Design and Technology at St. Michael's

The National Curriculum states that, 'High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation'. At St. Michael's, the teaching of Design and Technology focuses on enabling pupils to think as designers, inspiring creativity and imagination as well as their curiosity about design in the real world (past and present), allowing them to draw on disciplines such as: mathematics; science; engineering; computing and art, to design, construct and evaluate their own products. Through research, and the development of their own designs, our pupils gain an understanding of the impact of design and technology on daily life and the wider world, whilst achieving a real sense of pride in what they have created.

Curriculum Implementation

At St. Michael's we follow the National Curriculum programs of study for Design and Technology, which is taught weekly in each class across all key stages, with each class delivering three topics across the year. We ensure that there are opportunities for pupils of all abilities to develop their skills and knowledge in each unit, and progression is built into the scheme of work so that challenge is increased as they move up through the school. Our school vision, 'Shine as lights in the world', is reinforced in this area through personal creativity and expression, as well as appreciation of good design that is both functional and visually appealing.

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.

At St. Michael's, we place an emphasis on examining designed objects and systems from the past and present, with a view to stimulating pupils' creative thinking and to help develop an interest in the subject area. All lessons have clear learning objectives that are shared and reviewed with the pupils. Activities are challenging, motivating and extend pupils' learning. Where possible, planning takes into account the school's emphasis on the development of skills through cross-curricular planning, where design projects make effective links with other curriculum areas such as Maths, English, Science, Computing, History and Geography. We have been able to provide exciting opportunities for pupils to experience 'Design in the real world' where visitors have been invited to come into the school to work with children on design projects, such as: the 'KNex Challenge' workshop and Young Chef competition in year 5 and the 'Electronic Game' workshop in year 6, to further extend learning; as well as introducing a STEM club.

D&T in EYFS

The 2020 document, Development Matters, identifies the prerequisite skills for D&T within the National Curriculum.

Statements for EYFS D&T are taken from the key areas of learning:

Area of learning	D&T skills
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 a table or sitting on the floor.
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.

KS1

During years 1 and 2, through a range of relevant contexts and a variety of creative and practical activities, children should take part in the processes of researching, designing and making, and evaluating, whilst acquiring the knowledge, understanding, and skills needed. During this process they should be taught to:

- explore and evaluate a range of existing products.
- design appropriate functional, appealing products based on design criteria, that are fit for purpose.
- generate, develop, model and communicate their ideas through talking, drawing, making mock-ups and, ICT (where appropriate).
- select from a range of provided tools and equipment to perform practical tasks.
- select from a range of materials and components, such as those for construction, textiles and ingredients as appropriate.
- construct their designs, considering the importance of stability and how this can be achieved.
- explore and use mechanisms such as levers, sliders, wheels and axels.
- evaluate their own ideas and products based on their own designs.

KS2

During years 3, 4, 5 and 6, through a range of relevant contexts and a variety of creative and practical activities, children should take part in the processes of researching, designing and making, and evaluating, whilst acquiring the knowledge, understanding, and skills needed. During this process they should be taught to:

- understand how the world has been shaped by key events and individuals in design and technology.
- develop an understanding of technological processes, products, and their Manufacture, using the skills of enquiry and investigation.
- use their research to develop imaginative thinking and practical skills, enabling them to offer possible solutions to problems, designing appropriate functional, appealing products based on design criteria that are fit for purpose, aimed at particular individuals or groups.

- use discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, and computer-aided design to generate, develop, model and communicate their ideas.
- select appropriate tools and equipment for making a product, accurately.
- select appropriate materials and components such as construction materials, textiles and ingredients, considering their functional as well as aesthetic qualities.
- construct their designs, considering the importance of stability and how this can be achieved.
- understand and use mechanical systems such as gears, pulleys, cams, levers and linkages in their products.
- understand and use electrical systems such as circuits, incorporating switches, bulbs, buzzers and motors in their products.
- apply their understanding of computing to program, monitor and control their products.
- consider the views of others and evaluate their ideas and products against their own design criteria to improve their work.

Curriculum impact

Through our Design and Technology curriculum at St Michael's, by the end of their primary school journey, our pupils are expected to have developed their understanding and enjoyment of Design and Technology subject knowledge, skills and processes specified by the National Curriculum. At St Michael's, a systematic approach to assessment is taken to determine children's understanding and inform future planning. At the end of each unit taught, in each year group, teachers assess pupils understanding against specific national curriculum targets. Children are also encouraged to evaluate their work and final products against their initial design ideas. Collective work scrutiny, led by subject leaders, takes place where teachers are able to openly discuss work produced across the school, agreeing future whole school targets to be presented in the school development plan. Individual assessment is then shared with parents on a termly basis, via school reports.