

#### St. Giles C.E. Primary School Design Technology Policy

Article 2 (non-discrimination) The Convention applies to every child without discrimination, whatever their ethnicity, sex, religion, language, abilities or any other status, whatever they think or say, whatever their family background.

Article 28 (right to education) Every child has the right to an education. Primary education must be free and different forms of secondary education must be available to every child. Discipline in schools must respect children's dignity and their rights. Richer countries must help poorer countries achieve this.

Article 29 (goals of education) Education must develop every child's personality, talents and abilities to the full. It must encourage the child's respect for human rights, as well as respect for their parents, their own and other cultures, and the environment.

# Purpose

At St Giles we intend that children should master Design and Technology to such an extent that they can go on to make use of design and technology effectively in their everyday lives. Design and technology inspires our children, through the use of rigorous and practical tasks, to take part in the development of today's rapidly changing world. Creative thinking and the nurturing of imaginative ideas encourages our children to make positive and worthwhile products that have purpose and relevance in the world they live in.

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.

The subject encourages children to apply their skills in a wide range of contexts and learning environments, allowing them to solve problems, both as individuals and as part of a team. This allows them to reflect on their knowledge and apply it in a risk-free environment, developing resourcefulness and innovation.

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.

Through the study of Design and Technology, they combine a developing subject knowledge with practical skills that draws upon disciplines from all areas of the curriculum.

Through analysis and assessment of their own designs and those of others, pupils engage in a critical understanding of how products impact on our lives alongside contributing to recognising British values, incorporating moral, social and cultural aspects of the society that surrounds them.

# <u>Aims</u>

- Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
- To 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.
- To critique, evaluate and test their ideas and products, including the work of others.
- To learn where our food comes from while understanding and applying the principles of nutrition. To learn how to prepare or cook basic meals.
- To understand how to use different equipment safely.
- To foster enjoyment, satisfaction and purpose in designing and making.

# Pupil Entitlement

Pupils are taught through a variety of activities to include: building skills, design creativity and manufacturing products. An element of evaluation and improvement is included across each process. Projects should be embedded into contexts that are relevant for the key stage.

# Key Stage 1

# 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 the use of computing.
  Make
- Select from and use a range of tools and equipment to perform practical tasks such as 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 stronger, stiffer and more stable.
- Evaluate their ideas and products against design criteria Technical Vocabulary
- New vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics.
- Each new topic has a new glossary of key vocabulary which is stuck into each pupil's exercise book and referred to during lessons. (This will begin from September 2023) **Cooking and Nutrition**
- Use the basic principles of a healthy and varied diet to prepare dishes
- Understand where food comes from.

# Context

- Familiar places such as home and school, gardens and playgrounds, local community and the wider world
- To enhance seasonal events or other areas of the curriculum. E.g. Harvest, Easter, Mother's day or science concepts and geographical places that are being taught.

# Key Stage 2

# 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 accurately, such as cutting, shaping, joining and finishing.
- 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, such as gears, pulleys, cams, levers and linkages.
- Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs, buzzers and motors.
- Apply their understanding of computing to program, monitor and control their products.

## **Technical Vocabulary**

- New vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics.
- Each new topic has a new glossary of key vocabulary which is stuck into each pupil's exercise book and referred to during lessons. (This will begin from September 2023)

## **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.

#### Context

• Places such as the home, school, leisure, culture, enterprise, industry and the wider environment.

# The Foundation Stage

During the Early Years Foundation Stage, the essential building blocks of children's design and technology capability are established. There are many opportunities for carrying out D&T-related activities in all areas of learning in the EYFS. It is identified specifically in 'Expressive Arts and Design' this is one of the four specific areas of learning. By the end of the EYFS, most children should be able to:

- Use simple tools and techniques competently and appropriately.
- · Selects appropriate resources and adapts work where necessary.
- Selects tools and techniques needed to shape, assemble and join materials they are using.

At St Giles we consider that effective Design and Technology in EYFS has the following characteristics:

- · Designing does not necessarily entail drawing
- Designing can mean using hand gestures, arranging and re-arranging materials and components, talking and listening
- Designing is usually intuitive
- The designing and making process is fluid
- Sometimes practical skills are taught directly
- Children have frequent opportunities to develop practical skills with a range of materials, explore construction kits and existing products
- Activities are appropriate to children's prior experience
- Context is sometimes set by teacher, sometimes by the children

Children's work and assessment in Expressive Arts and Design contributes to their ongoing paper and virtual learning journey building up a picture of the unique child.

#### Teaching and learning style

The school uses a variety of teaching and learning styles in design and technology lessons. The principal aim is to develop children's knowledge, skills and understanding in design and technology. Teachers ensure that the children apply their knowledge and understanding when developing ideas, planning and making products and then evaluating them. We do this through a mixture of whole-class teaching and individual/group activities. Within lessons, we give children the opportunity both to work on their own and to collaborate with others, listening to other children's ideas and treating these with respect. Children critically evaluate existing products, their own work and that of others. They have the opportunity to use a wide range of materials and resources, including those that are computer based.

## **Inclusion**

In all classes there are children of differing ability. We recognise this fact and provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this through a range of strategies.

- Setting common tasks that are open-ended and can have a variety of results.
- Setting tasks of increasing difficulty where not all children complete all tasks.
- Grouping children by ability and setting different tasks for each group.
- Providing a range of challenges through the provision of different resources.
- Using additional adults to support the work of individual children or small groups.
- Adapting materials and tools to suit the individual needs of the child.

## **Curriculum Planning**

Design technology is a foundation subject in the National Curriculum. Our school uses the Kapow Primary Design and Technology scheme. We carry out the curriculum planning in design and technology in three phases; long-term overview, medium-term plans for each unit and short-term lesson plans. The long-term plan maps out the units covered across the whole school in each term for each phase. The design and technology subject leader works this out in conjunction with teaching colleagues in each year group. Links are made to other curriculum projects and events where suitable, (e.g. design a light up Christmas card) but only where this does not detract or overshadow the learning to be made in this subject.

Our medium-term plans give details of each unit of work for each term. These are taken from the Kapow Primary Design and Technology scheme choosing the area of learning directed from the overview for the year group and term. They identify learning objectives and outcomes for each unit and ensure an appropriate balance and distribution of work is carried out across each year.

Class teachers complete medium term plans in their phase groups for each design and technology unit. The suitability of unit ideas can be tested using the Kapow Primary Design and Technology scheme materials. Lesson plans should from the scheme should be adapted for specific learning objectives for each lesson and detail how the lessons are to be taught, including differentiation of tasks. The class teacher keeps these individual plans, where they can be discussed with the subject leader on an informal basis.

With the help of the Kapow Primary Design and Technology scheme, teachers are able to plan the activities in design and technology so that they build upon the prior learning of the children. We give children of all abilities the opportunity to develop their skills, knowledge and understanding and we also build planned progression into each year's units, so that the children are increasingly challenged as they move through the school.

#### **Curriculum Enhancement**

#### **Core Subjects**

Pupils apply their knowledge across a range of core subjects to their work in Design and Technology and vice versa. Knowledge about the properties of materials helps in the science curriculum, alongside reinforcing skills with creating clear, labelled diagrams. In maths, practice in measuring accurately and understanding units of measure leads to applying designing and making skills in a practical and purposeful manner. Literacy helps pupils to communicate ideas through their work on explanation and instruction texts and discussing products requires children to articulate their ideas and to compare and contrast their views throughout developed speaking and listening activities.

#### Computing

Computing plays an important part in design and technology. The children produce their designs for products both paper based and electronically using 'paint' software, moving on to use computer aided design (CAD) to support more sophisticated designs in Key Stage Two. Programming and control are used to operate electrical circuits and mechanical systems. The children also use programming skills learned in computing to help design and build devices that use Micro: bits as their controllers.

#### Spiritual, moral, social and cultural development

The teaching of design and technology offers opportunities to support the social development of our children through the way we expect them to work with each other in lessons. Our groupings allow children to work collaboratively, giving them the chance to discuss their ideas and feelings about their own work and the work of others. Through their collaborative and co-operative work across a range of activities and experiences in design and technology, the children develop respect for the abilities of other children and a better understanding of themselves. They also develop a respect for the environment, for their own health and safety and for that of others. They develop their cultural awareness throughout the careful planning of activities and develop an understanding of the importance of designers and inventors by investigating their contribution to the world today. Links with the community are made where possible, such as visits to Libraries, museums and galleries and also the use of link schools. Careful choices guided in the planning stages of projects help children recognise the needs of different groups of people and support finding practical, effective ways of supporting and addressing those needs.

#### Assessment and recording

From September 2023 the children will be recording their Design and Technology work in subject specific books which allow written and pictorial recording. This will be passed from one year to the next to allow the children to use their previous knowledge in new a context. Practical activities will be recorded and photographed. Images and videos will be uploaded onto Google Classroom.

Teachers assess children's work in design and technology by making assessments of understanding, skills and processes during lessons. They record the progress that children make by assessing the children's work against the learning objectives for their lessons. At the end of a unit of work, children self and peer assess the work they have produced. Teachers then mark off the skills and attributes of children using the Educator assessment program which contributes as part of the annual report to parents.

The design and technology subject leader keeps a sample of evidence from across the school. This demonstrates what the expected level of achievement is in design and technology in each Key stage. Monitoring and feedback takes place during staff meetings, where good practise is shared.

#### **Resources**

Our school has a wide range of resources to support the teaching of design and technology across the school. Classrooms have a range of basic resources, with the more specialised equipment being kept in designated areas across the school (currently the STEM suite). This equipment is accessible to children only under adult supervision.

Resources are replenished on a yearly basis where components and tools are requested by all staff to match the needs of their projects and this is then ordered and overseen by the coordinator. Perishable and sundry items are bought as required, with cash receipts handed in to the finance manager.

# Health and Safety

Health and safety is a key part to each learning unit where pupils take part in discussion about how to stay safe while using different equipment. Pupils are directed in the correct and safe way to handle sharp tools in a ratio of 1:10 during specific directed tasks. Tools are stored safely and out of reach of pupils. We teach children how to follow proper procedures for food safety and hygiene.

# 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 leader. The work of the subject leader 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 leader gives the Head Teacher feedback on request, based upon the strengths of the subject and indicates areas for development or further improvement. The design and technology subject leader has time allocated each term to review evidence of the teaching and learning taking place across the school.

New Overview for 2023 based on Kapow Primary Design and Technology scheme.

	Unit 1	Unit 2	Unit 3	Unit 4		
EYFS	Structures Junk modelling	Food Soup	Textiles Bookmarks	Structures Boats		
	Autumn lesson Hibernation box	Christmas lesson Sliding picture	Spring lesson Flower threading	Easter lesson Hanging decoration	Summer lessons Designing a rainbow salad and Making a rainbow salad	
	Autumn	Autumn	Spring	Spring	Summer	Summer
	1	2	1	2	1	2
Year 1	Cooking and Nutrition	Mechanisms	Structures	Textiles	Mechanisms	
	Fruit and vegetables	Making a moving story book	Constructing a windmill	Puppets	Wheels and axles	
Year 2	Mechanisms	Cooking and Nutrition	Mechanisms	Structures	Textiles	
	Fairground wheel	A balanced diet	Making a moving monster	Baby bear's chair	Pouches	
Year 3	Textiles	Electrical systems	Mechanical systems	Digital world	Cooking and Nutrition	Structures
	Cross stitch cushion	Electric Poster	Pneumatic toys	Electronic charm	Eating seasonally	Constructing a castle
Year 4	Electrical systems	Mechanical systems	Digital world	Cooking and	Structures	Textiles
	Torches	Making a	Mindful moments	Nutrition	Pavilions	Fastenings
		slingshot car	times	Adapting a recipe		
Year 5	Mechanical systems	Digital world	Cooking and Nutrition	Structures	Textiles	Electrical systems
	-	Monitoring		Bridges	Stuffed toys	-

Reviewed June 2023 To be reviewed September 2025

	Making a pop- up book	devices	What could be healthier			Doodlers
Year 6	Digital world	Cooking and Nutrition	Structures	Textiles	Electrical systems	Mechanical systems
	Navigating the World	Come dine with me	Playgrounds	Waistcoats	Steady hand game	Automata toys



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