D&T

CURRICULUM: D&T

St. John the Evangelist Catholic Primary School

Christ at the Centre, Children at the Heart

CURRICULUM NARRATIVE

Cycle A

Welcome to secondary school!

Year 5/6

Cooking and nutrition
A yeast-based snack

Structures
A small -scale bird hide

Textiles
A tablet case

Year 3/4

Cooking and nutrition
A bread-based product

Structures
CAD-based packaging to protect and display a food product for sale

Textiles
A stuffed toy

Year 1/2

Cooking and nutrition
A smoothie

Mechanisms
A small wheeled trolley

Textiles
A puppet to retell a story

Your D&T journey starts here!

EYFS

Design and Technology: In EYFS children will explore different materials freely, in order to develop their ideas about how to use them and what to make. They will begin to develop their own ideas and then decide which materials to use to express them and join different materials and explore different textures.

CURRICULUM NARRATIVE

Cycle B

Welcome to secondary school!

Year 5/6

Cooking and nutrition
Bolognese

Mechanical systems
A moving toy

Electrical systems
An alarm to protect a valuable artefact

Year 3/4

Cooking and nutrition
A puff pastry tart/pizza

Electrical systems
A night light for a sibling or friend

Mechanical systems
A greeting card

Year 1/2

Cooking and nutrition
A Rainbow Salad

Structures
A strong chair for Baby Bear

Mechanisms
A moving storyboard

EYFS

Design and Technology: In EYFS children will explore different materials freely, in order to develop their ideas about how to use them and what to make. They will begin to develop their own ideas and then decide which materials to use to express them and join different materials and explore different textures.

Your D&T journey starts here!

CURRICULUM NARRATIVE

Why do Designers Read?

To find out specific information about products (materials, processes etc…)

To gain inspiration.

To learn about past and present influential people.

To learn about the history of products.

To help develop their own creative skills.

To follow recipes and instructions.

Write like a Designer

Write for real purposes and audiences.

Create design plans, explaining thought processes.

Evaluate own products as well as pre-existing products, organising it under e.g. headings, subheadings.

Produce questionnaires to acquire customer views.

Collate research to present design ideas/products.

Correctly use design vocabulary and technological key terms

Use labels and annotations on diagrams.

Instructions on how to make a product and how to prepare food.

Write persuasively to promote their product.

Threshold Concepts

- Design
- Make
- Evaluate
- Technical Knowledge

Key Areas:

- Cooking and nutrition
- Mechanisms and Mechanical systems
- Structures
- Textiles

Key Stage 2 only:

- Electrical systems
- *Application of the* Digital world

CURRICULUM NARRATIVE

Intent

At St John the Evangelist, we want children to use creativity, problem solving and imagination to design and make products that solve real and relevant problems. Design technology is an inspiring, rigorous and practical subject which enables children to actively contribute to the creativity, culture, wealth and well-being of themselves, their community and their nation. DT provides opportunities for creative expression and problem-solving which are an important part of the personal development of an individual. Children have the opportunity to apply and continue to develop skills and knowledge from Mathematics, Science and other subjects within their Design Technology learning. Design Technology reflects our culture and society and so the teaching and learning of DT enables children to better understand the rapidly changing world they live in. Our Design Technology curriculum is progressive, exploratory and inclusive, building continually upon prior learning and skills.

Our aim is to provide a curriculum that will allow the children to be:

- Creative, technical designers with a positive attitude to their own work.
- Able to develop skills to critique and evaluate their own ideas or products.
- Confident in applying a range of practical skills in the areas of textiles, resistant materials and food.
- Experienced in a range of design areas and explore the work of local, British and global designers throughout history.

We intend to build a Design Technology curriculum which develops learning and results in the acquisition of knowledge and skills. Children will know more, remember more and understand more. We intend to design a design technology curriculum with appropriate subject knowledge, skills and understanding as set out in the National Curriculum Design Technology Programmes of study, to fulfil the duties of the NC whereby schools must provide a balanced and broadly-based curriculum which promotes the spiritual, moral, cultural, mental and physical development of pupils and prepares them for the opportunities and responsibilities and experiences for later life.

Implementation

As a school within the Bishop Hogarth Catholic Education Trust, we teach a progressive set of skills devised by subject specialists with industry knowledge in the field of Design Technology. Our curriculum aims to excite and ignite our pupils' interest in design and technology and prepares them to participate in the development of a rapidly changing world. The threshold concepts are taught sequentially over time to develop technical knowledge, skills and understanding from EYFS to Year 6 and beyond. This ensures that progression of skills and understanding is clearly mapped from Early Years to the end of Key Stage 2. Design Technology is interwoven with other curriculum subjects, giving meaning to their learning.

The curriculum aims to ensure that all 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 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.

Impact

When pupils leave our school, they will know more, remember more and understand more about Design Technology. They will have an excellent attitude to learning and independent working, the ability to use time efficiently and work constructively and productively with others, the ability to carry out research, show initiative and ask questions to develop a detailed knowledge of users' needs. Pupils will have the ability to act as responsible designers and makers, working ethically, using a range of materials carefully and working safely and hygienically. They will have thorough knowledge of which tools, equipment and materials to use to make a product. Children will have a firm foundation of knowledge and skills on which they will be able to build as they progress into Key Stage 3.

CURRICULUM NARRATIVE

Threshold Concepts

To equip children with a breadth and depth of knowledge, the curriculum embeds these **threshold concepts** and **key areas** through the completion of three projects in each year group:

Design:

- Using research and exploration to identify and understand user needs.
- Identifying and solving design problems.
- Developing design specifications to inform the design of innovative, functional and appealing products in a variety of situations.
- Using a variety of approaches to generate creative ideas.
- Developing and communicating design ideas in a variety of formats.

Make:

- Selecting and using specialist tools, techniques, processes, equipment and machinery.
- Selecting and using a wide and complex range of materials, components and ingredients – considering their properties.
- Preparing and cooking a variety of dishes using a range of cooking techniques.

Evaluate:

- Analysing the work of past and present influencers.
- Investigating new and emerging technologies.
- Using a design specification and user feedback to test, evaluate and refine ideas.
- Exploring the impact of design and technology on society and the environment.

Technical Knowledge:

- Understanding and using materials based on their properties and structural performance.
- Understanding how mechanical systems are used in products to change movement and force.
- Understanding how electrical and electronic systems are used and can be powered within products.
- Applying computing and programmable computers to embed intelligence into products.
- Understanding the principles of a healthy and varied diet.
- Understanding seasonality and food sources.

Key Areas:

Cooking and nutrition	**Mechanisms/Mechanical systems**	**Structures**
Where food comes from, balanced diet, preparation and cooking skills. Kitchen hygiene and safety. Following recipes	Mimic natural movements using mechanisms such as cams, followers, levers and sliders.	Material, functional and aesthetic properties, strength and stability, stiffen and reinforce structures.
Textiles	**Electrical systems (Key Stage 2 only)**	**Digital world (Key Stage 2 only)**
Fastening, sewing, decorative and functional fabric techniques including cross stitch, blanket stitch and appliqué.	Operational series circuits. Circuit components, circuit diagrams and symbols, combined to create various electrical products.	Program products to monitor and control, develop designs and virtual models using 2D and 3D CAD software.

CURRICULUM NARRATIVE

"If you want to eat well, you have to cook yourself, there's no magic to it."

Jamie Oliver

Curriculum Coverage

Upper KS2	Cycle A Y5/6		Cooking and nutrition: **A yeast-based snack (pretzels) for parents and children participating in…(e.g. Mass, school sports day, Stay and Read)** *Focus for learning:* Celebrating culture and seasonality		Structures: **A small-scale bird hide for children to use in the school wildlife area/pavilion for the local park** *Focus for learning:* Frame structures		Textiles: **A tablet case** *Focus for learning:* Fastenings (including computer-aided design)
	Cycle B Y5/6		Cooking and nutrition: **Bolognese** *Focus for learning:* Celebrating culture and seasonality		Mechanical systems: **A moving toy** *Focus for learning:* Cams		Electrical systems: **An alarm to protect a valuable artefact** *Focus for learning:* More complex circuits and switches (including programming, monitoring and control)
Lower KS2	Cycle A Y3/4		Cooking and nutrition: **A bread-based product (wrap, sandwich, roll, blini, toastie)** *Focus for learning:* Healthy and varied diet		Structures: **CAD-based packaging to protect and display a food product for sale** *Focus for learning:* Shell structures (including computer-aided design)		Textiles: **A stuffed toy for a younger child** *Focus for learning:* 2D shape to 3-D product
	Cycle B Y3/4		Cooking and nutrition: **A puff pastry tart using seasonal vegetables and fruit/A pizza using seasonal vegetables and fruit** *Focus for learning:* Healthy and varied diet and culture		Electrical systems: **A night light for a sibling or friend** *Focus for learning:* Simple circuits and switches (including programming and control)		Mechanical systems: **A greeting card** *Focus for learning:* Levers and linkages
KS1	Cycle A Y1/2		Cooking and nutrition: **A smoothie** *Focus for learning:* Preparing fruit and vegetables		Mechanisms: **A small-wheeled trolley that will carry tools to use in a school garden or for a character in a story** *Focus for learning:* Wheels and axles		Textiles: **A puppet to retell a story** *Focus for learning:* Template and joining techniques
	Cycle B Y1/2		Cooking and nutrition: **A rainbow salad** *Focus for learning:* Preparing fruit and vegetables		Structures: **A strong chair for Baby Bear** *Focus for learning:* Free-standing structure		Mechanisms: **A moving storyboard to retell a fairy tale to the class** *Focus for learning:* Sliders and levers

Mixed-Age Classes

Our mixed-age classes operate a cycle of learning (two-year rolling programme) to ensure that pupils meet threshold concepts and end points for their year group without repeating the same theme of learning.

CURRICULUM NARRATIVE

Curriculum Coverage

In **EYFS**, pupils will be introduced to Cooking and nutrition by preparing and tasting a range of fruits and vegetables. They will explore and make food linked to their topic and learn about basic hygiene. They will develop their cooking skills and techniques by playing and experimenting with Play Doh. Structural design and make skills will be developed through junk modelling and construction, providing opportunities to use a range of motor skills. Children will explore a range of materials and apply a range of techniques, including cutting, joining, threading and weaving. Through free play, they will explore mechanisms through different vehicles and moving toys and books with simple sliders.

As they move into **Year 1**, pupils will further develop their design skills by making a 'moving storyboard' to retell a fairy tale to the class; simple sliders and levers will be introduced. Their structural knowledge will be enhanced by designing and making a free-standing structure, e.g. a strong chair for Baby Bear. A smoothie for themselves will be created, allowing them to prepare fruit and vegetables and investigate food sources and origins.

In **Year 2**, pupils will continue to investigate food sources and origins by making a Rainbow Salad; they will practise a greater range of food processing skills. A puppet to retell a story will be created, allowing them to develop textile skills, focusing on template and joining techniques. Their mechanical understanding will be developed further by using wheels and axles to make a wheeled trolley.

On entering **Year 3**, the pupils will further develop their design skills by designing and making their own packaging to protect and display a food product for sale. They will be introduced to computer-aided design to make their structure. A bread-based product will be made, allowing pupils to gain skills in food preparation and understand a healthy and varied diet. Pupils will continue with textiles and make a stuffed toy for a younger child.

Moving into **Year 4**, pupils will continue to focus on a healthy balanced diet and seasonality by cooking their own tart or pizza using seasonal vegetables and/or fruit. A night light for a sibling or friend will be designed focusing on simple circuits and switches, including programming and control. For mechanical systems, a greeting card will be made using levers and linkages.

In **Year 5**, pupils will build upon their knowledge of structures to design and make a frame structure. This could be a bird hide for children to use in the school wildlife area, or a pavilion for their local park. Sewing skills will be honed during the textiles project to make a tablet case, focusing upon different types of fastenings, stitch and appliqué techniques, including computer-aided design. To celebrate culture and seasonality, a yeast-based snack, e.g. pretzels will be prepared and made.

As they enter **Year 6** pupils will utilise the mechanical skills gained from prior learning by designing and making a moving toy with a cam mechanism. An alarm to protect a valuable artefact will allow them to gain further knowledge about electrical systems during their work with more complex circuits and switches, including programming, monitoring and control. While cooking a Bolognese, pupils will learn more about recipe adaptation and further develop their food hygiene and preparation skills.

Each project has been specially designed to provide children with the wide range of skills and technical knowledge needed to allow them to succeed and thrive in Design and Technology. Materials have been designed to ensure clarity and consistency of delivery to ensure an agreed standard. Core skills are sequenced to be revisited at least once within each key stage to ensure that knowledge is built upon and developed through retrieval and skill practice. Recall is a feature of theory sessions, developing students' ability to transfer skills between projects and different media.

CURRICULUM CONTINUITY – EYFS TO KS1

Threshold Concepts

How does the Early Years Framework fit within the four threshold concepts?

Planning, designing, making and developing skills and knowledge are all fundamental parts of our EYFS. Children will have plenty of opportunities through child-led learning to get to know each of these areas as they explore different materials, processes and outcomes. Adults support and scaffold their learning, offering suggestions or listening to their ideas.

Design	Make	Evaluate	Technical Knowledge
			
Structures • Making verbal plans and material choices • Developing a junk model. • Designing through construction materials, such as Lego, Duplo and various building blocks	**Structures** • Improving fine motor/scissor skills with a variety of materials. • Joining materials in a variety of ways (temporary and permanent). • Joining different materials together. • Describing their junk model, and how they intend to put it together.	**Structures** • Giving a verbal evaluation of their own and others' junk models with adult support. • Checking to see if their model matches their plan. • Considering what they would do differently if they were to do it again. • Describing their favourite and least favourite part of their model.	**Structures** • To know there are a range of different materials that can be used to make a model and that they are all slightly different. • Making simple suggestions to fix their junk model.
Textiles • Discussing what a good design needs. • Designing a simple pattern with paper. • Designing a specific product linked to the termly topic. • Choosing from available materials.	**Textiles** • Developing fine motor/cutting skills with scissors. • Exploring fine motor/threading and weaving (under, over technique) with a variety of materials. • Using a prepared needle and wool to practise threading. • Exploring different materials, such as card, fabric, wool.	**Textiles** • Reflecting on a finished product and comparing to their design.	**Textiles** • To know that a design is a way of planning our idea before we start. • To know that threading is putting one material through an object.
Cooking and Nutrition • Designing a recipe as a class. • Designing packaging.	**Cooking and Nutrition** • Chopping plasticine and Play-Doh safely. • Chopping fruit and vegetables with support. • Develop cutting, slicing, spreading, rolling, scooping, kneading etc through preparing simple dishes and experimenting with Play-Doh.	**Cooking and Nutrition** • Tasting different food and giving opinions. • Describing some of the following when tasting food: look, feel, smell and taste. • Choosing their favourite packaging design and explaining why.	**Cooking and Nutrition** • To know that food can be made of different ingredients • To know that vegetables are grown. • To recognise and name some common fruits and vegetables. • To know that different food, fruits and vegetables taste different. • To know that eating fruits and vegetables is good for us. • To discuss why different packages might be used for different foods.
Mechanisms • Design a character prop for a play/story with a simple moving part. • Design a model with moving parts using a range of construction materials.	**Mechanisms** • Make use of props and materials when role playing characters in narratives and stories. • Construct models with moving parts, such as Lego vehicles.	**Mechanisms** • Reflecting on a finished model or product and assessing if it works and moves.	**Mechanisms** • To know how to make objects move through wheels and simple sliders.

SEND

The BHCET Design and Technology curriculum has been designed to be delivered to the whole class. However, the tasks are adapted by class teachers to meet the needs of individual children. To ensure pupils with SEND achieve well, they should be exposed to the same learning as their peers; however, the way they evidence their learning through the tasks can be adapted.

Through scaffolding, tasks can be adapted to ensure all learners can access and evidence the same threshold concepts and learning objectives as their non-SEND counterparts. Scaffolding strategies can include providing sentence starters, a writing frame, vocabulary banks, sorting and matching cards or visual prompts. Reactive or proactive adaptations can make the BHCET curriculum accessible and achievable for all.

Other strategies of adaptation are outlined through the EEF's Five-a-Day principles, which include explicit instruction, metacognitive strategies, flexible grouping and the use of technology.

Scaffolding
'Scaffolding' is a metaphor for temporary support that is removed when it is no longer required. Initially, a teacher would provide enough support so that pupils can successfully complete tasks that they could not do independently. This requires effective assessment to gain a precise understanding of the pupil's current capabilities.
Examples: Support could be visual, verbal, or written. Writing frames, partially completed examples, knowledge organisers, sentence starters can all be useful. Reminders of what equipment is needed for each lesson and classroom routines can be useful. Scaffolding discussion of texts: promoting prediction, questioning, clarification and summarising.

Explicit Instruction
Explicit instruction refers to a range of teacher-led approaches, focused on teacher demonstration followed by guided practice and independent practice. Explicit instruction is not just "teaching by telling" or "transmission teaching" One popular approach to explicit instruction is Rosenshine's 'Principles of Instruction'.
Examples: Worked examples with the teacher modelling self-regulation and thought processes is helpful. A teacher might teach a pupil a strategy for summarising a paragraph by initially 'thinking aloud' while identifying the topic of the paragraph to model this process to the pupil. They would then give the pupil the opportunity to practise this skill. Using visual aids and concrete examples promotes discussion and links in learning.

Cognitive and Metacognitive Strategies
Cognitive strategies are skills like memorisation techniques or subject-specific strategies like methods to solve problems in maths. Metacognitive strategies help pupils plan, monitor and evaluate their learning.
Examples: Chunking the task will support pupils with SEND. This may be through provision of checklists, instructions on a whiteboard or providing one question at a time which helps reduce distractions to avoid overloading working memory. Prompt sheets help pupils to evaluate their progress with ideas for further support.

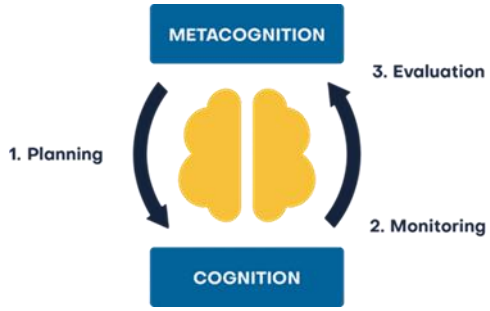
Flexible Grouping
Flexible grouping describes when pupils are allocated to smaller groups based on the individual needs that they currently share with other pupils. Such groups can be formed for an explicit purpose and disbanded when that purpose is met.
Examples: Allocating temporary groups can allow teachers to set up opportunities for collaborative learning for example, to read and analyse source texts, complete graphic organisers, independently carry out a skill, remember a fact orunderst and a concept. Pre-teaching key vocabulary is a useful technique.

Use of Technology
Technology can assist teacher modelling. Technology, as a method to provide feedback to pupils and/ or parents, can be effective, especially when the pupil can act on this feedback.
Examples: Use a visualiser to model worked examples. Technology applications, such as online quizzes, can prove effective. Speech-generating apps to enable note-taking and extended writing can be helpful.

Assessment

Assessment comprises two linked processes:

Formative Assessment provides Assessment **for** Learning, is a continuous process and an integral part of teaching and learning. Informal observations, dialogue/effective use of questioning, consolidation activities, low stakes quizzing, routine marking and pupil/peer assessment all contribute to the developing profile of progress. When pupils make changes and consider actions to their work based on the activity, they are 'self-regulating' their work. Self-regulating activities can be termed Assessment **as** Learning. Self-regulated learners are aware of their strengths and weaknesses and can motivate themselves to engage in and improve their learning. Pupils start by **planning** how to undertake a task, working on it while **monitoring** the strategy to check progress, then **evaluating** the overall success.



Metacognitive Regulation Cycle
(EEF Metacognition & Self regulation Guidance)

Summative Assessment provides Assessment **of** Learning and is a judgement of attainment at key points throughout the year using past knowledge to measure attainment and progress. Examples of this are standardised tests, tasks and end of term/annual assessments which include a sample of pupils' prior learning.

Assessment is a continuous process which is integral to teaching and learning and:
Enables an informed judgement to be made about a pupil's understanding, skills, attitude to learning and successful acquisition of knowledge as they move through the curriculum.
Incorporates a wide range of assessment techniques to be used in different contexts/purposes.
Is accompanied by **clear assessment criteria** that enable effective marking and feedback, give a reliable progress evaluation and demonstrate clearly what a pupil must do to improve.
Provides feedback recognising achievement and increasing pupil confidence/motivation.
Supports learning by making clear to pupils: what they are trying to achieve; what they have achieved; what the learning gaps and misconceptions are and what the next steps in learning are.
Allows regular subject-specific extended writing and access to high quality texts/reading.
Should be moderated and standardised to ensure **purposeful, meaningful and timely feedback.**
Includes feedback to pupils to help them understand what they need to improve, challenging them to achieve their target rather than a grade.
Allows leaders and staff to make timely adaptations to the curriculum.