



Broadhempston Primary School

Design and Technology Curriculum Statement

At Broadhempston Primary School, we believe that design and technology is an inspiring and practical subject that empowers children to become creative thinkers, innovative problem-solvers and confident makers. As a small rural school, we encourage pupils to be curious about how things work, identify challenges within the world around them and develop solutions through designing, making, testing and refining.

Our design and technology curriculum provides meaningful opportunities for children to apply their learning in real-life contexts. Pupils learn that successful design begins with understanding a purpose and the needs of a user before generating ideas, creating prototypes, testing solutions and evaluating outcomes. By drawing upon knowledge from science, mathematics, computing and art, children learn how ideas can be transformed into purposeful products and systems that improve everyday life. Through hands-on experiences, pupils develop practical skills, resilience and independence while learning the value of collaboration, perseverance and critical thinking.

We aim to nurture resourceful and ambitious learners who understand the importance of innovation, sustainability and responsible design. Pupils are encouraged to consider the needs of users, evaluate existing products and reflect on the impact that design and technology can have on people, communities and the environment. Where appropriate, learning is enriched through connections to the local community and the wider world, helping children recognise the relevance of design and technology in their own lives.

Through engaging and purposeful projects, pupils develop the confidence to take risks, learn from mistakes and refine their ideas. By the time they leave Broadhempston Primary School, children are equipped with the knowledge, skills and creativity to participate successfully in an increasingly technological world. They leave as thoughtful designers who can evaluate, improve and communicate their ideas effectively.

National Curriculum

At Broadhempston Primary School, our design and technology curriculum develops pupils' ability to design, make and evaluate products that solve real and relevant problems. Through practical experiences, children learn to apply their creativity, technical knowledge and problem-solving skills to design products for specific purposes and users.

The curriculum is structured around four interconnected strands that are revisited and developed throughout primary school:

- Design – generating, developing and communicating ideas through research, discussion, annotated sketches, diagrams and prototypes, while considering the needs of a purpose and user.
- Make – selecting and using appropriate tools, materials, components and techniques with increasing accuracy, control and independence.
- Evaluate – testing, refining and improving ideas and products against design criteria, while reflecting on their effectiveness and suitability for the intended user.
- Technical knowledge – developing understanding of materials, structures, mechanisms, electrical systems and digital technologies, and how these contribute to successful product design.

To ensure progression in knowledge and skills, learning is organised through a range of design and technology contexts:

- Structures – designing and building products that are strong, stable and fit for purpose, from simple models in Key Stage 1 to more complex frameworks in Key Stage 2.

- Mechanisms and Mechanical Systems – exploring how movement can be created and controlled through sliders, levers, linkages, cams, gears and pulleys.
- Textiles – developing practical sewing, joining and decorative skills to create functional and appealing textile products.
- Electrical Systems (Key Stage 2) – designing and making products that incorporate electrical components such as circuits, switches, bulbs, motors and sensors.
- Digital World (Key Stage 2) – applying computing knowledge to design, control and improve products, including the use of computer-aided design tools.
- Cooking and Nutrition – developing an understanding of healthy eating, food preparation, nutrition and where food comes from.

These areas are revisited throughout the curriculum to ensure pupils build upon prior learning and develop increasing confidence and competence as creative problem solvers.

Through regular opportunities to investigate, design, make and evaluate, pupils develop the substantive knowledge, disciplinary understanding and practical skills needed to create purposeful products for real users.

By connecting creativity with technical understanding, our curriculum equips pupils with the confidence to take risks, solve problems and become innovative thinkers who can respond to challenges in a rapidly changing society.

Curriculum design and delivery

As a small rural school, pupils learn within mixed-age classes. The curriculum has been carefully designed to ensure full coverage, clear progression and appropriate challenge for all learners through a two-year rolling programme in KS1 and a four-year rolling programme in KS2.

We have chosen the Kapow scheme as the foundation for our design and technology curriculum because it provides a coherent sequence of knowledge and skills while allowing teachers the flexibility to adapt learning to the interests, experiences and needs of our pupils.

Our curriculum is built around a spiral model, enabling pupils to revisit and deepen their understanding of key design and technology concepts throughout their primary education. This approach allows children to make meaningful connections between previous and new learning, strengthening both knowledge retention and practical application over time.

Through this approach, pupils:

- Revisit key concepts and skills across different contexts and projects.
- Develop increasingly sophisticated knowledge and understanding.
- Strengthen their ability to recall and apply prior learning.
- Refine practical skills through repeated opportunities to design, make and evaluate.
- Develop perseverance, adaptability and a willingness to take risks in their learning.

We believe it is important that pupils learn to think like designers and engineers. Children are encouraged to identify problems, consider the needs of users and explore how products and systems can be improved. Through the design process, pupils learn to research, generate ideas, create prototypes, test solutions and evaluate their effectiveness.

Pupils learn that successful design is an iterative process. They are encouraged to refine their ideas in response to testing, feedback and evaluation, understanding that innovation often develops through adaptation and improvement.

Our curriculum develops three interconnected forms of knowledge:

- Substantive knowledge – the facts, concepts and principles that underpin design and technology, such as understanding how structures achieve stability or how a balanced diet contributes to health.
- Disciplinary knowledge – understanding how designers and engineers think and work, including investigating problems, making decisions, evaluating products and justifying design choices.
- Procedural knowledge – the practical techniques and skills required to design and make products safely and effectively, including measuring, cutting, joining, shaping and finishing.

These forms of knowledge are developed through purposeful design projects that provide meaningful contexts for learning. As pupils progress through the school, they learn how materials, mechanisms, structures, electrical systems, digital technologies and food preparation can be combined to create effective solutions for real users. Technical knowledge is woven throughout the curriculum and helps pupils understand how products function and why design decisions matter. Whether designing a bridge, creating a textile product, building an electrical system or preparing a healthy meal, pupils learn how knowledge, skills and creativity work together to solve problems and meet human needs.

By connecting practical experiences with technical understanding, our curriculum enables pupils to become thoughtful, innovative and resourceful designers who are prepared for the opportunities and challenges of modern life.

Progression

Our design and technology curriculum is carefully sequenced to ensure that pupils develop increasing knowledge, skills and understanding as they move through the school. Through a spiral curriculum, children revisit key concepts, technical knowledge and practical skills in a range of contexts, enabling them to build confidence, deepen understanding and apply their learning with increasing autonomy and sophistication.

In the Early Years, children begin to explore how materials, tools and techniques can be used to create and solve simple problems. Through play, investigation and first-hand experiences, they develop curiosity, creativity and the fine motor skills that underpin later design and technology learning.

In Key Stage 1, pupils engage in practical projects that encourage them to design and make products for themselves and familiar users. They learn to generate ideas, select appropriate materials and tools, and begin to evaluate their work against simple design criteria. Through these experiences, pupils start to understand how products are created to fulfil a purpose.

In Lower Key Stage 2, pupils build on these foundations by developing their technical knowledge and considering the needs of specific users. They begin to research existing products, communicate ideas in greater detail and refine their designs through testing and evaluation. Pupils develop increasing confidence in selecting materials, tools and techniques that are suitable for a particular task.

In Upper Key Stage 2, pupils become increasingly independent and innovative thinkers. They apply a growing understanding of structures, mechanisms, electrical systems,

textiles, digital technologies and nutrition to create innovative solutions to design challenges. They justify design decisions, respond to feedback, evaluate products critically and refine their ideas through an iterative design process.

Throughout their time at Broadhempston Primary School, pupils develop increasing independence as designers and makers. They build upon prior learning to tackle increasingly complex challenges, drawing on a growing range of technical knowledge, practical skills and design strategies.

This progression supports the development of creativity, resilience and problem-solving while helping pupils understand how design and technology improve everyday life. By the time they leave Broadhempston, pupils are confident, resourceful and reflective designers who can apply their knowledge and skills to real-world challenges and understand the role of innovation in shaping the future.

Personal development and wider curriculum links

Digital literacy – Design and technology enables pupils to develop digital literacy through purposeful and creative applications of technology. Through the Digital World strand, pupils explore coding, computer-aided design (CAD) and programmable systems, developing an understanding of how digital technologies can be used to design, monitor and improve products. These experiences help pupils become confident and responsible users of technology in an increasingly digital world.

Oracy - Design and technology provides meaningful opportunities for pupils to develop their speaking and listening skills. Pupils are encouraged to:

- Present and explain their design ideas and finished products.
- Justify design decisions and choices of materials.
- Discuss products and design concepts using subject-specific vocabulary.
- Work collaboratively to plan, organise and complete design projects.
- Consider and represent the views of intended users.
- Evaluate and critique products respectfully and constructively.
- Respond positively to feedback and explain how designs can be improved.
- Summarise ideas and communicate solutions clearly.

These experiences help pupils develop confidence, communication skills and the ability to discuss and defend ideas effectively.

Sustainability - Our curriculum encourages pupils to consider the environmental impact of the products they design, make and evaluate. Through exploring material choices, responsible sourcing, food production and sustainable design solutions, pupils learn that thoughtful design can reduce waste, conserve resources and improve quality of life. Where appropriate, learning is enriched through consideration of local and global environmental issues, helping pupils understand their role as responsible and informed future designers.

Critical Thinking - Design and technology encourages pupils to analyse problems, evaluate evidence and make informed decisions. Through investigating existing products, exploring user needs and testing ideas, children learn to question assumptions and consider multiple solutions before selecting the most appropriate approach. This develops resilience, creativity and the confidence to solve problems independently.

Cultural Capital - Through studying significant designers, inventors, engineers, food cultures and technological developments, pupils develop an understanding of how design

has shaped societies throughout history and across the world. The curriculum broadens pupils' horizons by exposing them to a range of products, traditions, innovations and design influences, helping them understand the importance of design and technology in everyday life. Pupils also develop an awareness of the wide range of careers linked to design and technology, including design, engineering, architecture, manufacturing, food technology and innovation, helping them understand how creativity and technical expertise contribute to the modern world.

Enrichment and Real-World Experiences – We believe that design and technology is best learned through meaningful, hands-on experiences that enable pupils to see how design thinking is applied in the real world. Learning is enriched through workshops, visits and projects that bring the curriculum to life and provide opportunities for pupils to work alongside professionals and experts. Pupils take part in practical experiences linked to curriculum learning, such as engineering and bridge-building workshops, enabling them to apply their understanding of structures, materials and design principles in authentic contexts. We also provide opportunities for children to work with visiting artists and creative practitioners on individual and collaborative projects, including large-scale sculpture and installation work. Design and technology learning is further enhanced through Forest School experiences, where pupils design, make and evaluate outdoor structures, shelters and creative installations. These opportunities encourage problem-solving, teamwork, resilience and innovation while developing an appreciation of how design can interact with the natural environment. Through these experiences, pupils gain a deeper understanding of the design process, develop practical skills and recognise how creativity, engineering and craftsmanship can shape the world around them.

Inclusion and Diversity - We believe that design and technology should be relevant, accessible and inspiring for all pupils. Through exploring products, technologies, food traditions and design solutions from a wide range of cultures and communities, pupils develop an appreciation of the diversity of human creativity and innovation.

Learning encourages children to:

- Explore design traditions and technologies from different cultures and historical periods.
- Consider the needs of diverse users when designing products.
- Challenge stereotypes about designers, engineers and inventors.
- Develop empathy by designing for a range of people and contexts.
- Recognise the contributions of individuals from underrepresented groups within design, engineering and technology.

We are committed to ensuring that all pupils, including those with SEND, can access and succeed within the design and technology curriculum through appropriate scaffolding, adaptive teaching and practical support.

Assessment

Assessment is an integral part of teaching and learning in design and technology at Broadhempston Primary School. Teachers use ongoing assessment to identify what pupils know, understand and can do, and to inform future teaching.

Formative assessment takes place throughout the design process and includes:

- Skilled questioning and discussion.
- Observation of practical skills and the use of tools, materials and components.
- Review of pupils' design ideas, planning and design records.
- Evaluation of products against design criteria and intended user needs.
- Pupil reflection, self-assessment and peer feedback.

- Retrieval activities that revisit previously taught knowledge and concepts.

These approaches enable teachers to identify misconceptions, celebrate successes and provide timely support and challenge to ensure all pupils make progress.

Assessment in design and technology considers both the final product and the process used to create it. Teachers evaluate how effectively pupils investigate problems, generate ideas, apply technical knowledge, make informed design decisions and refine their work through testing and evaluation.

Knowledge catchers and end-of-unit assessments provide opportunities for pupils to demonstrate their understanding of key concepts, vocabulary and technical knowledge. Assessment information is used to identify strengths, address gaps in learning and inform future curriculum planning.

Leaders and staff monitor the quality and impact of the curriculum through:

- Reviewing design records, planning sheets and finished products.
- Pupil voice activities and discussions.
- Lesson visits and curriculum monitoring.
- Analysis of assessment information.
- Evaluation of progression in design, making, evaluating and technical knowledge.

Through these approaches, we ensure that pupils develop secure knowledge, practical competence and increasing confidence in applying the design process. They are able to apply their learning creatively, evaluate their ideas critically and make informed decisions throughout the design process.

CPD

High-quality teaching is essential to the successful delivery of our design and technology curriculum. We recognise that strong subject knowledge and confidence enable teachers to support pupils in developing creative thinking, practical skills and technical understanding.

Teachers are supported through a range of professional development opportunities, including:

- Access to high-quality curriculum resources and lesson guidance.
- Clear progression documents that show how knowledge and skills develop across the school.
- Subject-specific knowledge and technical guidance to support the teaching of design, making, evaluation and technical concepts.
- Practical demonstrations and training materials that develop confidence in teaching design and technology projects.
- Adaptive teaching strategies to support the successful inclusion of all learners.
- Collaboration with colleagues to share good practice and moderate expectations across year groups.
- Ongoing support and professional dialogue with subject leaders.

Our chosen curriculum resources support teachers in understanding the intended learning, how knowledge builds over time and how pupils develop increasing confidence as designers and makers. This enables staff to deliver engaging lessons while maintaining high expectations for creativity, technical accuracy and problem-solving.

Leaders continually evaluate the effectiveness of the curriculum through monitoring, pupil voice, staff feedback and professional development needs. This ensures that training remains responsive and that teachers are equipped to deliver a high-quality design and technology education for all pupils.

Impact

By the time pupils leave Broadhempston Primary School, they will have developed a secure foundation of design and technology knowledge, skills and understanding. They will confidently apply technical knowledge, practical skills and creative thinking to design and make products for a range of purposes and users.

They will understand how design and technology shape the world around them and will recognise the importance of innovation, sustainability and responsible decision-making.

The impact of our curriculum is evident in the quality of pupils' design work, products, discussions and evaluations. As they progress through the school, pupils demonstrate increasing technical competence, creativity, initiative and perseverance. They can articulate their thinking, justify design decisions and reflect thoughtfully on how products can be improved.

Pupils confidently apply their learning through workshops, Forest School projects, collaborative installations and enrichment experiences that provide authentic opportunities to design, make and evaluate products for real purposes and audiences.

Our pupils leave Broadhempston as creative, reflective and enterprising young people who are well prepared for the next stage of their education and able to contribute positively to an ever-changing world.

Curriculum Progression Overview

Design		
Year 1/2	Identify users, purposes, generate ideas, use drawings and labels to communicate designs.	Understand users, design briefs, design criteria, existing products and labels/drawings.
Year 3/4	Identify needs through surveys, develop criteria, use CAD and prototypes.	Know target audience, CAD, prototypes, diagrams and feasibility.
Year 5/6	Carry out market research, consider constraints, use 3D CAD and refine prototypes.	Know market research, constraints, environmental impact, cost and innovation.
Make		
Year 1/2	Plan steps, select materials and tools, measure, cut, join, shape and finish products.	Know properties of materials, safe tool use, joining, shaping and finishing techniques.
Year 3/4	Create ordered plans, select equipment independently and use tools accurately.	Know form, function, tool suitability and how planning improves outcomes.
Year 5/6	Create detailed plans, choose materials from research and work with precision.	Know aesthetics, risk assessment, durability, reinforcement and functionality.
Evaluate		
Year 1/2	Compare products, evaluate own work and give simple feedback.	Know products can be improved and design criteria determine success.
Year 3/4	Analyse products and explain effectiveness of designs and feedback.	Know designers create products and feedback improves outcomes.
Year 5/6	Evaluate usability, sustainability and innovation and refine designs.	Know sustainability, detailed evaluation and iterative improvement.
Technical knowledge		
Year 1/2	Explore mechanisms, structures, textiles and food preparation.	Know sliders, levers, wheels, structures, sewing and balanced diets.
Year 3/4	Use linkages, shell structures, textiles, circuits and digital control.	Know pneumatics, strengthening structures, nutrition, circuits and programming.
Year 5/6	Use gears, cams, reinforced structures, adapted recipes and advanced electrical/digital systems.	Know mechanical systems, triangulation, nutrition adaptation, motors, coding and conditional statements.