



BECKINGHAM PRIMARY SCHOOL

D & T CURRICULUM

ENSURING EVERY CHILD SUCCEEDS AND
THRIVES, BECOMING A LIFE-LONG LEARNER
PREPARED FOR THE WORLD OF TOMORROW

2022



Aims

The National Curriculum for Design and Technology aims to ensure that all pupils:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook

Intent - What are we trying to achieve for our children in Design and Technology?

At BPS we believe a high-quality Design and Technology curriculum should be an inspiring, rigorous and practical subject. We encourage children to use their creativity and imagination, to design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. Design and Technology encourages children to learn to think and intervene creatively to solve problems both as individuals and as members of a team. The design and technology curriculum combines skills, knowledge, concepts and values to enable children to tackle real problems. It can improve analysis, problem solving, practical capability and evaluation skills. We aim to, wherever possible, link work to our topics. The children are encouraged to become innovators and risk-takers. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the school community. Through the evaluation of past and present design and technology, they will develop a critical understanding of its impact on daily life and the wider world.

Implementation - How is the curriculum delivered?

Following the 'Development Matters' guidance in EYFS, our Reception children gain an understanding of 'Expressive Arts' and come into KS1 with the foundations laid for Design Technology. At BPS, we implement Design and Technology curriculum that;

- meets the objectives outlined in the National Curriculum , a copy of which can be found [here](#)
- is progressive throughout the school, with three distinct milestones of KS1, LKS2 and UKS2. Each milestone will include these Design and Technology concepts: CAD/Electrical Systems, Food and Nutrition, Construction and Mechanics, and Textiles and will be taught alongside; mastering practical skills; designing, making, evaluating and improving; and taking inspiration from design.
- has progressive skills and knowledge embedded into each unit.
- Provides the opportunity for children to evaluate and develop their techniques over time.



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- ensures children are able to develop their knowledge and understanding of the work of designers from a range of times and cultures and apply this knowledge to their own work.
- provides whole class differentiation through questioning and various methods of recording
- is delivered on a half-termly timetable, where Art & Design and Design & Technology are taught alternate half terms.
- is enhanced by trips and visiting experts where appropriate.

Impact - *What difference is the curriculum making? How do you know whether pupils know what you think they know?*

Displays reflect the children's sense of pride in their design and technology work and is also demonstrated by creative outcomes across the wider curriculum. The school environment also celebrates children's achievements in art and demonstrates the subject's status in the school. The Design and Technology curriculum at BPS contributes to children's values; tenacity, hard-work and vision. Standards in Design and Technology will be high and will match standards in other subjects such as English and Maths. We measure the impact of our Design and Technology curriculum using the following measures:

- Our Long-Term Plan (LTP) will show a clear progression of knowledge and skills across Key Stage 1 and 2 that builds on prior knowledge
- Pupil discussion about their learning
- Termly teacher judgements track progress and inform subsequent planning



Design and Technology

Master a Practical Skill

CAD/Electrical systems

Design, Make, Evaluate and Improve

Food and Nutrition

Take Inspiration in Design

Construction and Mechanics

Textiles



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	Nursery	R1 September to January	R2 February to July
Progression milestones	<ul style="list-style-type: none"> • Explores the feel of a range of everyday objects. • Develops knowledge about design through play with objects. • Can talk about what they are going to make. <ul style="list-style-type: none"> • Manipulates basic tools. • Uses trial and error to develop understanding. • Reflects on a product, saying what they like. 	<ul style="list-style-type: none"> • Explores a range of everyday objects and can talk about similarities and differences between them. • Draws what they are going to make. <ul style="list-style-type: none"> • Chooses appropriate tools. • Explains what they are happy with in a product and how they will tweak the design to improve it 	<ul style="list-style-type: none"> • Makes judgements about properties of different materials and their suitability for construction. • Tests out the properties of materials. • Draws what they are going to make and explains designs. • Experiments with designs and materials. <ul style="list-style-type: none"> • Uses tools safely. • Describes how a product is made up of many different parts
Learning Experiences	<ul style="list-style-type: none"> • Read The Little Engine That Could by Watty Piper. Talk to children about how the train pulls the cars. Encourage children to play with trains in the classroom and explore how the train carriages are attached to each other. 	<ul style="list-style-type: none"> • Read Iggy Peck, Architect by Andrea Beaty. Ask children about tall towers they know of. Provide nonfiction books with pictures of tall buildings and ask children what they notice about them. Challenge children to build a tall building using lots of different materials. 	<ul style="list-style-type: none"> • Read Roller Coaster by Maria Frazee. Ask children if they have ever been on a roller coaster and, if not, whether or not they think they would like it. Ask them what they think makes the roller coaster go fast. Show children a marble run and ask them on which parts of the run they think the marble will go fastest
Continuous Provision	<ul style="list-style-type: none"> • Provide equipment such as pipe cleaners, paper clips, elastic bands and paper strips so that children can experiment with joining materials. Encourage children to make a train by joining things together. Encourage them to see how long they can make their train. 	<ul style="list-style-type: none"> • Encourage children to build towers with lots of different materials. Ask 'Who can make the tallest building?'. Provide a wide range of building materials: boxes, cartons, cardboard tubes, plastic cups, art straws. Provide connectors: tape, glue, elastic bands and wire. Provide tools: scissors and pliers 	<ul style="list-style-type: none"> • Encourage children to play with ramps and balls. Ask them how they think they can change the ramps to make the balls go faster. Give children a challenge: 'Who can design a marble run with cardboard tubes to make the marbles move at different speeds?'



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Outdoor Environment	<ul style="list-style-type: none">Encourage children to find ways of joining things together to make a train outside. Ask them to explain how they have joined things together.	<ul style="list-style-type: none">Go on a walk to investigate buildings nearby and ask children what they notice about how they are built and the shapes they can see	<ul style="list-style-type: none">Provide planks, balls and cars for children to experiment with.
Purposeful pedagogy	<ul style="list-style-type: none">Provide a wide range of materials and display them attractively so children can see all the choices available to them. Show children that each item has a specific place. Experimenting allows children to learn about the properties of materials and the capabilities of tools through play. The end-product is not as important as the process	<ul style="list-style-type: none">Encourage children to think about what kind of building they will make and to draw their ideas. Allow them to build their towers to test out their ideas. In doing this, they will find out if the buildings stand up, and what they can change to make the buildings better or stronger. Encourage children to describe their buildings to others: how they designed them initially and what they changed to improve it.	<ul style="list-style-type: none">Encourage children to do lots of exploring before starting activities as the greater their knowledge of materials, the more creative they will be. Encourage children to design, test out and tweak their products. Ask children if their finished products were suitable for their purpose. Leave the resources out for children to tweak and refine their designs. Read <i>How to Design the World's Best Roller Coaster in 10 Simple Steps</i> by Paul Mason. Discuss the book with the children
Learning Conversations	<ul style="list-style-type: none">Ask questions such as 'What do you think will happen if ...?' and 'What did you notice about ...?'	<ul style="list-style-type: none">Ask children which tower is the tallest and how they know. Encourage them to find a way of measuring. Talk to children about some of the strange materials Iggy used to make his towers. Ask them if they think anyone could actually build them and make them stand up	<ul style="list-style-type: none">Ask questions such as, 'What do you notice makes the marbles go faster or slower?', 'What might happen if you ...?' and 'If the marble doesn't stay on your run, what might you change?'



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Threshold Concept	Design & Technology Concept	Milestone 1 Years 1 and 2	Milestone 2 Years 3 and 4	Milestone 3 Years 5 and 6
Master Practical Skills	Textiles	<ul style="list-style-type: none"> • Know how to shape textiles using templates. • Know how to join textiles using running stitch. • Know how to colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing). 	<ul style="list-style-type: none"> • Understand the need for a seam allowance. • To know how to join textiles with appropriate stitching. • Select the most appropriate techniques to decorate textiles. 	<ul style="list-style-type: none"> • Know how to create objects (such as a cushion) that employ a seam allowance. • Know how to join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration). • Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles (such as a soft decoration for comfort on a cushion).
	Construction and Mechanics	<ul style="list-style-type: none"> • Know how to cut materials safely using tools provided. • Know how to measure and mark out to the nearest cm. • Know how to demonstrate a range of cutting/shaping techniques (such as tearing, cutting, folding and curling). • Know how to demonstrate a range of joining techniques (such as gluing, hinges/combining materials to strengthen). • Know how to use materials to practice drilling, screwing, gluing and nailing materials to make and strengthen products. • Know how to create products using levers, wheels and winding mechanisms. 	<ul style="list-style-type: none"> • Cut materials accurately and safely by selecting appropriate tools. Measure and mark out to the nearest millimetre. • Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs). • Select appropriate joining techniques. • Choose suitable techniques to construct products or to repair items. • Strengthen materials using suitable techniques. 	<ul style="list-style-type: none"> • 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). • Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (such as the nature of fabric may require sharper scissors than would be used to cut paper). • Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filling and sanding). • Convert rotary motion to linear using cams. • Use innovative combinations of electronics (or computing) and mechanics in product designs.



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	Food and Nutrition	<ul style="list-style-type: none"> • To know how to cut, peel or grate ingredients safely and hygienically. • To know how to measure or weigh using measuring cups or electronic scales. • To know how to assemble or cook ingredients • To know how to use the basic principles of a healthy and varied diet to prepare dishes • understand where food comes from 	<ul style="list-style-type: none"> • Prepare ingredients hygienically using appropriate utensils. • Measure ingredients to the nearest gram accurately. • Follow a recipe. • Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking). • Understand and apply the principles of a healthy and varied diet • Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. 	<ul style="list-style-type: none"> • Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms). • Measure accurately and calculate ratios of ingredients to scale up or down from a recipe • Demonstrate a range of baking and cooking techniques. • Create and refine recipes, including ingredients, methods, cooking times and temperatures. • Understand and apply the principles of a healthy and varied diet • Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.
	CAD/ Electrical Systems		<ul style="list-style-type: none"> • Create series and parallel circuits • Incorporate a circuit with a bulb or buzzer into a mode 	<ul style="list-style-type: none"> • Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips). • Write code to control and monitor models or products.
Design, Make, Evaluate, Improve		<ul style="list-style-type: none"> • To know how to design products that have a clear purpose and an intended user <p>To know how to make products, refining the design as work progresses.</p>	<ul style="list-style-type: none"> • Know how to design with purpose by identifying opportunities to design. • Know how to make products by working efficiently (such as by carefully selecting materials). • Know how to refine work and techniques as work progresses, continually evaluating the product design. 	<ul style="list-style-type: none"> • Know how to design with the user in mind, motivated by the service a product will offer (rather than simply for profit). • To know how to make products through stages of prototypes, making continual refinements. • Ensure products have a high quality finish, using art skills where appropriate. • Know how to use prototypes, cross-sectional diagrams and computer aided designs to represent designs.



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<p>Take inspiration in design</p>		<ul style="list-style-type: none">• To know how to explore objects and designs to identify likes and dislikes of the designs• To know how to suggest improvements to existing designs.• To know how to explore how products have been created	<ul style="list-style-type: none">• To know how to improve upon existing designs, giving reasons for choices• To know how to disassemble products to understand how they work	<ul style="list-style-type: none">• To know how to create innovative designs that improve upon existing products.• To know how to evaluate the design of products so as to suggest improvements to the user experience.
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