



Beeston Primary School

Design and Technology Progression Grid



Design and Technology is an inspiring, rigorous and practical subject. It uses creativity and imagination to help pupils design and create products that solve relevant problems in a variety of contexts. Children will need to draw on disciplines such as mathematics, science, engineering and art, and learn to take risks to become resourceful, innovative and enterprising citizens. They will learn to evaluate past and present technology, develop a critical understanding of its impact in the world.

DT provides a focus within the curriculum for a critical understanding current and past technology; and how it affects daily life in the wider world.

DT can encourage pupils to think creatively, using their imagination to design and make products that could serve a purpose in today's society. It encourages them to think about their own needs, and the needs of others in order to innovate something that could help.

	Research	Design	Make (construction, textiles and food)	Evaluate
EYFS (Nursery and Reception)	• Explore and investigate everyday objects, materials, food and textiles through play and adult-led activities. • Talk about what materials are like and what they might be used for; notice simple changes when materials or food are combined. • Look closely at existing products and discuss what they are for, who might use them and how they work.	• Use drawing, talk, models and role play to communicate ideas. • Choose from a range of resources for a purpose and begin to make simple plans or representations. • Generate ideas from experiences and interests, adapting ideas as they work.	• Use scissors safely and increasingly accurately; cut, tear, fold, shape and manipulate materials. • Join materials in simple ways, including glue, tape, split pins, staples, tying, threading and temporary joins. • Develop fine-motor control through threading, weaving and simple sewing. • Explore construction techniques through junk modelling and simple structures. • Prepare simple food safely with adult support: washing, cutting, mixing and combining ingredients. • Begin to select suitable tools and materials and work with increasing independence.	• Talk about what they have made and explain what it is for. • Test and explore materials and constructions, for example floating/sinking and waterproofing. • Taste and discuss food, noticing preferences and changes in ingredients. • Identify what worked well and what they would change or try next. • Show and talk about finished work, listening to others' ideas.

Year 1	• Investigate existing products and simple mechanisms, including sliders, wheels and axles, structures, fabrics and foods. • Explore how materials can be cut, joined, shaped and used for different purposes. • Identify simple features that make products useful, stable or attractive. • Use simple research questions and observations to inform ideas.	• Respond to a simple design brief and identify a user or purpose. • Generate and communicate ideas through drawings, labels, models and simple diagrams. • Select materials and components that suit the intended purpose. • Plan a simple sequence of making steps and identify the main tools/resources needed. • Use simple design criteria such as movement, stability, appearance or taste.	• Measure and cut with growing accuracy; fold, shape and join card, paper, fabric and other materials. • Use simple mechanisms such as sliders and wheels/axles to create movement. • Build stable structures and strengthen them through changes to shape, base or weight. • Join fabrics using appropriate methods and develop basic stitching skills. • Prepare food safely using techniques such as cutting and juicing, following hygiene guidance. • Use tools safely and begin to work with increasing independence.	• Test products as they are made and identify whether they work as intended. • Evaluate against simple design criteria, including function, stability, movement, appearance and taste. • Gather simple feedback from others and use it to suggest improvements. • Explain what worked well and identify one or more changes for a next version.
Year 2	• Research existing products and mechanisms such as levers, linkages, fairground wheels and chairs. • Investigate how shape, thickness and material choice affect strength and stability. • Explore food groups, balanced meals and the properties/use of textiles. • Use observations, simple product comparisons and user feedback to inform design choices.	• Develop ideas that meet a brief and include clear, measurable or observable design criteria. • Produce labelled drawings, simple diagrams, templates and step-by-step plans. • Choose suitable materials, mechanisms, ingredients and joining methods for a purpose. • Plan the order of construction and anticipate practical problems. • Refine ideas after testing or discussion before final making.	• Cut materials accurately using templates; join and assemble with increasing control. • Use and explain simple levers, pivots and linkages and construct moving mechanisms. • Construct and strengthen simple structures, considering shape and material properties. • Use running stitch and basic decorative techniques to make a functional textile product. • Prepare and combine ingredients safely to create a balanced food product. • Use tools and equipment safely, accurately and with increasing independence.	• Test mechanisms, structures and products for function and stability. • Evaluate against design criteria and consider the views of users. • Identify faults or weaknesses and make purposeful modifications. • Explain how changes improve the product's function, appearance or suitability.

Year 3	• Research users, purposes and existing products, including packaging, textiles, electrical products and mechanical systems. • Investigate how nets form 3D shell structures and how compressed air can create movement. • Explore simple electrical circuits and programmable/light-up products. • Research seasonal food and consider where ingredients come from and how they are prepared. • Use product analysis and targeted questions to identify useful design features.	• Develop a design brief and design criteria based on a user and purpose. • Generate and compare several ideas using annotated sketches, diagrams, nets and prototypes. • Communicate how a mechanism, circuit or structure will work. • Select materials and techniques with increasing justification, considering function and appearance. • Plan making in a logical sequence and use prototypes to solve design problems.	• Make accurate nets and shell structures and construct stable models. • Use cross-stitch and appliqué to decorate and assemble textile products. • Construct simple electrical systems and use components safely. • Build and test pneumatic mechanisms using compressed air. • Prepare seasonal ingredients using safe cutting, peeling and combining techniques. • Use tools and equipment with greater precision and control.	• Evaluate products against design criteria, function, appearance and user needs. • Carry out tests and record or discuss findings. • Use feedback, including peer/user feedback, to identify improvements. • Explain why particular materials, mechanisms or construction methods were effective.
Year 4	• Research products and design contexts through product analysis, surveys, user research and investigation. • Investigate frame and shell structures, fastenings, mechanical systems, electrical components and programmable products. • Explore how ingredient quantities, cost and nutritional choices affect a food product. • Identify how products meet user needs and how materials/components contribute to function.	• Create design criteria that are specific to a target user and purpose. • Develop and annotate ideas using sketches, diagrams, prototypes and cross-sectional or exploded views where appropriate. • Plan resources, tools, sequence and time, considering likely constraints. • Justify choices of materials, mechanisms, fastenings, ingredients and components. • Use testing and feedback to refine a design before final manufacture.	• Construct frame and shell structures and apply strengthening techniques. • Build mechanical prototypes and select mechanisms that produce the required movement. • Make a functional electrical product using components such as cells, switches, bulbs and buzzers. • Use a range of textile fastenings and assemble a functional fabric product. • Adapt a recipe for a target audience, considering ingredients, cost and nutritional value. • Develop basic programming and digital design skills to prototype a functional product.	• Evaluate systematically against agreed design criteria and user needs. • Use test results to identify strengths, weaknesses and areas for refinement. • Collect and respond to user feedback through surveys, exhibitions or presentations. • Explain how technical choices affect function, safety, cost, aesthetics and suitability.

Year 5	• Research and analyse existing products, users, markets and design contexts. • Investigate gears, pulleys, bridges, motors, circuits, programmable devices, textiles and food systems. • Explore structural strength, mechanisms and electrical/programmable systems through practical investigation. • Consider sustainability, material choices, food provenance and the environmental impact of products. • Use research to identify opportunities, constraints and design requirements.	• Write or interpret a clear design brief and develop detailed design criteria. • Generate, compare and refine ideas using annotated sketches, prototypes, diagrams and CAD where appropriate. • Plan accurately for materials, dimensions, components, tools, sequence, cost and time. • Make informed choices about mechanisms, structures, textiles, food ingredients and electrical components. • Use iterative design: test, identify problems, modify and retest.	• Use more advanced construction, joining, sewing and finishing techniques with accuracy. • Build and modify gear, pulley and motorised systems and explain how they transfer movement. • Construct strong bridge structures and use structural principles to improve performance. • Create textile products using templates, accurate cutting and decorative/functional stitching. • Adapt and develop recipes using nutritional knowledge and prepare food safely. • Program and use digital technologies and CAD to develop functional product ideas.	• Evaluate throughout the design process rather than only at the end. • Use objective tests and evidence to judge performance against design criteria. • Analyse user feedback, cost, sustainability, aesthetics and function. • Justify modifications and explain how evidence led to design decisions. • Present and communicate the final product and its intended impact clearly.
Year 6	• Research users, needs, existing products, designers, materials, technologies and real-world contexts in depth. • Analyse how products work, including mechanisms, electrical systems, structures, textiles and digital/programmable technologies. • Investigate structural reinforcement, cams, circuits, sensors, CAD and programmable systems. • Consider sustainability, ethics, accessibility, cost, aesthetics and the environmental impact of design choices. • Use research evidence to define a focused problem and realistic design opportunity.	• Develop a detailed design brief and measurable design criteria for a specific user or purpose. • Generate and critically compare multiple ideas, selecting and refining the most suitable solution. • Use accurate annotated sketches, technical drawings, prototypes, pattern pieces, circuit diagrams and CAD. • Plan manufacture in detail, including dimensions, materials, components, tools, sequencing, cost and safety. • Iterate independently, responding to testing and feedback to improve the design.	• Select and use tools, materials and techniques accurately, safely and efficiently. • Construct complex structures and mechanisms, including reinforced structures and cam/automata systems. • Design and assemble functional electrical products with appropriate components and control systems. • Create high-quality textile products using templates, accurate joining and decorative/functional techniques. • Research, prepare, cook and present a multi-course meal while applying nutritional and food-safety knowledge. • Use programming, sensors and CAD to develop and communicate sophisticated product ideas.	• Evaluate rigorously against design criteria, user needs, technical performance and constraints. • Use test data, user feedback and comparison with existing products to judge effectiveness. • Identify limitations and propose specific, technically justified improvements. • Reflect on sustainability, cost, accessibility, aesthetics and the wider impact of design decisions. • Communicate the final solution clearly through presentation, explanation and evidence of the design journey.