



DESIGN TECHNOLOGY PROGRESSION



| | KS1 | LKS2 | UKS2 |
|---------------|---|--|--|
| DESIGN | <p>KS1 Design and Technology National Curriculum</p> <p>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.</p> <p>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].</p> <p>Children design purposeful, functional, appealing products for themselves and other users based on design criteria.</p> <p>They generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.</p> | <p>KS2 Design and Technology National Curriculum</p> <p>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.</p> <p>They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].</p> <p>Children 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.</p> <p>They generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design.</p> | <p>KS2 Design and Technology National Curriculum</p> <p>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.</p> <p>They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].</p> <p>Children 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.</p> <p>They generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design.</p> |

| | | | |
|------|---|---|---|
| | <p>Children can:</p> <ul style="list-style-type: none"> • use their knowledge of existing products and their own experience to help generate their ideas; • design products that have a purpose and are aimed at an intended user; • explain how their products will look and work through talking and simple annotated drawings; • design models using simple computing software; • plan and test ideas using templates and mock-ups; • understand and follow simple design criteria; • work in a range of relevant contexts, for example imaginary, story-based, home, school and the wider environment. | <p>Children can:</p> <ul style="list-style-type: none"> • identify the design features of their products that will appeal to intended customers; • use their knowledge of a broad range of existing products to help generate their ideas; • design innovative and appealing products that have a clear purpose and are aimed at a specific user; • explain how particular parts of their products work; • use annotated sketches and cross-sectional drawings to develop and communicate their ideas; • when designing, explore different initial ideas before coming up with a final design; • when planning, start to explain their choice of materials and components including function and aesthetics; • test ideas out through using prototypes; • use computer-aided design to develop and communicate their ideas • develop and follow simple design criteria; • work in a broader range of relevant contexts, for example entertainment, the home, school, leisure, food industry and the wider environment. | <p>Children can:</p> <ul style="list-style-type: none"> • use research to inform and develop detailed design criteria to inform the design of innovative, functional and appealing products that are fit for purpose and aimed at a target market; • use their knowledge of a broad range of existing products to help generate their ideas; • design products that have a clear purpose and indicate the design features of their products that will appeal to the intended user; • explain how particular parts of their products work; • use annotated sketches, cross-sectional drawings and exploded diagrams (possibly including computer-aided design) to develop and communicate their ideas; • generate a range of design ideas and clearly communicate final designs; • consider the availability and costings of resources when planning out designs; • work in a broad range of relevant contexts, for example conservation, the home, school, leisure, culture, enterprise, industry and the wider environment |
| MAKE | <p>Children can:</p> <p>Planning</p> <ul style="list-style-type: none"> • with support, follow a simple plan or recipe; • begin to select from a range of hand tools and equipment, such as scissors, graters, zesters, safe knives, juicer; • select from a range of materials, textiles and components according to their characteristics; <p>Practical skills and techniques</p> | <p>Children can:</p> <p>Planning</p> <ul style="list-style-type: none"> • with growing confidence, carefully select from a range of tools and equipment, explaining their choices; • select from a range of materials and components according to their functional properties and aesthetic qualities; • place the main stages of making in a systematic order; | <p>Children can:</p> <p>Planning</p> <ul style="list-style-type: none"> • independently plan by suggesting what to do next; • with growing confidence, select from a wide range of tools and equipment, explaining their choices; • select from a range of materials and components according to their functional properties and aesthetic qualities; |

| | | | |
|-----------------|--|--|---|
| | <ul style="list-style-type: none"> learn to use hand tools and kitchen equipment safely and appropriately and learn to follow hygiene procedures; use a range of materials and components, including textiles and food ingredients; with help, measure and mark out; cut, shape and score materials with some accuracy; assemble, join and combine materials, components or ingredients; demonstrate how to cut, shape and join fabric to make a simple product; manipulate fabrics in simple ways to create the desired effect; use a basic running stitch; cut, peel and grate ingredients, including measuring and weighing ingredients using measuring cups; begin to use simple finishing techniques to improve the appearance of their product, such as adding simple decorations. | <p>Practical skills and techniques</p> <ul style="list-style-type: none"> learn to use a range of tools and equipment safely, appropriately and accurately and learn to follow hygiene procedures; use a wider range of materials and components, including construction materials and kits, textiles and mechanical and electrical components; with growing independence, measure and mark out to the nearest cm and millimetre; cut, shape and score materials with some degree of accuracy; assemble, join and combine material and components with some degree of accuracy; demonstrate how to measure, cut, shape and join fabric with some accuracy to make a simple product; join textiles with an appropriate sewing technique; begin to select and use different and appropriate finishing techniques to improve the appearance of a product such as hemming, tie-dye, fabric paints and digital graphics | <ul style="list-style-type: none"> create step-by-step plans as a guide to making; <p>Practical skills and techniques</p> <ul style="list-style-type: none"> learn to use a range of tools and equipment safely and appropriately and learn to follow hygiene procedures; independently take exact measurements and mark out, to within 1 millimetre; use a full range of materials and components, including construction materials and kits, textiles, and mechanical components; cut a range of materials with precision and accuracy; shape and score materials with precision and accuracy; assemble, join and combine materials and components with accuracy; demonstrate how to measure, make a seam allowance, tape, pin, cut, shape and join fabric with precision to make a more complex product; join textiles using a greater variety of stitches, such as backstitch, whip stitch, blanket stitch; refine the finish using techniques to improve the appearance of their product, such as sanding or a more precise scissor cut after roughly cutting out a shape. |
| EVALUATE | <p>Children explore and evaluate a range of existing products. They evaluate their ideas and products against design criteria.</p> <p>Children can:</p> <ul style="list-style-type: none"> explore and evaluate existing products mainly through discussions, comparisons and simple written evaluations; explain positives and things to improve for existing | <p>Children investigate and analyse a range of existing products.</p> <p>They evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</p> <p>They understand how key events and individuals in design and technology have helped shape the world.</p> <p>Children can:</p> | <p>Children investigate and analyse a range of existing products.</p> <p>They evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</p> <p>They understand how key events and individuals in design and technology have helped shape the world.</p> <p>Children can:</p> |

| | | | |
|----------------------------|--|---|---|
| | <p>products;</p> <ul style="list-style-type: none"> • explore what materials products are made from; • talk about their design ideas and what they are making; • as they work, start to identify strengths and possible changes they might make to refine their existing design; • evaluate their products and ideas against their simple design criteria; • start to understand that the iterative process sometimes involves repeating different stages of the process. | <ul style="list-style-type: none"> • explore and evaluate existing products, explaining the purpose of the product and whether it is designed well to meet the intended purpose; • explore what materials/ingredients products are made from and suggest reasons for this; • consider their design criteria as they make progress and are willing to alter their plans, sometimes considering the views of others if this helps them to improve their product; • evaluate their product against their original design criteria; • evaluate the key events, including technological developments, and designs of individuals in design and technology that have helped shape the world. | <ul style="list-style-type: none"> • complete detailed competitor analysis of other products on the market; • critically evaluate the quality of design, manufacture and fitness for purpose of products as they design and make; • evaluate their ideas and products against the original design criteria, making changes as needed. |
| TECHNICAL KNOWLEDGE | <p>KS1 Design and Technology National Curriculum</p> <p>Children build structures, exploring how they can be made stronger, stiffer and more stable. They explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</p> <p>Children can:</p> <ul style="list-style-type: none"> • build simple structures, exploring how they can be made stronger, stiffer and more stable; • talk about and start to understand the simple working characteristics of materials and components; • explore and create products using mechanisms, such as levers, sliders and wheels. | <p>KS2 Design and Technology National Curriculum</p> <p>Children apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</p> <p>They understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].</p> <p>They understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].</p> <p>They apply their understanding of computing to program, monitor and control their products.</p> <p>Children can:</p> <ul style="list-style-type: none"> • understand that materials have both functional properties and aesthetic qualities; • apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products; • understand and demonstrate how mechanical and electrical systems have an input and output process; | <p>KS2 Design and Technology National Curriculum</p> <p>Children apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</p> <p>They understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].</p> <p>They understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].</p> <p>They apply their understanding of computing to program, monitor and control their products.</p> <p>Children can:</p> <ul style="list-style-type: none"> • apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products; • understand and demonstrate that mechanical and electrical systems have an input, process and output; • explain how mechanical systems, such |

| | | | |
|--|--|---|---|
| | | <ul style="list-style-type: none">• make and represent simple electrical circuits, such as a series and parallel, and components to create functional products;• explain how mechanical systems such as levers and linkages create movement;• use mechanical systems in their products. | <p>as cams, create movement and use mechanical systems in their products;</p> <ul style="list-style-type: none">• apply their understanding of computing to program, monitor and control a product. |
|--|--|---|---|