Newhall Junior School

Design and Technology

Intent

Design and Technology enables pupils to make an essential contribution to the creativity, culture, wealth and well-being of the nation. It requires pupils to design and make products that solve real-life and relevant problems within a variety of contexts, allowing children to use their imagination and participate successfully in an increasingly technological world.

At Newhall Junior School, we aim to:

- Provide a broad, ambitious and inclusive Design and Technology curriculum that develops creativity, innovation and problem-solving skills.
- Enable pupils to design and make products that solve real-life and relevant problems in a variety of contexts.
- Draw upon and apply knowledge from mathematics, science, computing and art, helping pupils make meaningful connections across the curriculum.
- Develop pupils' technical knowledge, practical expertise and understanding through carefully sequenced learning that builds on prior knowledge.
- Equip pupils with the confidence to take risks, generate ideas, model, test, evaluate and refine their work.
- Foster creativity, resilience and independence by encouraging pupils to become reflective learners who can evaluate their own work and the work of others.
- Develop an understanding of significant inventors, engineers, designers and technological developments that have shaped the modern world.
- Ensure all pupils, including those with SEND and disadvantaged pupils, can access, participate in and succeed within the curriculum.
- Teach essential life skills through Cooking and Nutrition, enabling pupils to understand healthy eating, nutrition and food preparation.
- Prepare pupils for the next stage of their education and for life in an increasingly technological and innovative world.

Through a strategically planned curriculum, children are exposed to challenging concepts, ambitious vocabulary, new ideas and practical skills. By building on prior

knowledge and making cognitive connections across their learning, pupils develop from novice to expert learners and become resourceful, innovative and capable citizens.

Implementation

Newhall Junior School whole school curriculum map

Design and Technology Long-Term Plan

	Unit 1	Unit 2	Unit 3
Year 3	**Cooking and Nutrition** **Eating Seasonally -** Discovering when and where fruits and vegetables are grown. Learning about seasonality in the UK and the relationship between the colour of fruits and vegetables and their health benefits by making three dishes.	**Digital World** **Wearable Technology** - Designing, coding, making and promoting a Micro:bit electronic charm to use in low-light conditions. Children develop their understanding of programming to monitor and control their products.	**Structures** **Constructing a Castle -** Learning about the features of a castle, children design and make one of their own. Using configurations of handmade nets and recycled materials to make towers and turrets and constructing a base to secure them.
Year 4	**Cooking and Nutrition** **Adapting a Recipe -** Evaluating biscuits, following a simple recipe and using skills like measuring and mixing. Pupils adapt ingredients to suit a target audience and budget, then bake and assess how well their changes improve the final product.	**Mechanical Systems** **Mechanical Car -** Transforming lollipop sticks, wheels, dowels and straws into a moving car. Using a glue gun to, making a launch mechanism, designing and making the body of the vehicle using nets and assembling these to the chassis.	**Electrical Systems** **Torches -** Applying their scientific understanding of electrical circuits, children create a torch, designing and evaluating their product against set design criteria.
Year 5	**Electrical Systems** **Doodlers -** Explore series circuits further and introduce motors. Explore how the design cycle can be approached by investigating an existing product, which uses a motor, to encourage pupils to problem-solve and work out how the product has been constructed.	**Cooking and Nutrition** **Developing a Recipe -** Investigating ingredients and nutrition before modifying a familiar dish to meet dietary needs and preferences. Pupils practise skills such as grating, mixing and measuring, then develop and test their own adapted recipe, considering hygiene, safety and the nutritional value of ingredient choices.	**Mechanical Systems** **Gears and Pulleys -** Exploring how gears and pulleys change speed, direction and force by building simple working systems. Pupils investigate real-world examples, create and improve their own mechanisms, and apply these skills when designing a product such as an eco-gadget bike, evaluating how well their system meets a design brief.
Year 6	**Textiles** **Waistcoats -** Selecting suitable fabrics, using templates, pinning, decorating and stitching to create a waistcoat for a person or purpose of their choice.	**Digital World** **Navigating the World -** Programming a navigation tool to produce a multifunctional device for trekkers. Combining 3D objects to form a complete product in CAD 3D modelling software and presenting a pitch to 'sell' their product.	**Structures** **Playground -** Designing and creating a model of a new playground featuring five apparatus, made from three different structures. Creating a footprint as the base, pupils visualise objects in plain view and get creative with their use of natural features.

The teaching and implementation of the Design and Technology curriculum at Newhall Junior School is based on the National Curriculum, ensuring a broad experience of knowledge and skills are developed, then applied to a range of outcomes. Ofsted's renewed framework requires schools to clearly demonstrate curriculum sequencing, implementation quality, teacher expertise, and inclusivity.

We follow the combined scheme from Kapow, consisting of three half-term units of work, carefully planned so that pupils' learning builds sequentially throughout KS2. In each unit children will meet the three main stages of the design process: design, make and evaluate. Each stage of the design process is underpinned by technical knowledge which encompasses the contextual, historical, and technical understanding required for each strand. Cooking and nutrition has a separate section, with a focus on specific principles, skills, and techniques in food, including where food comes from, diet and seasonality.

Through Kapow's Design and Technology scheme, children respond to design briefs and scenarios that require consideration of the needs of others, developing their skills in six key areas:

- Mechanisms
- Structures
- Textiles
- Food
- Electrical systems
- Digital World

Lessons incorporate independent, paired and group work including practical hands-on, computer based and inventive tasks. Practical outcomes, design sketches, prototypes and CAD work mirror Ofsted's shift toward richer evidence sets and contextualised demonstration of pupil learning.

At Newhall Junior School, we adapt the lessons to meet the needs of all our learners. Adaptations are made for SEND, EAL and GDS pupils, which aligns with the Ofsted 2025–26 focus on Inclusion as a standalone judgement.

Impact

Following the implementation of Kapow Primary Design and Technology, pupils leave Newhall Junior School equipped with a range of skills that enable them to succeed in secondary education and become innovative and resourceful members of society.

Pupils develop enriched cultural capital through an awareness of significant inventors, engineers and designers who have shaped society and continue to influence the modern world. They produce high-quality outcomes, including models, prototypes and digital designs, which showcase their skills, knowledge and understanding. Pupils speak positively about their Design and Technology experiences and demonstrate enthusiasm for designing, making and problem-solving.

Children develop an appreciation of key individuals, inventions and technological developments from both the past and present, recognising their impact on everyday life and the wider world. They are able to confidently evaluate and reflect upon their learning at different stages of the design process, identifying successes, refining ideas and recognising areas for improvement.

Through this approach, pupils know more, remember more and are well prepared for the next stage of their education and future life in an increasingly technological world.