Sleights Church of England
(Voluntary Controlled) Primary School

Design and Technology Policy

March 2022

*This policy was reviewed in March 2022, alongside a review of the wider curriculum at Sleights, research reviews and the impact of Covid-19.

Working together to be happy; to flourish; to succeed
through our Christian values
perseverance, respect and **trust.**

Design and Technology at Sleights

"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."

The National Curriculum for Design and Technology in Key Stage One and Two, 2014

The teaching of Design and Technology at Sleights is underpinned by the ongoing development and acquisition of knowledge and skills. This development and acquisition occurs as a result of our own school's curriculum sequence and progression, which maps out the core knowledge and skills children need to be highly effective designers.

About this policy

This policy intends to outline the policy and procedure for teaching and learning in Design and Technology at Sleights Church of England (Voluntary Controlled) Primary School.

In our Church school, our vision is to "work together to be happy; to flourish; to succeed". This policy intends to outline how our whole school community lives this out in relation to curriculum planning and learning in Design and Technology. Our Christian Values are firmly rooted in this policy.

Christian Value	How is this value lived out in our Design and Technology policy?
Perseverance	*I can do all things through Christ who strengthens me* (Philippians 4.13) At Sleights we believe that one of the most important factors in successful child centred learning is perseverance. In building new skills and developing those that children have already acquired, it is important that children have the opportunity to repeat and develop skills. In Design and Technology, children are provided with opportunities to refine, review and improve their designs and products. As children develop skills over time, children will be supported to persevere and recognise that a final outcome, or skill requires process, practise and review.
Respect	*So in everything, do to others what you would have them do to you* (Matthew 7:12) A key element of design and technology is considering refining and reviewing processes and approaches. As part of this, children will trial and approach different methods to achieve a goal. Children will be supported and required to work collaboratively and respect the decisions and suggestions of each other to approach a design problem or challenge together.
Trust	*My God is my strength in whom I trust* (Psalm 18:2) Our children are encouraged to trust one another, work as a team with their peers, class and school family. In design and technology, evaluating your work and others is a key element where trust is required. Children are supported, in a trusting environment, to share and receive feedback about their work, approaches and that of others.

Design and Technology at Sleights

Design and Technology at Sleights involves:

Dedicated curriculum time to engage in range of purposeful and practical experiences relating to designing, making and evaluating.	Sequenced learning experiences, which build on prior knowledge and understanding.	Developing a secure knowledge and understanding of the practical knowledge and skills related to designing, making and evaluating.	Opportunities to use a range of practical tools and opportunities to support the design, make and evaluate process.

Intent of our Design and Technology curriculum

The children at Sleights will be provided with a curriculum offer for Design and Technology designed to:

- identify crucial learning, which is placed in context and connected to other knowledge.
- gain a secure understanding a range of design specialisms, including electronics, textiles, structures, food and mechanisms.
- build on and develop design and technology knowledge and skills in a well sequenced and structured progression across their time at Sleights.
- support children's acquisition and progressive understanding of substantive and disciplinary knowledge relating to design and technology.
- gain an understanding of a wide range of design and technology in the world around us.
- use a wide range of practical tools and techniques to help understand the process of design, make and evaluate.
- secure an understanding of the processes involved in gaining and applying skills from a design stage, through to development of a final piece of work and follow up evaluation.
- enable children to understand a range of design skills, concepts and vocabulary, which can be used widely across the planned curriculum and beyond.

Implementation of our Design and Technology curriculum

Design and Technology is implemented at Sleights through:

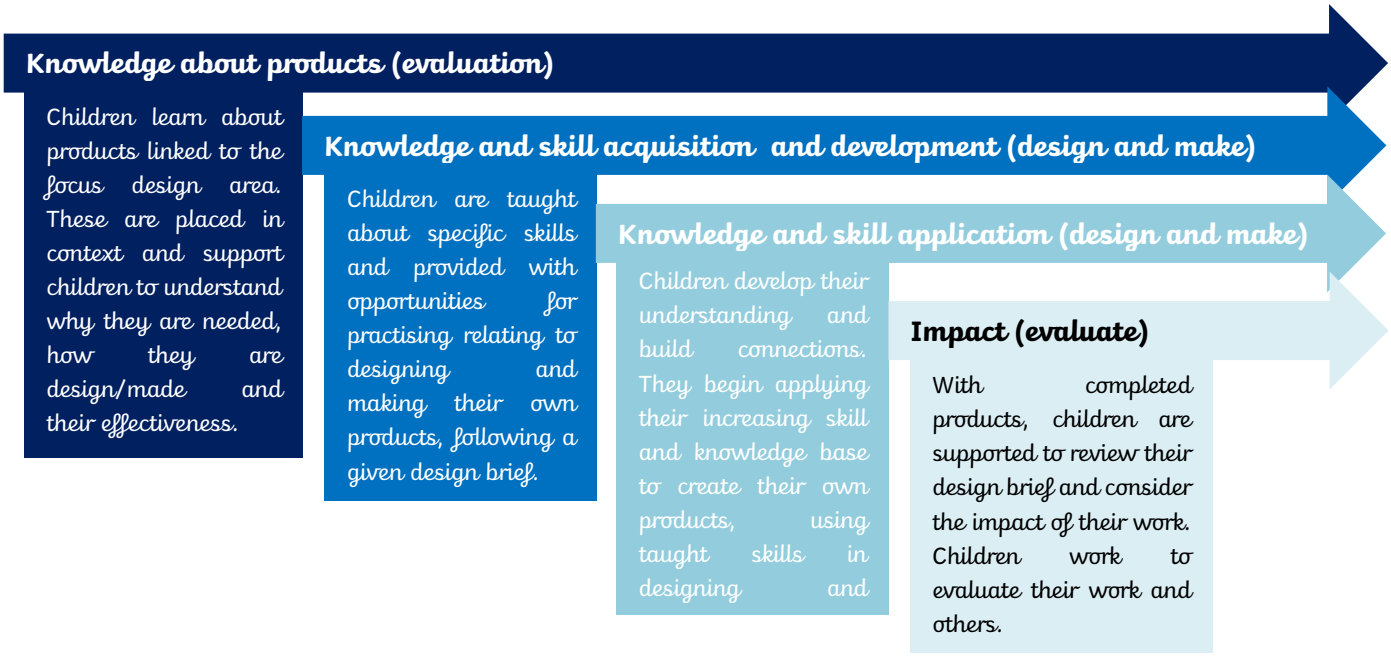
- timetabled, high-quality lessons, which enable children with the time and opportunities to develop their art and design understanding and skills over time.
- the use of a progressive long term plan, which is organised so that children can build an increasing knowledge base of the art and design knowledge and skills.
- a termly focus on a Design and Technology focus area, which supports and enables children to develop a secure understanding of a range of techniques related to the design, make and evaluate process.
- ongoing opportunities to acquire and apply technical knowledge relating to design and technology including evaluating the work of others and understanding the process of making.

Learning in design and technology is recorded in a variety of ways. Children enjoy a range of practical activities, which may be recorded using work collated in learning journey folders, photographs or final pieces.

The long term plan for art and design at Sleights identifies three units to be taught each academic year. The long term plan operates on a Year A and B cycle, ensuring that all identified specialisms are taught across Key Stage One, Lower Key Stage Two and Upper Key Stage Two.

Implementation: The learning journey of the Design and Technology

Understanding design and technology in real life contexts is a key element of the curriculum at Sleights. During the time spent focused on one particular area of Design and Technology, the children are provided with opportunities to evaluate existing products or processes, before designing, making and then evaluating their own. This is demonstrated in the cycle below.



Implementation: The content of the Design and Technology Curriculum at Sleights

Design and Technology at Sleights focuses on the acquisition of new knowledge and building on prior learning relating to:

- **substantive knowledge**:
    - which includes **knowledge and skills related to specific design, make and evaluate processes**
    - **technical knowledge and skills** which identifies the specific information required for each identified area of the design and technology curriculum.
- **disciplinary knowledge** – which helps children to know and use non-specific design, make and evaluate skills and knowledge.

Further information about teaching and learning relating to substantive and disciplinary knowledge can be found in this policy.

As children move between classes and Key Stages, staff carefully identify the level of proficiency that children have in using and applying skills taught. Before introducing or developing understanding of a skill, or use of a tool, children low stakes assessment opportunities are built into sessions to ensure a secure understanding.

Implementation: Substantive Knowledge

In addition to mapping out units of study to be taught at Sleights, our school's planning also identifies the **areas of technical knowledge** (sometimes referred to as 'sticky learning') taught across school from Key Stage One to the end of Key Stage Two. This knowledge and content is organised and sequenced into building blocks, so that children gain new knowledge and build on prior learning over time.

At Sleights, children are taught technical knowledge and skills relating to design, make and evaluate in:

- Cooking and nutrition
- Electronics
- Mechanisms
- Structures
- Textiles

Our progression documents identify key milestones in relation to intended acquisition of knowledge and skills for each identified area of the curriculum. These milestones are grouped into Key Stage One, Lower Key Stage Two and Upper Key Stage Two. In Early Years, the progression is broken down into four groups, beginning at birth and concluding at the statutory Early Learning Goal.

Substantive Knowledge and Skills

		Key Stage 1 Each child should know:	Lower Key Stage 2 Each child should know:	Upper Key Stage 2 Each child should know:
Cooking and Nutrition	Technical Knowledge	• Understand where food comes from. • Know where fruit and vegetables grow. • Understand the difference between fruits and vegetables. • Describe and group fruits by texture and taste. • Know the five food groups. • Understand what makes a balanced diet. • Know where to find the nutritional information on packaging.	• Learn that climate affects food growth. • Learn that imported foods travel from far away and this can negatively impact the environment. • Learn that vegetables and fruit grow in certain seasons. • Learn that each fruit and vegetable gives us nutritional benefits. • Learn to use, store and clean a knife safely.	• Understand where food comes from – describing the process of 'Farm to Fork' for a given ingredient. • Compare two adapted recipes. • Record the relevant ingredients and equipment needed for a recipe. • Understand the combinations of food that will complement one another. • Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.
	Design	• Understand a design brief. • Combine, select and use ingredients according to their characteristics. • Suggested activities to include a food wrap, salad, smoothie.	• Create a healthy and nutritious recipe for a product using seasonal ingredients, considering the taste, texture, smell and appearance of the dish. • Design a product within a given budget, drawing upon previous taste testing.	• Adapt a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients. • Write an amended method for a recipe to incorporate the relevant changes to ingredients. • Design appealing packaging to reflect a recipe. • Understand and apply the principles of a healthy and varied diet. • Write a recipe, explaining the key steps, method and ingredients - including facts and drawings from research undertaken.
	Make	• Safely grate ingredients. • Slice food safely using the bridge or claw grip. • Chop fruit and vegetables safely. • Safely peel ingredients. • Combine basic ingredients to produce food.	• Know how to prepare themselves and a work space to cook safely in, learning the basic rules to avoid food contamination. • Use correct utensils to hygienically prepare food. • Use measuring cups or electronic scales to measure the required amounts. • Follow a recipe.	• Understand how to store and handle food ingredients properly. • Know how to avoid cross contamination. • Follow a recipe, including using the correct quantities of each ingredient. • Use equipment safely, including knives, hot pans and hobs.

Children learn and develop specialist skills in the order set out in the progression documents.

Within each area, knowledge is organised on our own planning to provide a clear progression and development. The area is broken down into the core elements of design, make, evaluate and technical knowledge. Staff use the progression documents to support lesson planning and delivery.

The school's long term plan is intentionally designed to provide the flexibility for each of the areas identified in design and technology curriculum to be applied to a range of contexts and cross curricular focus. This supports the teaching and learning process to build purposeful cross curricular links across a range of subjects and topics.

Implementation: Disciplinary Knowledge

In addition to the substantive knowledge, identified in the Sleights' curriculum, our school also sets out how **disciplinary knowledge and skills** will be developed, so that children gain an understanding of a broad range of the design, make and evaluate process.

Implementation in Early Years

At Sleights, design and technology begins in the Early Years, where children are encouraged and supported to explore and use a variety of tools, materials and techniques across the curriculum. Using the expectations for design and technology, set out in the Early Learning Goals, carefully identified curriculum intent for our Early Years' children recognises the incremental steps in knowledge and skill acquisition that is expected across our Pre-School and Reception classes. These areas focus on **creating with materials.**

In line with Early Learning Goals, by the end of Early Years, children will be able to:

- 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.
- make use of props and materials when role playing characters in narratives and stories.

To support all children in being able to use a range of tools effectively, staff work to support children develop their **fine motor skills**. The focus and development of these skills ensures that, before children embark on their Key Stage One journey, they have already acquired a secure understanding of early design skills. By the end of Early Years, children be able to:

- hold a pencil effectively in preparation for fluent writing – using the tripod grip in almost all cases.
- use a range of small tools, including scissors, paint brushes and cutlery.
- begin to show accuracy and care when drawing.

Implementation in Key Stage One

Building on the conceptual understanding of design and technology, gained in Early Years, children across Key Stage One develop an increasing knowledge of:

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.

Cooking and Nutrition

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

Using a two year rolling programme, children in Key Stage One will gain an understanding and starting point of each design area identified on the Sleights' long term plan, so that they can further develop skills across Key Stage Two.

Implementation in Key Stage Two

Building on children's acquired knowledge of design and technology and related skills, in Key Stage Two, children build up an understanding of:

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

The curriculum is planned on a two year cycle, providing the adequate time and opportunity to support children to develop their design and technology skills, understanding and knowledge. This knowledge is gained and developed across five units of work, taught across Key Stage Two, on a two year rolling programme.

Implementation: Supporting pupils, including pupils with special educational needs and/or disability

Ensuring access to the curriculum for all children, regardless of background, special educational need and/or disability is an essential aspect of teaching and learning at Sleights. Our approach to the curriculum for children with special educational need(s) and/or disabilities aims to ensure that children with differences are able to learn about a subject, remain focused, manage and complete tasks with a sense of achievement, whilst also being challenged.

This will be supported and achieved through a range of ways, including:

- Additional repetition of learning to support embedding the knowledge (to help the children to remember the knowledge).
- Repetition tasks take the form of retrieval tasks and activities, in addition to learning the same information in different ways over several lessons.
- A wider range of practical activities in the curriculum to support children's individual needs, including a range of recording methods.
- Reading differentiated to support lower-level readers.
- A range of practical resources and support tools to enable access to the curriculum.

Impact: how do we ensure that children are making progress and learning?

Assessment for learning is fundamental to raising standards and enabling children to reach their potential. Assessment in art and design takes place during and after each taught session, using a range of strategies such as marking and feedback, verbal discussions with children and response time.

In addition to identifying the impact of teaching and learning of substantive knowledge, assessment of children's disciplinary skills is also made. These transferable skills are taught alongside substantive knowledge and assessed formally each term (assessments recorded on the half term). Teachers make informed assessment decisions based on activities and learning. These assessment decisions identify whether a child is demonstrating that they are meeting the expected standard, working towards it or exceeding it.