



Burlington Junior School DT



Design: Developing, planning and communicating ideas.

Key Stage One		Lower Key Stage Two		Upper Key Stage Two							
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6						
<ul style="list-style-type: none"> • Think of own ideas and plan what to do next. • Describe designs using pictures, diagrams, models, mock-ups, words and ICT. • Design a product for myself and others, following design criteria. • Work confidently in a range of contexts (imaginary, home, school, wider community, story-based etc). 		<ul style="list-style-type: none"> • Create a design that meets a range of requirements. • Consider the equipment and tools needed when planning. • Describe a design using an accurately labelled diagram, and in words. 		<ul style="list-style-type: none"> • Generate more than one idea for how to create a product. • Gather information to help design a successful product (i.e. by asking others' views). • Produce a detailed plan with labelled diagrams, a written explanation and step-by-step guide. • Suggest improvements to develop and refine a planned idea. 		<ul style="list-style-type: none"> • Generate a range of ideas after collating relevant information (i.e. users' views). • Produce a detailed plan, with step-by-step instructions, cross sectional diagrams and prototypes. • Suggest alternative plans, considering the positive aspects and drawbacks of each. 		<ul style="list-style-type: none"> • Use a range of information to inform a design (i.e. market research using surveys, interviews, questionnaires or web-based resources). • Produce a detailed plan, with cross-sectional diagrams and computer-generated designs). • Work within constraints, refining and justifying plans as necessary. 			
<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"> • 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 simple design criteria • Make simple drawings and label parts 		<ul style="list-style-type: none"> • Generate ideas for an item, considering its purpose and the user/s • Identify a purpose and establish criteria for a successful product. Plan the order of their work before starting • Explore, develop and communicate design proposals by modelling ideas • Make drawings with labels when designing 		<ul style="list-style-type: none"> • Generate ideas, considering the purposes for which they are designing • Make labelled drawings from different views showing specific features • 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"> • Generate ideas from 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 developing design ideas 		<ul style="list-style-type: none"> • Communicate their ideas through detailed labelled drawings • Develop a design specification • Explore, develop and communicate aspects of their design proposals by modelling their ideas in a variety of ways • Plan the order of their work, choosing appropriate materials, tools and techniques 	

Make: Working with tools, equipment, materials and components to make quality products (inc food)

<ul style="list-style-type: none"> • Explain what is being made and why the audience will like it. Choose appropriate tools and equipment, describing and explaining why they are being used. 	<ul style="list-style-type: none"> • Use a range of tools and equipment accurately. • Measure, mark out, assemble and join materials and components with some accuracy. 	<ul style="list-style-type: none"> • Use a range of tools and equipment with accuracy. • Measure, mark out, join and assemble materials and components with accuracy. 	<ul style="list-style-type: none"> • Use a range of tools and equipment expertly. • Consider the aesthetic qualities and functionality of my work when making. 	<ul style="list-style-type: none"> • Use a range of tools and equipment precisely. • Consider the aesthetic qualities and functionality of my product as making it, refining details as necessary 	
<ul style="list-style-type: none"> • Make their design using appropriate techniques • With help measure, mark out, cut and shape a range of materials • Use tools e.g. scissors and a hole punch safely • Assemble, join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape • Select and use appropriate fruit and vegetables, processes and tools • Use basic food handling, hygienic practices and personal hygiene • Use simple finishing techniques to improve the appearance of their product 	<ul style="list-style-type: none"> • Begin to select tools and materials; use vocab' to name and describe them • Measure, cut and score with some accuracy • Use hand tools safely and appropriately • Assemble, join and combine materials in order to make a product • Cut, shape and join fabric to make a simple garment. • Use basic sewing techniques • Follow safe procedures for food safety and hygiene • Choose and use appropriate finishing techniques 	<ul style="list-style-type: none"> • Select tools and techniques for making their product • Measure, mark out, cut, score and assemble components with more accuracy • Work safely and accurately with a range of simple tools • Think about their ideas as they make progress and be willing to change things if this helps them improve their work • Measure, tape or pin, cut and join fabric with some accuracy • Demonstrate hygienic food preparation and storage • Use finishing techniques strengthen and improve the appearance of their product using a range of equipment including ICT 	<ul style="list-style-type: none"> • Select appropriate tools and techniques for making their product • Measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques • Join and combine materials and components accurately in temporary and permanent ways • Sew using a range of different stitches, weave and knit • Measure, tape or pin, cut and join fabric with some accuracy • Use simple graphical communication techniques 	<ul style="list-style-type: none"> • Select appropriate materials, tools and techniques • Measure and mark out accurately • Use skills in using different tools and equipment safely and accurately • Weigh and measure accurately (time, dry ingredients, liquids) • Apply the rules for basic food hygiene and other safe practices e.g. hazards relating to the use of ovens • Cut and join with accuracy to ensure a good-quality finish to the product 	<ul style="list-style-type: none"> • Select appropriate materials, components and techniques • Assemble components make working models • Use tools safely and accurately • Construct products using permanent joining techniques • Make modifications as they go along • Pin, sew and stitch materials together create a product • Achieve a quality product

Evaluation: Evaluating processes and products

<ul style="list-style-type: none"> • Describe how their own and pre-existing products work, evaluating what went well and what could be done differently. • Suggest what went well and what would be done differently when evaluating their own product. 	<ul style="list-style-type: none"> • Evaluate own and pre-existing products. • Suggest what could be changed to improve a design, beginning to link this to the design brief. • Develop awareness of how key events and individuals in design and technology have helped shape the world 	<ul style="list-style-type: none"> • Evaluate the appearance and usability of own and pre-existing products. • Explain how the original design could be improved, considering the appearance and usability and linking this to the design brief. • Develop awareness of how key events and individuals in 	<ul style="list-style-type: none"> • Evaluate the appearance and function of a product (own and pre-existing) against the original criteria, saying whether it is fit for purpose. • Suggest improvements that could be made, considering materials and methods that have been used. Know of 	<ul style="list-style-type: none"> • Evaluate the appearance and test the function of a product (own and pre-existing) against the original criteria, saying whether it is fit for purpose. • Suggest improvements that could be made, considering materials, methods, sustainability of
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			design and technology have helped shape the world	how key events and individuals in design and technology have helped shape the world	the product and how much a product costs to make. • Know of how key events and individuals in design and technology have helped shape the world
<ul style="list-style-type: none"> • 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 • Evaluate their product by asking questions about what they have made and how they have gone about it 	<ul style="list-style-type: none"> • Evaluate against their design criteria • 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 	<ul style="list-style-type: none"> • Evaluate their product against original design criteria e.g. how well it meets its intended purpose • Disassemble and evaluate familiar products 	<ul style="list-style-type: none"> • Evaluate their work both during and at the end of the assignment • Evaluate their products carrying out appropriate test 	<ul style="list-style-type: none"> • Evaluate a product against the original design specification • Evaluate it personally and seek evaluation from others 	<ul style="list-style-type: none"> • Evaluate their products identifying strengths and areas for development, and carrying out appropriate tests • Record their evaluations using drawings with labels • Evaluate against their original criteria and suggest ways that their product could be improved

Technical knowledge (over-arching throughout KS2)

- Apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- Understand and use mechanical systems in their products, (for example as 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 programme, monitor and control their products.

Breadth of Study

Food and Nutrition

<ul style="list-style-type: none"> • Know how to peel, cut, grate, mix and mould foods (with supervision). 	<ul style="list-style-type: none"> • Know how to peel, cut, grate, mix, mould and begin to cook foods (using toasters and microwaves with supervision). • Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed. • Understand and apply the principles of a healthy and varied diet 	<ul style="list-style-type: none"> • Know how to peel, cut, grate, mix, mould and begin to cook foods (using toasters and microwaves with supervision). • Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed. • Understand and apply the principles of a healthy and varied diet 	<ul style="list-style-type: none"> • Cut, mix, mould and begin to use hobs to heat food with appropriate supervision. • Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed. • Understand and apply the principles of a healthy and varied diet 	<ul style="list-style-type: none"> • Cut, mix, mould and use hobs to heat food, developing independence with this as appropriate. • Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed. Understand and apply the principles of a healthy and varied diet
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Construction

<ul style="list-style-type: none"> Use sheet materials and construction tools with appropriate supervision. 	<ul style="list-style-type: none"> Use sheet materials and construction tools with appropriate supervision. 	<ul style="list-style-type: none"> Use sheet and construction materials appropriately. 	Use sheet and construction materials appropriately.	<ul style="list-style-type: none"> Use sheet and construction materials appropriately.
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Textiles

<ul style="list-style-type: none"> Cut, then join textiles using a running stitch, over sewing or glue. Decorate using a range of items (buttons, sequins, beads, ribbons etc) 	<ul style="list-style-type: none"> Cut, then join textiles using a running stitch, over sewing or glue. Decorate using a range of items (buttons, sequins, beads, ribbons etc) 	<ul style="list-style-type: none"> Cut, then join textiles using a running stitch, over sewing, back stitch or fastenings. Understand seam allowances, create simple patterns and appropriate decoration techniques (e.g. applique). 	<ul style="list-style-type: none"> Cut, then join textiles using a running stitch, over sewing, back stitch or fastenings. Understand seam allowances, create simple patterns and appropriate decoration techniques (e.g. applique) 	<ul style="list-style-type: none"> Pin and tack fabrics use patterns and seam allowances and join fabrics to make quality products. Explain how their product could be sold.
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Mechanisms and Electrical

<ul style="list-style-type: none"> Know about movement of simple mechanisms such as levers, sliders, wheels and axels. 	<ul style="list-style-type: none"> Know about movement of simple mechanisms such as levers and linkages. Create a simple circuit. 	<ul style="list-style-type: none"> Know about movement of simple mechanisms such as levers and linkages. Create circuits and alter their product. 	<ul style="list-style-type: none"> Understand how mechanical systems such as cams, pulleys or gears create movement. Create circuit, incorporate a switch, pneumatics and hydraulics. 	<ul style="list-style-type: none"> Understand how mechanical systems such as cams, pulleys or gears create movement. Create circuit, incorporate a switch, pneumatics and hydraulics. Add a new circuit to improve product, alter already stated circuit.
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Vocabulary: to be progressive, yet vocabulary from previous years to be continuously revisited through to Year 6

Developing, Planning and Communicating Ideas Vocabulary

Design Appearance Flexible Ingredients Modify System Secondary source	Design Appearance Flexible Ingredients Modify System Secondary source	Design brief Aesthetics Engineering Function Malleable Product analysis three-dimensional specification	Cross-section Disassembly Market research Performance	Prototype Section drawing Synthetic
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Materials and Components Vocabulary

Battery balsa Buzzer	Battery balsa Buzzer	Abrasive Adhesive Axle	Mouldable material Parallel circuit Perspex	Thermosetting material
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Circuit Cog Cam dowel Gear Polystyrene Pulley	Circuit Cog Cam dowel Gear Polystyrene Pulley	Chassis Drive belt Fibres Ratchet Resistor	Membrane switch Textile	
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Tools, Equipment and Processes Vocabulary

Conductor Bench vice Electricity Crocodile clip Friction	Conductor Bench vice Electricity Crocodile clip Friction Ladle Linkage Pliers Pivot Mould	Applique Batik Hydraulics Mechanism Cladding Series circuit tension	Insulation Insulator Resistance Rotary	Scoring Set square Triangulation
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Content Based

Food and Nutrition	Food preparation: Bake, baste, beat, boil, dice, glaze, grill, knead, roast, rub in, set, simmer
Construction	Design, plan, review, construct, build, block, analyse
Textiles	Sewing terms: back-stitch, blanket stitch, cross-stitch, running stitch, tacking stitch, tie and dye, weaving.
Mechanisms and electrical	Levers, linkages, pulleys, gears, cams, light bulb, circuit