DESIGN AND TECHNOLOGY CURRICULUM AIMS

By the time children leave St. Mary's Catholic Primary School, they will be:

Successful Learners

Through the enjoyment of learning, develop enquiring minds in order to process information, reason, question and evaluate, enabling all children to achieve the best they can now and in the future.

Confident Individuals

Become increasingly independent, are able to take the initiative and organise themselves, showing a willingness to try new things and making the most of opportunities.

Responsible Citizens

Are enterprising, well prepared for life and able to work co-operatively in a diverse, multi-faith/ cultural society.

They take account of and respect the needs of present and future generations in the choices they make and know that they can change things for the better.

To achieve this the school helps pupils: -

- Attain a high standard of achievement, satisfaction and enjoyment in all areas of the curriculum.
- Grow in self-confidence, have a sense of personal worth and be able to adapt to the changing world in which they live.
- Mix with their peers and adults, to communicate feelings and share experiences, building a better understanding and mutual respect for each other.
- Apply themselves to tasks individually and as contributing members of a team.
- Develop a set of moral values, understand the world in which they live and respect the views of others, tolerating different opinions and beliefs whether racial, religious or political.
- Develop lively, enquiring minds with the ability to communicate their findings.
- Be aware of and take an interest in the beauty and wonder of the world around them and recognise the need for conservation.

Our aim is that all pupils have access to a broad, balanced, engaging and enjoyable curriculum. Teachers set high expectations for every pupil, whatever their prior attainment. Assessment is used to set targets which are deliberately ambitious; but which enable pupils to experience success as learners. Potential areas of difficulty are identified and these areas are addressed at the outset through intervention, differentiated resources and targeted teaching to remove barriers to pupil achievement. This results in our Curriculum being accessible to all.

At St. Mary's Catholic Primary School, we offer a curriculum which is broad and balanced, engages and inspires children, yet builds on the knowledge, understanding and skills of all: regardless of their r starting points, as they progress through each Key Stage. The curriculum incorporates the statutory requirements of the National Curriculum and other experiences and opportunities which best meet the learning and developmental needs of the pupils in our school. It ensures that academic success, creativity and problem solving, respect, responsibility and resilience, as well as physical development, well-being and mental health are key elements that support the development of the whole child and promote a positive attitude to learning. The curriculum celebrates diversity and utilises the skills and knowledge of the whole school and wider community while supporting the pupils' spiritual, moral, social and cultural development.

The aim of our curriculum is for pupils to have the requisite skills to be successful, independent and motivated lifelong learners in readiness for their next stage of education. To best meet the needs of all of our pupils, a knowledge-rich yet skills based curriculum is delivered.

Across the EYFS the curriculum is delivered through broad topic work and also through the interests of the children and current themes. In Nursery, planning in the moment can also have an impact on learning and the environment. Staff support children in their choices and provide them with a rich and well-resourced environment. Children across the Foundation Stage are encouraged to become independent learners. Staff challenge children through questioning, specific tasks and independent learning. In Nursery, we build on the foundations to give our children the skills they need when transitioning into Reception. In our Reception class, activities are planned with a variety of adult directed, adult support and independent work. We tailor our curriculum to meet the needs of our children. Where children are ready for a more formal approach, staff will plan for this through directed teaching. Those who still need a play based approach will be supported by all staff through scaffolding and modelling.

If needed, pupils may still work on the Early Learning Goals of the Early Years Foundation Stage Curriculum as they enter Year 1. However, the Year 1 National Curriculum is taught from the outset. Throughout this period and beyond, all children are developing their phonic knowledge using SoundWrite phonics programme.

The RE curriculum is provided as part of each child's entitlement to a broad and balanced education contributing to their spiritual, moral and cultural development.

RE within our curriculum promotes:

- religious literacy
- the chance to think and ask questions
- the development of empathy skills
- a broader understanding of different values
- an awareness of diversity through looking at major religions and beliefs in the UK and beyond

The curriculum is delivered through discretely taught subjects, where possible, the subjects may overlap. The more able are challenged further in their learning and children who find aspects of their learning more difficult are appropriately supported so that they too are enabled to experience success. National requirements and school requirements are mapped out as a whole school and then individual year groups plan the curriculum for their pupils accordingly.

At St. Mary's, we have a highly effective, carefully planned and tightly structured program for phonics teaching. This enables our children to learn phonic knowledge and skills with the expectation that they will become fluent readers, having secured word building and recognition skills. Our children are also taught high frequency words that do not conform to regular phonic patterns.

Reading is a vital life skill that will support children's learning across the whole curriculum. We strive to ensure that our children are taught to read with fluency, accuracy and understanding through a variety of high quality English lessons and learning opportunities across all subject areas. We want children at ST. Mary's to become enthusiastic, independent and reflective readers.

Mathematics curriculum is delivered using a range of resources which are developed around the CPA approach (concrete, pictorial and abstract). In all year groups there are small group interventions to support pupils in gaining the key skills to become successful readers, writers and mathematicians.

Specialist teachers and instructors support some music, physical education and the teaching of MFL. All subject leaders are given training and opportunity to develop their subject knowledge, skills and understanding to ensure curriculum development provides progression and sequencing of concepts across the school. This also enables them to provide high quality support to colleagues to improve pupil outcomes. Enrichment events, whole school activities and opportunities within and outside school all enrich and develop the children's learning.

Our aim is that all pupils have access to a broad, balanced, engaging and enjoyable curriculum. Teachers set high expectations for every pupil, whatever their prior attainment. Children are encouraged to apply skills learned, particularly in English and Mathematics, across the curriculum. Assessment is used to set targets which are deliberately ambitious; but which enable pupils to experience success as learners. Potential areas of difficulty are identified and these areas are addressed at the outset through intervention, differentiated resources and targeted teaching to remove barriers to pupil achievement. This results in our curriculum being accessible to all. Provision for the Most Able pupils is a mixture of depth and mastery with opportunities for independent working and reflection. Where appropriate, children working within the greater depth area of the curriculum are provided with an individual activity or challenge which reflects a greater depth of understanding and higher level of attainment.

After school clubs and events extend these opportunities further. Additional whole school programmes and approaches support quality teaching and learning and the school is well resourced in terms of learning materials, books and technology.

The outdoor environment and the local community are considered an opportunity for active learning for all our pupils. The school grounds have been developed so they can enrich different curriculum areas, particularly science.

Pupils have opportunities to share their learning with each other, their parents, carers and other learners through school-based and external exhibitions, performances, competitions and events involving other schools. Developing their independence and motivation as learners and their sense of responsibility as future citizens is at the heart of all our teaching and learning.

Design and Technology

Purpose of study

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

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

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Subject content

Key stage 1

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment]. When designing and making, pupils should be taught to:

Design

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

Make

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

Technical knowledge

- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms [for example, levers, sliders, wheels and axles] in their products

Key stage 2

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

When designing and making, pupils should be taught to:

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products

DT – End of Year Expectation – Nursery

Personal, Social and Emotional Development	• Select and use activities and resources (with support if needed) to help achieve a goal they have chosen on which has been suggested.
Physical Development	• Use large-muscle movements to wave flags and streamers, paint and make marks. • Choose the right resources to carry out their own plan. • Use one-handed tools and equipment, for example, making snips in paper with scissors.
Understanding of the World	• Explore how things work.
Expressive Arts and Design	• Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park. • Explore different materials freely, in order to develop their ideas about how to use them and what to make. • Develop their own ideas and then decide which materials to use to express them. • Create closed shapes with continuous lines, and begin to use these shapes to represent objects.

DT – End of Year Expectations – Reception

Physical Development	• Progress towards a more fluent style of moving, with developing control and grace. • Develop their small motor skills so that they can use a range of tools competently, safely and confidently. • Use their core muscle strength to achieve a good posture when sitting at the table or sitting on the floor. • Use a range of small tools, including scissors, paintbrushes and cutlery.
Expressive Arts and Design	• Explore, use and refine a variety of artistic effects to express their ideas and feelings. • Return to and build on their previous learning, refining ideas and developing their ability to represent them. • Create collaboratively, sharing ideas, resources and skills. • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Share their creations, explaining the process they have used.

DT - End of Year Expectations - Year 1

Design	• Begin to design purposeful, functional appealing products based on a simple design criteria. • Begin to generate, develop, model and communicate their ideas through discussions, drawings and use of templates
Make	• Select form and use a range of tools and equipment to perform practical tasks (e.g. cutting and joining). • Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.
Evaluate	• Explore and evaluate existing products by saying what they like and dislike about the product. • To evaluate their ideas and products against the design criteria and explain what is good about their product and what they can improve.
Food	• To understand where food comes from (focus on fruit). • To use simple tools correctly to prepare food. • To select from and use a wide range of ingredients and equipment needed.

DT - End of Year Expectations - Year 2

Design	• Generate, develop, model and communicate ideas through talking, drawing, templates, mock-ups and, where appropriate, using ICT. • Design purposeful, functional, appealing products for themselves and other users based on design criteria.
Make	• Select and use a range of tools and equipment to perform practical tasks with more dexterity and confidence, e.g. cutting, shaping, joining and finishing. • Explore, assemble and join a wide range of materials, e.g. construction, textiles and food ingredients. • Build structures, exploring how they can be made stronger, stiffer and more stable. • Explore and use mechanisms (e.g. levers, sliders, wheels and axles) in their products.
Evaluate	• Explore and evaluate a range of existing products with greater confidence. • Evaluate their ideas and products against design criteria saying what they like and how it meets the criteria.
Food	• Identify a healthy and varied diet and name given foods when preparing dishes. • Understand where food comes from with a focus on vegetables. • Use tools and weigh out ingredients with greater accuracy.

DT - End of Year Expectations - Year 3

Design	• Develop functional products for a purpose, by using researched ideas. • Generate, develop and model ideas through discussions, annotated sketches and begin to create computer aided designs.
Make	• Select and use tools and equipment to perform practical tasks, e.g. cutting slots, shaping, joining and finishing. • Select and use construction materials and explore simple joins. • Understand and explore how to strengthen, stiffen and reinforce more complex structures. • Explore the use of mechanical systems in their products, e.g. levers, pulleys and linkages.
Evaluate	• Evaluate a range of existing products giving opinions. • Evaluate their ideas and products against their own design criteria and begin to consider the views of others, to improve their work. • Begin to understand some key events and individuals in DT.
Food	• Understand what is meant by a healthy and varied diet, e.g. understanding some of the sections of the Eatwell plate. • With support, prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques by beginning to weigh out ingredients and using basic tools to slice, mix, spread.

DT - End of Year Expectations - Year 4

Design	• Research and develop designs to create functional products, for a purpose. • Generate, develop, model and communicate ideas through discussions, annotated sketches and computer aided designs.
Make	• Select and use tools and equipment well to perform practical tasks, e.g. cutting, shaping, joining and finishing. • Begin to join fabrics by using a range of stitches, e.g. back stitch, chain stitch and follow given patterns. • Use computers to research and design the product.
Evaluate	• Investigate and analyse a range of existing products, giving opinions and reasons. • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. • Understand some key events and individuals in DT.
Food	• Understand what is meant by a healthy and varied diet, e.g. understanding the sections of the Eatwell plate and why they differ in size. • Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques by weighing out ingredients and using the right tools to slice, mix, spread, bake, and knead.

DT - End of Year Expectations - Year 5

Design	• Research and develop ideas to create interesting, functional and appealing products fit for a purpose. • Generate, develop, model and communicate ideas through discussions, annotated sketches, computer aided designs and begin to create cross sectional and exploded diagrams, protypes and pattern pieces.
Make	• Select and use tools and equipment to perform practical tasks, e.g. cutting, shaping, joining and finishing, with a good degree of accuracy. • Select and use construction materials and explore simple joins with wood, cut dowelling, explore how to use a screwdriver to secure materials and use a bradawl and hand drill. • Understand and explore how to build frameworks using wood, card and plastic and know how to strengthen, stiffen and reinforce more complex structures. • Understand and explore the use of mechanical systems in their products, e.g. gears, cams, pulleys, levers and linkages. • Create electrical systems (including series circuits incorporating switches, bulbs, buzzers and motors) that includes more than one outcome, e.g. light and sound, with understanding.
Evaluate	• Investigate and analyse a range of existing products sharing opinions, reasons and ideas. • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. • Understand some key events and individuals in DT.
Food	• Understand and begin to apply the principles of a healthy and varied diet and begin to understand how food types effect the body. • Prepare and cook a variety of predominantly savoury dishes by selecting appropriate tools, weighing out ingredients and beginning to estimate weight with a good degree of accuracy. • Begin to understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.

DT - End of Year Expectations - Year 6

Design	• Research and develop design ideas to create innovative, functional and appealing products fit for a purpose, aimed at individuals and groups. • Generate, develop, model and communicate ideas through discussions, annotated sketches, cross sectional and exploded diagrams, protypes, pattern pieces and computer aided designs.
Make	• Select from and use a wider range of tools and equipment to perform practical tasks, e.g. cutting, shaping, joining and finishing, accurately. • Join fabrics confidently by using a range of stitches, e.g. back stitch, chain stitch and follow patterns to create a design. • Understand and build frameworks using wood, card and plastic and be able to strengthen, stiffen and reinforce more complex structures. • Understand and use mechanical systems in their products, e.g. gears, cams, pulleys, levers and linkages.
Evaluate	• Investigate and analyse a range of existing products with a good amount of detail. • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. • Understand how key events and individuals in DT have helped shape the world.
Food	• Understand and apply the principles of a healthy and varied diet and understand how food types effect the body. • Prepare and cook a variety of predominantly savoury dishes by selecting appropriate tools, using different techniques, weighing out ingredients and estimating weight with accuracy. • Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.