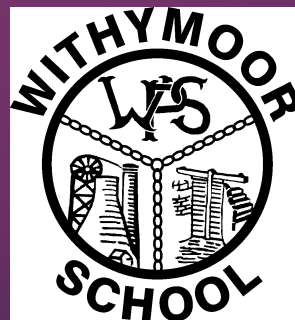


# *Withymoor Primary School Design Technology Curriculum*

*LEARNING TOGETHER, AIMING FOR EXCELLENCE.*



*Updated October 2023*



# Withymoor Primary School Curriculum Intent

*At Withymoor Primary School we value and promote kindness and respect for all individuals, regardless of their race, gender, disability, religion or sexual orientation. We aim to offer, through a diverse, rich and challenging curriculum, exciting learning opportunities that develop curiosity, resilience, creativity and the skills of collaboration. We also aim to instil in our pupils a love of learning, an appreciation of the world, and a positive, secure sense of self. We want everyone at our school to achieve and be the very best that they can. Our curriculum is underpinned by our core value of Learning together, aiming for excellence.*



# Withymoor Primary School

## *Design Technology Subject Intent*

Our aim is for every pupil to research and design, creating their own criteria for success to solve real life problems for an end user. Pupils will apply subject specific knowledge, make links to other curriculum subjects to become designers and creators, and work safely with a range of tools and materials. During the process, pupils will further develop oracy and team building skills as they develop, evaluate and refine their product. As part of the cooking and nutrition element of the Design Technology curriculum, our pupils will be taught how to cook healthy and nutritious foods creatively. The aim is to develop a love of cooking as a lifelong skill, which will enable them to feed themselves and others an affordable and balanced diet.



# Essential Characteristics & Key Concepts in Design Technology

## Essential Characteristics

- ▶ An excellent attitude to learning and independent working.
- Significant levels of originality and the willingness to take creative risks to produce innovative ideas and prototypes.
- The ability to use time efficiently and work constructively and productively with others.
- The ability to carry out thorough research, and ask questions to develop a good knowledge of users' needs.
- The ability to act as responsible designers and makers, working ethically and safely.
- A thorough knowledge of which tools, equipment and materials to use to make their products.
- The ability to apply mathematical knowledge, when measuring.
- The ability to manufacture products safely and hygienically.
- A passion for the subject and experience of, up-to-date technological innovations in materials, products and systems.

## ▶ Key Concepts

Master practical skills: develop the skills needed to make quality products.

Design, Make, Evaluate and Improve: develop the process of design thinking, making and improving.

Take inspiration from design throughout history: know that designs change and improve throughout history



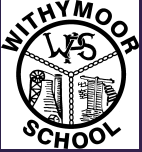
# Design Technology Progression

Key Concept	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
<b>Develop Ideas</b> Materials	<p>Cut materials safely using tools provided.</p> <ul style="list-style-type: none"><li>• Measure and mark out to the nearest centimetre.</li><li>• Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling).</li><li>• Demonstrate a range of joining techniques (such as gluing, hinges or combining materials to strengthen).</li></ul>	<p>Cut materials accurately and safely by selecting appropriate tools.</p> <ul style="list-style-type: none"><li>• Measure and mark out to the nearest millimetre.</li><li>• Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs).</li><li>• Select appropriate joining techniques</li></ul>	<ul style="list-style-type: none"><li>• 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).</li><li>• 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)</li></ul>



# Design Technology Progression

Key Concept	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
Textiles:	<p>Shape textiles using templates.</p> <ul style="list-style-type: none"><li>• Join textiles using running stitch.</li><li>• Colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing).</li></ul>	<ul style="list-style-type: none"><li>• Understand the need for a seam allowance.</li><li>• Join textiles with appropriate stitching.</li><li>• Select the most appropriate techniques to decorate textiles.</li></ul>	<ul style="list-style-type: none"><li>• Create objects (such as a cushion) that employ a seam allowance.</li><li>• Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration).</li><li>• 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).</li></ul>



# Design Technology Progression

Key Concept	Medium	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
Computing		<ul style="list-style-type: none"><li>• Model designs using software</li></ul>	<ul style="list-style-type: none"><li>• Control and monitor models using software designed for this purpose</li></ul>	<ul style="list-style-type: none"><li>• Convert rotary motion to linear using cams.</li></ul>



# Design Technology Progression

Key Concept	Medium	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
Electricals and electronics		<ul style="list-style-type: none"><li>• Diagnose faults in battery operated devices (such as low battery, water damage or battery terminal damage).</li></ul>	<ul style="list-style-type: none"><li>• Create series and parallel circuits</li></ul>	<ul style="list-style-type: none"><li>• Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips).</li></ul>





# Design Technology Progression

Key Concept	Medium	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
<b>Mechanics</b>		Create products using levers, wheels and winding mechanisms	<ul style="list-style-type: none"><li>•Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears</li></ul>	<ul style="list-style-type: none"><li>•Use innovative combinations of electronics (or computing) and mechanics in product designs.</li></ul>



# Design Technology Progression

Key Concept	Key Stage One	Lower Key Stage Two	Upper Key Stage Two
<b>Construction</b>	Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products.	<ul style="list-style-type: none"><li>• Choose suitable techniques to construct products or to repair items.</li><li>• Strengthen materials using suitable techniques.</li></ul>	<ul style="list-style-type: none"><li>• Use innovative combinations of electronics (or computing) and mechanics in product designs.</li></ul>

# Progression in Design and Technology

## Progression of Skills –Design, Make, Evaluate and Improve

### ▶ **Threshold Concept:**

- ▶ This concept involves developing the process of design thinking and seeing design as a process

### **Key Stage One**

- ▶ Design products that have a clear purpose and an intended user.
- ▶ • Make products, refining the design as work progresses.
- ▶ • Use software to design.

### ▶ **Lower Key Stage Two**

- ▶ Design with purpose by identifying opportunities to design.
- ▶ • Make products by working efficiently (such as by carefully selecting materials).
- ▶ • Refine work and techniques as work progresses, continually evaluating the product design.
- ▶ • Use software to design and represent product designs.

### **Upper Key Stage Two**

- ▶ Design with the user in mind, motivated by the service a product will offer (rather than simply for profit).
- ▶ • Make products through stages of prototypes, making continual refinements.
- ▶ • Ensure products have a high quality finish, using art skills where appropriate.
- ▶ • Use prototypes, cross-sectional diagrams and computer aided designs to represent designs.

# Equality of Provision and Inclusion

Teachers ensure that the classroom is an inclusive environment in which pupils feel all contributions are valued and positive steps are taken to allow all pupils to participate. Teaching is responsive to pupil's different learning styles and takes account of their experiences and starting points, in order to engage all pupils. Pupil grouping in the classroom is planned and varied. Teaching styles include collaborative learning so that pupils appreciate the value of working together. All pupils are encouraged to question, discuss and collaborate in problem solving tasks. Teachers challenge stereotypes and foster pupil's critical awareness and concepts of fairness, enabling them to detect bias and challenge inequalities. Resources and displays reflect the experience and backgrounds of pupils, promote diversity and challenge stereotypes across the curriculum. They are reviewed regularly to ensure that they reflect the inclusive ethos of the school.

# Equality of Provision and Inclusion

The curriculum at our school is planned, organised and taught in ways which are compatible with the Equality Act 2010 and school's Equal Opportunities Policy. As a school we will take reasonable and necessary steps to ensure that all children can access a broad and balanced curriculum. This includes ensuring that the environment is accessible as well as lesson content. In some instances, we may consult with external agencies for advice to meet the needs of some children to ensure that they are able to participate in all lessons across the curriculum. A wide variety of strategies are used to ensure that teaching meets the needs of different groups of pupils including those that are more-able, those identified with special educational needs, and those from different ethnic or gender groups. These include:

## **Differentiating Lessons by:**

- Using a range of differentiated resources. Providing differentiated tasks where appropriate. Differentiating questions.
- Using a range of groupings within the class to teach children and support them.
- The amount of adult support that is given and adapting this as necessary.

## **Effective Lesson Planning and Management**

- Setting clear objectives that are understood by each pupil.
- Presenting work in small achievable steps.
- Planning varied activities that motivate pupils and providing alternative activities where needed.
- Creating an atmosphere of encouragement and providing opportunities for pupils to achieve success.
- Identifying the most suitable pace for each student in order to provide sufficient individual challenge whilst fostering enthusiasm and facilitating concentration.
- Involving pupils in taking responsibility for their own learning and encouraging them to develop effective study skills.
- Providing deepening activities for students.

## **The Appropriate Deployment of Resources**

- Analysing the suitability of resources and developing additional resources where necessary.
- Ensuring that teaching assistants and support staff are effectively deployed.
- Considering how specialist equipment, including I.T, can be of help and motivation to pupils.
- Careful assessment and monitoring. Using pupil's records and day to day achievements in music to support planning.
- Carefully monitoring pupils' progress to ensure that success is built upon.
- Providing regular feedback to pupils on progress and actively involve pupils in the assessment.