## Design and Technology

### Intent

The overall intent of our Design and Technology curriculum at St John Vianney Catholic Primary School is to encourage pupils to design and make products that solve real and relevant problems within a variety of contexts. We seek to maintain and continually improve a rich, broad and balanced curriculum. We hope that they can acquire sufficient skills, knowledge and vocabulary to serve them well as they move into the next stage of their education.

Design and Technology encourages children to learn to think and intervene creatively to solve problems both as individuals and as members of a team. At St John Vianney, we encourage children to use their creativity and imagination, to design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. We aim to, wherever possible, link work to other disciplines such as mathematics, science, engineering, computing and art. The children are also given opportunities to reflect upon and evaluate past and present design technology, its uses and its effectiveness and are encouraged to become innovators and risk-takers. Children should leave St John Vianney with the skills to think, speak and act like a designer, constructor and evaluator and be able to transfer these skills to everyday life.

### Implementation

Through a variety of creative and practical activities, we teach the knowledge, understanding and skills needed to engage in an iterative process of designing and making.
When designing and making, the children are 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 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
• understand and use electrical systems in their products
• apply their understanding of computing to program, monitor and control their products

Key skills and key knowledge for Design and Technology have been mapped across the school to ensure progression between year groups. This also ensures that there is a context for the children's work in Design and Technology; that they learn about real life structures and the purpose of specific examples, as well as developing their skills throughout the programme of study.

## The Impact of Design and Technology

We ensure the children:

- 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 and 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.

Children will design and make a range of products. A good quality finish will be expected in all design and activities made appropriate to the age and ability of the child. Children 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 make an essential contribution to the creativity, culture, wealth and well-being of the nation.

Assessment of children's learning in Design and Technology is an ongoing monitoring of children's understanding, knowledge and skills by the class teacher, throughout lessons. This assessment is then used to inform differentiation, support and challenge required by the children. Design and Technology is also monitored by the subject leader.

EYFS pupils' progress and attainment is tracked telling us whether each individual child is below expected, at expected or above expected attainment for their age.

## Cultural Capital

At St. John Vianney school, we approach cultural capital through Design and Technology. This is a mixture of traditional and modern approaches to expose children to a variety of cultures. A rich and varied curriculum provide an opportunity to introduce activities to help develop pupils' cultural capital hands on. These include Design and Technology projects and outdoor learning activities in addition to providing many external experiences through school trips and visitors.

## 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.

## 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.

**Cooking and nutrition**

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.
Pupils should be taught to:

**Key stage 1**

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from.

**Key stage 2**

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

**The Foundation Stage**

As the Nursery and Reception classes are part of the Early Years Foundation Stage, we relate the design and technology aspects of the children's work to the statements and range levels set out in the Birth to Five Matters guidance, which underpin the curriculum planning for children aged three to five. The Early Learning Goals of Expressive Arts and Design (Exploring and Using Media and Materials), (Being Imaginative) and Physical Development (Moving and Handling) link most closely to the Design and Technology National Curriculum.

Staff provide a rich environment both in the classroom and outdoors, in which we encourage and value creativity. Children have daily access to a craft area and various construction kits and materials. The adult-led activities that they take part in are imaginative and enjoyable.

**Teaching Design and Technology to children with special needs**

We teach Design and Technology to all children, whatever their ability. Design and Technology forms part of our school curriculum policy to provide a broad and balanced education for all our children. Our teachers provide learning opportunities that are matched to the needs of children with learning difficulties. Work in design and technology takes into account the targets set for individual children in their SEN Support Plan.

**Assessment and recording**

Assessment of children's work in Design and Technology is an ongoing monitoring of children's understanding, knowledge and skills by the class teacher throughout lessons. This assessment is then used to inform differentiation, support and challenge required by the children.
Once the children complete a piece of work, teachers mark and traffic light the learning objective as necessary. An assessment grid is placed in each child's book before each new unit of work with key assessment focuses. Teacher's highlight which level the children have been assessed at. This method of recording enables the teacher to make an annual assessment of progress for each child, as part of the child's annual report to parents.
EYFS pupils' progress and attainment is tracked telling us whether each individual child is below expected, at expected or above expected attainment for their age.

**Monitoring and review**

The monitoring of the standards of children's work and of the quality of teaching in Design and Technology is the responsibility of the Design and Technology subject leaders. The work of the subject leaders also involves supporting colleagues in the teaching of Design and Technology, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school. The Design and Technology subject leaders gives the head teacher an annual summary report in which they evaluate the strengths and weaknesses in the subject, and indicates areas for further improvement. We allocate special time for the vital task of reviewing samples of children's work and for visiting classes to observe teaching in the subject.

**Review Date: April 2023**