing, hammering and nailing
- Verbally explain what they like/dislike about their product
- In discussion with an adult, suggest one thing that they might change when creating a similar product

Vocabulary

Join, sew, stick, car, wheel, push, pull, cut, fold, join, cut, taste, fruit, vegetable

Skills Map – Design Technology

KS1

Developing, Planning and communicating ideas	Structures	Food and Nutrition	Materials	Mechanisms	Textiles	Evaluating
<ul style="list-style-type: none"> • Draw on their own experience to help generate ideas • Suggest ideas and explain what they are going to do • Identify a target group for what they intend to design and make • Model their ideas in card and paper • Develop their design ideas applying findings from their earlier research 	<ul style="list-style-type: none"> • Use basic tools such as scissors, hole punches safely and appropriately • Demonstrate glue range of joining techniques (such as glue, Sellotape, masking tape, hinges or combining materials to strengthen) for card and paper • Use new and reclaimed materials and construction kits • Begin to select materials to use • Use simple finishing techniques 	<ul style="list-style-type: none"> • Experience common fruits and vegetables • Cut, peel or grate ingredients safely and hygienically (sharp knives with support). • Measure or weigh using measuring cups or electronic scales 	<ul style="list-style-type: none"> • Measure and mark out to nearest cm. • Use hand tools safely and appropriately (hand drill, hand saws) • Demonstrate a range of joining techniques (such as glue, hinges or combining materials to strengthen). • Begin to select tools and materials; use vocab' to name and describe them 	<ul style="list-style-type: none"> • Use construction kits to assemble products with moving wheels • Explore moving vehicles through play • Create products using winding mechanisms. • Make sliders • Make moving joints using paper fasteners • Use programmable toys 	<ul style="list-style-type: none"> • Explore and use different materials • Cut and join textiles with simple techniques (running stitch) • Colour and decorate textiles using glue 	<ul style="list-style-type: none"> • Evaluate their product by asking questions about what they have made and how they have gone about it • Evaluate their product by discussing how well it works in relation to the purpose • Evaluate their products as they are developed, identifying strengths and possible changes they might make
Vocabulary						
<p>Plan, idea, draw, label, reason, design, model, research, group, findings, develop</p>	<p>cut, fold, join, fix structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved, metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder</p>	<p>fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients</p>	<p>planning, investigating design, evaluate, make, user, purpose, ideas, product,</p>	<p>slider, lever, pivot, slot, bridge/guide, card, masking tape, paper fastener, join, pull, push, up, down, straight, curve, forwards, backward, wheel, wind, mechanism, axle, axle holder, chassis, cab, assembling, cutting</p>	<p>joining and finishing techniques, tools, fabrics and components, template, pattern pieces, mark out, join, decorate, finish, sew, running stitch,</p>	<p>Like, dislike, change, evaluate, works well, strengths, weakness</p>

Skills Map – Design Technology						
Lower KS2						
Developing, Planning and communicating ideas	Structures	Food and Nutrition	Materials	Mechanisms	Textiles	Evaluating
<ul style="list-style-type: none"> • Generate ideas by drawing on their own and other people's experiences • Develop their design ideas through discussion, observation, drawing and modelling • Identify a purpose for what they intend to design and make • Identify design criteria • Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail • Evaluate products and identify criteria that can be used for their own designs 	<ul style="list-style-type: none"> • Select appropriate tools and software to mark, measure, cut out, score, shape and assemble with some accuracy • Choose suitable techniques to construct products or to repair items. • Develop and use knowledge of nets, cubes and cuboids and where appropriate more complex 3D structures • Make structures more stable by giving them a wide base • Strengthen materials using suitable techniques. • Develop and use knowledge of how to construct strong, stiff shell structures • Use a glue gun with close one to one supervision 	<ul style="list-style-type: none"> • Prepare ingredients hygienically using appropriate utensils (peel, chop, grate) • Break eggs without breaking the yolk • Measure accurately using a range of scales. • Plan the main stages of a recipe listing ingredients, utensils and equipment • Select from a range of ingredients to make appropriate food products, thinking about sensory characteristics • Know how to use appropriate for their product, and whether they are grown, reared or caught 	<ul style="list-style-type: none"> • Cut materials accurately and safely by selecting appropriate tools (scissors, hand drills, saws, hole punch) • Select appropriate joining techniques (glue guns, cardboard triangles, staples) • Measure, mark out, cut, score and assemble components with more accuracy • Explain their choice of materials according to functional properties and aesthetic qualities • Choose appropriate equipment to join materials 	<ul style="list-style-type: none"> • Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as winding mechanisms and pulleys) • Use simple mechanisms • Use syringes for pneumatics • Distinguish between fixed and loose pivots • Identify the movement output following an input 	<ul style="list-style-type: none"> • Select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing • Select fabrics and fastenings according to their functional characteristics • Know how to strengthen, stiffen and reinforce existing characteristics • Understand the need for patterns and seam allowances • Understand how a key event/individual has influenced the development of the chosen product and/or fabric • Use stitches and embellishments to enhance the design 	<ul style="list-style-type: none"> • Evaluate against their design criteria and intended purpose • Evaluate their products as they are developed, identifying strengths and possible changes they might make • Talk about their ideas, saying what they like and dislike about them • Take into account other people's views •
Vocabulary						

Leechpool Design Technology Skills and Knowledge Progression and Overview

<p>Plan, idea, draw, label, reason, design, model, research, group, findings, develop, drawing, label, criteria, user, purpose, function, prototype, innovative, appealing, annotated sketch, innovative, aesthetics</p>	<p>shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity, marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating, font, lettering, text, graphics, decision,</p>	<p>name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet</p>	<p>user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, function, planning, design criteria, annotated sketch, appealing</p>	<p>tubing, syringe, fixing, components, split pin, paper fastener, pneumatic system, inflate, deflate, pump, seal, air tight, mechanism, lever, linkage, pivot, slot, bridge, guide system, input, process, output linear, rotary, oscillating, reciprocating, linkage, pivot, slot, bridge, guide, system, input, process, output, linear, rotary, oscillating, reciprocating,</p>	<p>fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, running stitch, blanket stitch, over stitch</p>	<p>Like, dislike, change, evaluate, works well, strengths, weakness, discuss, design criteria, function, improve, test, outcome,</p>
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Skills Map – Design Technology							
Upper KS2							
Developing, Planning and Communicating ideas	Structures	Food and Nutrition	Materials	Mechanisms	Textiles	Electrical	Evaluating
<ul style="list-style-type: none"> • Generate ideas through brainstorming and identify a purpose for their product • Draw up a specification for their design • Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making if the first attempts fail • Use results of investigations, information sources, including ICT when 	<ul style="list-style-type: none"> • Develop a range of practical skills to create products (e.g cutting, drilling and screwing, nailing, gluing, filling and sanding). • Build frameworks using a range of materials to support mechanisms. E.g. wood, corrugated card and plastic. • Use a glue gun with close supervision. • Understand how to strengthen, stiffen and reinforce 3D frameworks • Use finishing techniques suitable for the product they are making 	<ul style="list-style-type: none"> • Understand the importance of correct storage and handling of ingredients (knowledge of micro-organisms). • Know how to use utensils and equipment including heat sources to prepare and cook food • Understand how key chefs have influenced eating habits to promote varies and healthy diets • Understand about seasonality in relation to food products and know the source of 	<ul style="list-style-type: none"> • Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (e.g. the nature of fabric may require sharper scissors than would be used to cut paper). • 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). • to measure and mark out accurately • To use modelling wire, pliers, wire cutters 	<ul style="list-style-type: none"> • Understand that mechanical and electrical systems have an input, process and output • Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement • Understand how cams can be used to produce different types of movement and change the direction of movement • Convert rotary motion to linear using cams. • Investigate famous manufacturing and 	<ul style="list-style-type: none"> • Create objects (such as a cushion) that employ a seam allowance. • Explore joining textiles with a combination of techniques (e.g. back stitch for seams and running stitch to attach decoration, Velcro, press studs). 	<ul style="list-style-type: none"> • Understand and use electrical systems their products • Understand the use of computer control systems in products • Apply their understanding of computing to program, monitor and control their products • Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product • Create and modify a computer control program to enable their electrical product to respond to 	<ul style="list-style-type: none"> • Critically evaluate a product against the original design specification and intended user and purpose • Evaluate it personally and seek evaluation from others • Test products with the intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose

Leechpool Design Technology Skills and Knowledge Progression and Overview

<p>developing design ideas</p> <ul style="list-style-type: none"> Research key individuals and events relevant to their subject 		<p>different food products</p> <ul style="list-style-type: none"> Measure accurately and calculate ratios of ingredients to scale up or down from recipe. Create and refine recipes, including ingredients, methods, cooking times and temperatures 	<ul style="list-style-type: none"> To use a range of finishing techniques eg collage, embellishments, 	<p>engineering companies relevant to the project</p>		<p>changes in the environment</p>	
Vocabulary							
<p>Plan, idea, draw, label, reason, design, model, research, group, findings, develop, drawing, label, criteria, attempt, alternative, evaluate, computing, information, specification, design brief, specification, prototype, annotated sketch, purpose, user, innovation, research, functional</p>	<p>Reinforce, triangulation, stability, temporary, permanent, frame structure, stiffen, strengthen, shape, join, temporary, permanent</p>	<p>Ingredients, yeast, dough, wholemeal, unleavened, baking soda, spice, herbs, carbohydrate, sugar, fat, protein, vitamins, nutrients, gluten, allergy, intolerance, savoury, seasonality, pour, mix, kneed, whisk, beat, combine, fold, rubbing in, healthy,</p>	<p>Precise, refine, measure, accurate, mark out, ruler, cm, mm, wire, wire cutters, pliers, components, collage, embellishments, paint, embroidery, models</p>	<p>Pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor, circuit, switch, reciprocating motion, oscillating motion, follower, shaft, axle, crank, handle, housing, framework, cam, snail cam, off centre cam, peg cam, pear shaped cam</p>	<p>Specification, tacking, working drawing, clasp, pinking shears, design criteria, hem, reinforce, stem stitch, satin stitch, tie dye</p>	<p>reed switch, toggle switch, push-to-make switch, push-to-break switch, light dependent resistor (LDR) tilt switch, light emitting diode (LED), bulb, bulb holder, battery, battery holder, USB cable, wire, insulator, conductor, crocodile clip, control, program, system, input device, output device, series circuit, parallel circuit</p>	<p>Like, dislike, change, evaluate, works well, strengths, weakness, discuss, function, user, effectiveness, design specification, design brief, purpose, functionality, evaluate, improve, authentic, mock-up, prototype</p>