Design and Technology

Curriculum Overview

Place Partnership

A MULTI-ACADEMY TRUST

Our Vision

"Design is intelligence made visible."

At Horbury Primary Academy, we believe that Design and Technology empowers children to become creative thinkers, innovative problem-solvers and resilient learners. Through our vision of **Strong Roots, Growing Minds**, we provide opportunities for pupils to design, create, evaluate and refine products that solve real-life problems and meet the needs of a specific user or purpose.

We want our pupils to understand that design and technology shape the world around us. From the products we use every day to the buildings we live and work in, children develop an appreciation of how designers, engineers, architects and inventors improve lives through creativity and innovation. By exploring existing products and learning about significant individuals within the field, pupils develop the confidence to see themselves as future creators, innovators and change-makers.

A key feature of the **Horbury Way** is ensuring that learning is purposeful, meaningful and relevant. Pupils are encouraged to investigate authentic design challenges, generate creative solutions and apply practical skills to bring their ideas to life. Through an iterative process of designing, making, testing and evaluating, children learn that mistakes are valuable, resilience is essential and innovation comes through continual improvement.

Through high-quality teaching, practical experiences and ambitious vocabulary instruction, we aim to develop children who can think critically, work collaboratively and apply their creativity confidently to the challenges of the future.

When children leave Horbury Primary Academy, we aspire for them to have developed:

- A passion for design, innovation and problem-solving.
- Confidence in designing and creating purposeful products for a range of users.
- Creativity, resilience and perseverance when developing and improving ideas.
- Practical skills across a range of materials, techniques and technologies.
- An understanding of the contributions of designers, engineers, architects and inventors.
- An appreciation of how design and technology influences everyday life and shapes the modern world.
- The confidence to approach challenges with imagination, curiosity and determination.

Implementation

Design and Technology is taught through carefully sequenced projects that progressively develop children's knowledge, skills and understanding throughout their primary education. Learning is designed to ensure that pupils know more, remember more and apply their skills confidently in a range of practical contexts.

Every lesson follows the Horbury curriculum approach:

- Prior learning is revisited through retrieval activities, strengthening long-term memory and supporting connections between new and existing knowledge.
- Key technical and subject-specific vocabulary is explicitly taught and revisited through Knowledge Mats to support understanding, retention and application.
- Teachers model processes, techniques and design thinking through clear instruction before pupils apply their learning independently.
- Children engage in an iterative process of researching, designing, making and evaluating products to solve purposeful design challenges.
- Lessons conclude with an enquiry question that allows pupils to reflect upon their learning, justify design decisions and evaluate outcomes.

Throughout the curriculum, pupils are encouraged to think and work like designers, engineers and innovators. They investigate existing products, explore materials and techniques, develop technical knowledge and evaluate the effectiveness of their creations against agreed criteria.

To ensure high-quality Design and Technology provision, teachers:

- Have a secure understanding of the key assessment criteria and sticky knowledge within each unit.
- Plan progressive learning experiences that build upon prior knowledge and skills.
- Explicitly teach and revisit ambitious technical vocabulary.
- Provide opportunities to investigate and evaluate existing products.
- Develop children's understanding of nutrition, healthy lifestyles and food preparation through food technology.
- Encourage creativity, innovation and independent problem-solving.

- Support pupils in refining and improving products through ongoing evaluation.
- Enrich learning through themed projects, visitors and real-world design experiences.
- Raise aspirations by exposing pupils to careers within design, engineering, architecture and technology.
- Celebrate and showcase children's creativity and achievements throughout the school.
- Promote inclusion and ensure all pupils can access and succeed within the subject.

Impact

Through our Design and Technology curriculum, pupils develop the knowledge, skills and confidence needed to become creative, capable and resilient problem-solvers.

By the time they leave Horbury Primary Academy, pupils will:

- Demonstrate enthusiasm, creativity and engagement in Design and Technology.
- Apply design thinking and practical skills to solve real-world problems.
- Select and use tools, materials and equipment safely and effectively.
- Design and create products that meet a clear purpose and intended outcome.
- Evaluate products critically and use feedback to refine and improve their work.
- Understand how design and technology have influenced society and continue to shape the world around them.
- Demonstrate resilience, adaptability and independence throughout the design process.
- Meet or exceed age-related expectations within the subject.
- Be equipped with practical, creative and problem-solving skills that support future learning and life beyond primary school.

Through our commitment to **Strong Roots, Growing Minds**, pupils leave Horbury Primary Academy as imaginative thinkers, confident creators and resilient innovators who understand that great ideas can be transformed into meaningful solutions that improve the world around them.

Assessment for Learning

Assessment for Learning is embedded throughout the curriculum and used to ensure pupils know more, remember more and understand more. Teachers assess pupils' understanding through retrieval activities, purposeful questioning, discussion, observation and the review of pupils' work. This enables misconceptions to be identified quickly and informs future teaching.

At Horbury Primary Academy, each unit culminates in an end-of-unit enquiry question that pupils work towards answering throughout their learning journey. These carefully planned questions provide pupils with the opportunity to demonstrate their knowledge, understanding, vocabulary and disciplinary skills, whilst making meaningful connections to previous learning. Responses may take a range of forms appropriate to the subject and learning objectives.

Assessment information is used to evaluate pupil progress, identify gaps in learning and ensure that all pupils develop a secure understanding of the taught curriculum. Through regular opportunities to retrieve, apply and communicate their learning, pupils strengthen retention and develop increasingly sophisticated subject knowledge over time.

Adaptive Teaching

At Horbury Primary Academy, we are committed to delivering an ambitious curriculum for all pupils. Adaptive teaching ensures that every child can access, engage with and succeed within the same high-quality curriculum whilst maintaining high expectations for all learners.

Adaptive teaching is informed by ongoing assessment and may include:

- Retrieval activities to strengthen prior learning and support retention.
- Explicit teaching and pre-teaching of subject-specific vocabulary.
- Visual supports, modelling and worked examples.
- Carefully planned scaffolds to support understanding and independent application.
- Adapted questioning to provide support, challenge and deepen thinking.
- Flexible grouping and targeted adult support where appropriate.
- Opportunities to revisit key concepts and address misconceptions.

- Alternative methods of recording where necessary to remove barriers to learning.

These adaptations support pupils to develop secure knowledge, build confidence and successfully answer the end-of-unit enquiry question. By responding to individual needs whilst maintaining curriculum ambition, all pupils are supported to flourish academically and personally in line with our vision of **Strong Roots, Growing Minds**.

EYFS

In the Early Years Foundation Stage, Design and Technology is primarily developed through the *Expressive Arts and Design* area of learning, whilst also drawing upon Physical Development, Mathematics and Understanding the World. Through carefully planned provision and first-hand experiences, children are encouraged to explore, investigate, construct and create.

Pupils experiment with a range of materials, tools and techniques, learning how different resources can be combined, adapted and refined to achieve a desired purpose. Through designing, building, making and problem-solving, children begin to develop the curiosity, creativity and resilience that underpin future learning in Design and Technology.

Our stimulating learning environments encourage children to take risks, explore ideas and develop their independence as young designers and makers. By building upon children's interests and prior experiences, we establish strong foundations for future success and foster a lifelong enjoyment of creating, designing and innovating.

National Curriculum aims for Design and Technology
Through the teaching of design and technology, pupils will: • Develop the creative, technical and practical expertise needed to perform everyday tasks confidently. • Design and make high-quality products for a wide range of users. • Evaluate and improve existing products and their own designs. • Build and apply knowledge of structures, mechanisms, textiles, electrical systems and cooking and nutrition. • Understand and apply the principles of nutrition and learn how to cook.

Design

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Share ideas about what they want to make.	Draw simple designs and say who the product is for.	Generate and communicate ideas through drawings and labels.	Design products for a purpose using annotated sketches.	Develop design criteria from research.	Produce detailed designs considering user needs.	Create innovative designs considering purpose, user and constraints.

Make

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Use simple tools and materials safely.	Cut, fold and join materials with support.	Select appropriate tools and use them more accurately.	Measure, mark out and join materials accurately.	Select from a wider range of tools and materials.	Work accurately and independently using a range of techniques.	Manufacture products precisely and safely, adapting work when required.

Evaluate

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Talk about what they have made.	Say what they like and dislike about a product.	Explain how a product could be improved.	Evaluate products against design criteria.	Identify strengths and areas for development.	Refine products using testing and feedback.	Critically evaluate products considering purpose, user and effectiveness.

Technical Knowledge

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Explore how things work and move.	Build simple structures and explore mechanisms.	Use simple mechanisms such as sliders, levers and wheels.	Understand how structures can be strengthened and use pneumatics.	Apply understanding of electrical systems and mechanical systems.	Use pulleys, gears and strengthening techniques.	Combine electrical, mechanical and structural knowledge to solve design problems.

Cooking and Nutrition

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Explore food through tasting and preparation.	Prepare simple foods safely with support.	Prepare simple dishes independently and understand food origins.	Follow recipes and prepare savoury dishes safely.	Use a wider range of preparation and cooking techniques.	Understand and apply principles of a healthy balanced diet.	Prepare and cook a range of dishes confidently, explaining nutrition, seasonality and food production.

Long Term Plan for Design and Technology

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Marvellous Me! Amazing me!	Lets Sparkle Once Upon a Time!	If you go down in the woods today… Help! I need somebody	That's not my pet! Down on the Farm	A Bugs Life All Aboard	Commotion in the Ocean The World In Your Lunchbox
Y1	**Can you make a picture come to life?** How do sliders and levers create movement? How can we design a moving picture? How can we make and improve our moving picture? **End Point** Moving picture book page.	**Can you create a healthy snack children would enjoy?** Where do vegetables come from? How can we prepare food safely? How can we create a tasty vegetable snack? **End Point** Veggie snack tasting.	**Can you make a healthy biscuit that gives you energy?** What ingredients make an energy snack? How can we prepare ingredients safely? How can we make and evaluate an oat biscuit? **End Point** Energy biscuit.	**Can you build the perfect playground?** What makes playground equipment successful? How can structures be strengthened? How can we design and build playground equipment? **End Point** Playground model.	**Can you design the perfect sandwich?** What makes a good sandwich? How can ingredients be prepared safely? How can we design and make our own sandwich? **End Point** Finished sandwich design.	

Y2				**Can you build the perfect safari vehicle?** How do wheels and axles help vehicles move? How can we design a vehicle for a safari adventure? How can we build, test and improve our vehicle? **End Point** **Safari Vehicle Test Track** Children test their vehicle against design criteria.	**Can you create a healthy snack worth buying?** **Objectives** How can fruit be prepared safely? What makes a snack healthy and appealing? How can we design and make our own fruit skewer? **End Point** **Healthy Snack Challenge** Children evaluate their product against their design brief.	**Can you turn simple materials into fabric?** How does weaving work? How can we weave different materials and patterns? How can we create a finished woven piece? **End Point** **Seaside Weaving Artwork** Children create a final woven product linked to their seaside theme.
Y3		**Can you create a puppet children would want to play with?** What makes a successful puppet? How can fabrics be joined using simple stitching techniques? How can we design, make and	**Can you create the ultimate healthy smoothie?** What makes a smoothie healthy and appealing? How can ingredients be prepared safely? How can we design, make and evaluate a smoothie?		**Can you bring your monster to life?** How do pneumatic systems create movement? How can we design a moving monster? How can we make and	

		improve a puppet? **End Point** **Puppet Showcase** Children demonstrate their puppet being used in a short performance.	**End Point** **Smoothie Challenge** Children create and evaluate their smoothie against their design criteria.		improve a pneumatic toy? **End Point** **Moving Monster Showcase** Children demonstrate their working pneumatic monster.	
Y4		**Can you design a toy that grabs people's attention?** How do electrical circuits make buzz toys work? How can we design an appealing buzz toy? How can we make and evaluate a working buzz toy? **End Point** **Buzz Toy Challenge** Children test whether others can successfully complete their game and	**Can you make a story jump off the page?** How do pop-up mechanisms work? How can we design a page that includes movement? How can we make and evaluate a pop-up book page? **End Point** **Pop-Up Book Showcase** Children create a finished pop-up page linked to a story, topic or theme.			

		evaluate its effectiveness.				
Y5		**Can you create a gift someone would treasure?** How can fabrics be joined using sewing techniques? How can decorations improve a textile product? How can we design, make and evaluate a textile gift? **End Point** Finished Christmas stocking.				**Can you build a bridge strong enough to carry a real load?** What makes bridges strong and stable? How do engineers strengthen structures? How can we design, build and test a bridge? **End Point Engineering Challenge** Test bridges against increasing weights.
Y6		**Can you turn £5 into a successful business?** How can successful products be identified and researched? How can we design a product that				**Can you design a pizza people would actually buy?** How can we research successful pizza products?

		people will want to buy? How can we make and improve our product within a budget? How can we evaluate the success of our product? **End Point** **Christmas Fair Enterprise Challenge** Children receive £5 seed funding and create a product to sell at the Christmas Fair.				How can we design a pizza that meets a specific brief? How can we safely prepare and make our pizza? How can packaging improve a product? How can we evaluate our final design? **End Point** **Pizza Launch** Children present: • their pizza • their packaging • their branding and evaluate whether it would succeed on the market.