St. Joseph's

Catholic Primary School

Design and Technology Policy

Last Reviewed Date – December 2023

Design and Technology Policy

Our Vision:

Our curriculum is integral to the fulfilment of our school vision:

Our vision is At St. Joseph's is that each individual will **learn, grow and thrive** together with love and faith in Jesus. We will embrace our gospel values and enable all children to **achieve their full potential** in a safe, welcoming and happy learning environment. We will strive to **create responsible citizens** who are **independent, confident, life-long learners** and are equipped to meet the challenges of a changing future **– the people who God calls them to be.**

'We will learn, grow and thrive together with love and faith in Jesus to achieve their full potential….'

St. Joseph's vision for the children, is that they leave St. Joseph's having achieved their full potential in all areas and have the necessary skills and knowledge to flourish to their next phase of education and life. As children learn and grow, we want them experience a deep sense of joy in everyday life and to feel happy, confident and full-filled, having enjoyed an enriching curriculum at St. Joseph's. We want us to approach our curriculum with enthusiasm and a thirst for knowledge. Through a broad, diverse curriculum and for children to develop new interests and passions. Children need a world class education which enables them to grow in wisdom, knowledge and a skills so that they may have a transformational impact upon society. We want children to receive an exceptional curriculum by inspirational, knowledgeable teachers who deliver academic excellence for all. We want our curriculum to enable long-term learning.

'Create Responsible Citizens who are independent, confident, life-long learners who are equipped to meet the challenges of a changing future…'

We want our children to grow up to be responsible citizens and good people. We want them to learn to feel, think and act with respect for themselves and for other people. We want them to feel confident and to develop a strong character whilst providing them with the necessary skills to meet the challenges of a rapidly changing world.

We want our children to leave St. Joseph's with the knowledge, skills and desires to contribute to a fairer and more sustainable world - To help build God's Kingdom. We want them to be successful global learners: As Pope Francis said,

'We are a single family living in a common home. We have a responsibility as stewards of God's earth.'

INTENT

At our school we intend that children should master Design and Technology to such an extent that they can go on to have careers within Design and Technology and make use of design and technology effectively in their everyday lives. Our children will be taught Design and Technology in a way that ensures progression of skills, and follows a sequence to build on previous learning. Our children will gain experience and skills of a wide range of formal elements of design and concepts of technology in a way that will enhance their learning opportunities, enabling them to use design and technology across a range of subjects to be creative and solve problems, ensuring they make progress.

We will deliver an ambitious, motivating and knowledge-rich curriculum that will:

- Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
- Build 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.
- Support pupils in applying the principles of nutrition and learn how to cook.

Substantive and disciplinary knowledge in design and technology

Substantive knowledge in design and technology is based on the knowledge of four key elements of the process of design (design, make, evaluate and technical knowledge). All of these elements will be taught from Reception to Year 6 and vocabulary is taught explicitly and will be deliberately practised and applied through the 4 key elements.

Disciplinary knowledge in design and technology is the process of enabling children to use their substantive knowledge of products and materials around them to make links between and across different areas of the curriculum. Knowledge in design and technology will equip the children with the opportunity to explain how and why products have changed over time and how they might be further improved in the future. They can use their knowledge and understanding to suggest how existing products may be improved with the advances in modern technology. Children will demonstrate that they have the cultural capital to become global citizens, following global themes and fundamental British Values, in an ever changing and technologically advancing world.

IMPLEMENTATION

3D Curriculum

This is a term that we use at St. Joseph's which defines the way we have planned our Design and Technology curriculum. It is a curriculum that promotes remembering. Our philosophy is that knowledge can't empower if it is forgotten. So as well as planning a rich curriculum with high quality material, we have also structured it in a way that makes remembering almost inevitable.

Using our long term 3D curriculum plans, leaders will then:

Create a medium plan for each unit of work, highlighting the vertical, horizontal and diagonal links across subjects and year groups to create a memorable curriculum.

Vertical: 'high-yield' concepts deliberately constructed within a subject that are encountered across year groups (for example, the concept of *power and rule* : this can be explored through learning the role of the monarchy in Early Years through to Year 6 learning of how Henry VIII used his power to shape the justice system during his rule)

Horizontal: Links between subjects, commonly known as 'cross-curricular' (for example, *invasion*: in Class 3 History, the Viking *invasion* of England; in Class 3 Science, microbes *invaded* bodies; in Class 3 P.E. *invasion* games. Subject leaders work hard to ensure that horizontal links reinforce learning across the curriculum.

Diagonal: Concepts connected across both year groups and across subjects; these are our Golden Threads which weave throughout our curriculum both across subjects and year groups

Diagonal Curriculum Golden Threads

Our curriculum has been designed to give children key knowledge about their identity and their place in the world. Children need to know how modern-day society has been shaped and the impact they can have in the future. Through our curriculum we ensure that children are ready for the next stage of their learning journey.

We help children to achieve our aims through our key knowledge threads:

- Diversity
- Identity
- Community
- Sustainability
- Equality

Teachers will also plan the following for each unit:

- A knowledge organiser which outlines knowledge (including vocabulary) all children must master;
- A cycle of lessons for each subject, which carefully plans for progression and depth;
- A low stakes quiz which is tested regularly to support learners' ability to block learning and increase space in the working memory;

- A 'thinking square', which outlines key concepts/ideas in the learning journey to provide a baseline of current understanding and misconceptions; this will be at the start of a unit;
- Trips and visiting experts who will enhance the learning experience;

Landing Points (Planning for Progression)

Within our 3D long term plan, in order to ensure that understanding is deepened each year, in relation to the vertical links, we have developed landing points. For each vertical link, landing points set out the typical expectations for knowledge and skill development at set times.

Landing points are an invaluable tool in helping teachers to ensure progression within every national curriculum subject. They allow us to set ambitious, challenging learning goals that support pupils to develop mastery. Our curriculum is our progression model; if pupils are moving through our curriculum as expected, we are confident that they are exposed to challenging learning goals.

Design and Technology Sequencing

EYFS

Design and Technology skills come from the Physical Development, Exploring Art and Design and Understanding the World areas of Development Matters. In the Early Years Foundation Stage, children learn these skills through group work, whole class teaching and carefully planned continuous provision areas. Early Years staff discuss ideas with the children and refer to previous learning before starting a new unit. They then teach the skills taken from Development Matters and encourage children to use these skills to design a final product based on their own ideas. Children are given opportunity to practise these skills in continuous provision and teacher-led activities.
We follow the statutory framework for the EYFS and work towards the following Early Learning Goals by the end of the year.

ELG: Fine Motor Skills - Use a range of small tools, including scissors, paint brushes and cutlery.
ELG: Creating with materials - Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.
ELG: Creating with materials - Share their creations, explaining the process they have used.
ELG: The Natural World - Explore the natural world around them, making observations and drawing pictures of animals and plants.
ELG: Speaking - Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.
ELG: Speaking - Offer explanations for why things might happen.
ELG: Managing self - Manage their own basic hygiene and personal needs, including understanding the importance of healthy food choices.

KS1

Through a variety of creative and practical activities, pupils will be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They will 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 are taught to:

Design

- Design purposeful, functional, appealing products for themselves and other users based on a 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.

Cooking and nutrition

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

KS2

Through a variety of creative and practical activities, pupils will be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They will 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 will 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

- 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.

IMPACT

At St Joseph's, we have devised a subject specific Assessment Tracker that determines children's development of skills, understanding and informs teachers planning. This is completed on a termly basis by the class teacher, and is shared with Subject Leaders and SLT. Subject Leaders also carry out regular learning walks, project booklet looks, lesson observations and pupil discussions. Book Swaps are a regular feature in our Staff Meeting time. Action Plans are reviewed termly by Subject Leaders and shared annually with Governors. Pupils work evidences a broad and balanced Design and Technology curriculum and demonstrates the children's acquisition of the following key skills.

- Understand the functional and aesthetic properties of a range of materials and resources.
- Understand how to use and combine tools to carry out different processes for shaping, decorating, and manufacturing products.
- Build and apply a repertoire of skills, knowledge and understanding to produce high quality, innovative outcomes, including models, prototypes, CAD, and products to fulfil the needs of users, clients, and scenarios.
- Understand and apply the principles of healthy eating, diets, and recipes, including key processes, food groups and cooking equipment.
- Have an appreciation for key individuals, inventions, and events in history and of today that impact our world.
- Recognise where our decisions can impact the wider world in terms of community,

social and environmental issues.
- Self-evaluate and reflect on learning at different stages and identify areas to improve.
- Meet the end of key stage expectations outlined in the National curriculum for Design and technology

What are our Long Term Aspirations for our pupils?

By the time our children leave St. Joseph's Primary School our pupils will have had the opportunity to design and create products from each of the following areas within the curriculum; mechanisms and mechanical systems, food, electrical systems, textiles and structures. Pupils will 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.