



St Nicholas^{CE}
First School

Design and Technology

Subject Policy and Expectations

(For Staff, Local Academy Board and Families)

Mrs J Sollom

Policy Reviewed by Subject Leader: ✓

Policy Reviewed and Approved by LAB: ✓

Next Policy Review Date: ✓

Care

Respect

Trust

Thankfulness

Challenge

Our School, Our St Nicholas Curriculum

Our school's curriculum is its backbone; it communicates, develops, and enhances community-wide culture, morals, values and aims, that contributes to children leaving our school as well-rounded members of society. It permeates every aspect of school life and demonstrates to the wider community our school's commitment to shaping future generations and the world's future leaders, whilst providing a clear structure and purpose for learning about and understanding the diverse world around them.

Our School Vision

Walking in the footsteps of Jesus with Care, Respect, Trust, Thankfulness and Challenge

Our Values

Care: Clothe yourself with compassion, kindness, humility, gentleness and patience. *Colossians 3:12*

Respect: Do to others as you would have them do to you. *Matthew 7:12*

Trust: My God is my strength in whom I trust. *Psalms 18:2*

Thankfulness: Always be thankful. *1 Thessalonians 5:16*

Challenge: I can do all things through Him who strengthens me. *Phillipians 4:13*

Our Curriculum Vision

Rooted in our Church ethos, we aim to deliver on our children's future through a curriculum that offers vibrant, diverse and creative experiences and opportunities. In turn, children leave St Nicholas prepared and equipped with the lifelong knowledge, skills and concepts to play an active role as a safe, happy and productive member of our global community.

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Our Curriculum Aims and Culture

A Head, Heart, Hands, Health approach to learning and personal development

Head



Preparing our children with knowledge and skills for lifelong learning, that contributes to their understanding of the wider diverse world, so they become well-rounded members of society.

Hands



Developing hands-on skills and knowledge, to enable our children to be resilient and creative learners, who take risks and explore ideas in different ways.

Heart



Promoting our children's love for learning, exploring how it links to everyday life, whilst having the pride and desire to undertake challenges, in order to be the best they can be, through following Jesus as a role model.

Health



Equipping our children to recognise how they can help to keep themselves spiritually, mentally and physically happy, healthy and safe by making the right, positive choices.

Curriculum Principles

Our curriculum is **Balanced...** it allows our pupils to acquire and develop a carefully planned, well-rounded and informed set of knowledge and skills, to prepare them for the next phase of their education. This means complete equity for every child, in every year group and in every subject across the curriculum.

Our curriculum is **Progressive...** it activates and builds on what our children already know and aims to sequentially develop ideas and concepts clearly over time, in order that children develop a robust overview of the 'bigger picture', and ultimately apply and explore their learning from different open-ended dimensions.

Our curriculum is **Quality...** significant thought and consideration is invested into the planning, delivery, resourcing and facilitation of the provision by our staff to ensure that it drives what we strive to achieve for our children. High quality provision that is rooted in evidence-informed practice is the linchpin to driving our standards forward.

Our curriculum is **Accessible...** whereby all pupils regardless of background or disposition are given the tools to achieve their very best, whether this be through scaffolding and support strategies, or through stretch and challenge. All children are given the opportunity to experience success and more through an informed and responsive approach to teaching and learning.

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Our Aims and Aspirations for Design and Technology

Why is Design and Technology important for our learners at St Nicholas?

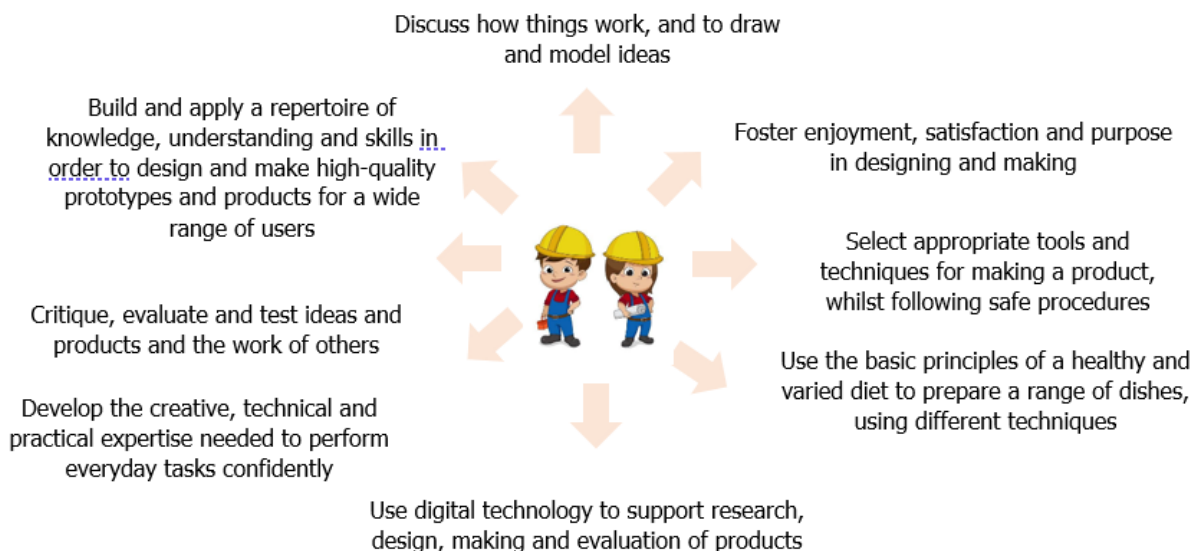
Design and Technology provides our learners with opportunities to develop creative, technical and practical skills in their everyday lives in an increasingly technological world. Our aim is to build skills and knowledge to enable learners to experience and explore a broad and diverse curriculum. Learners will have opportunities to use 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. They will develop subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art.

At St Nicholas learners will design and make high-quality prototypes and products for a wide range of users and have opportunities to reflect, critique, evaluate and test their ideas and products and the work of others. Learners will have opportunities to understand and apply the principles of nutrition and learn skills to prepare food safely and cook. St Nicholas learners will be empowered 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.

What are our aims and aspirations for the St Nicholas Engineer?

By the time our children leave St Nicholas CE First School, we aim for them to:

Our Aspirations for the St Nicholas Engineer



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Curriculum Design in Design and Technology

You can view our separate 'Subject Overview' for Design and Technology, which will provide a comprehensive and detailed outline of what our children learn, how they learn it, and our expectations for progress and achievement.

Structure

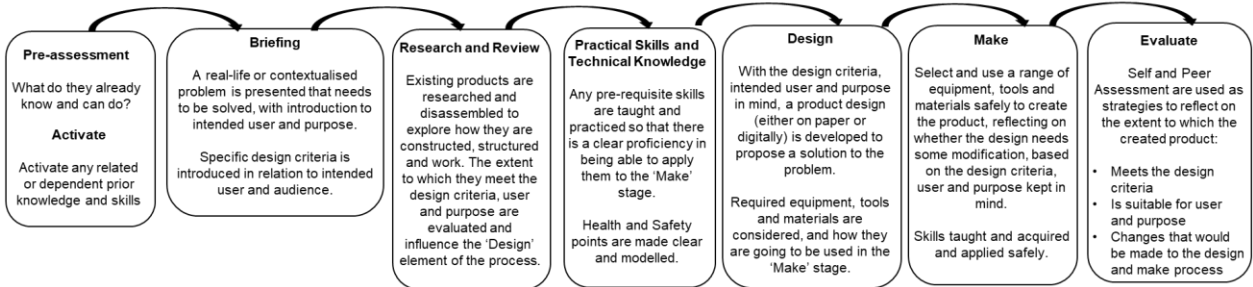
We have a very clear plan for children's learning progression, which helps them to build on prior learning, supported using the [DT association](#) schemes of work, which provide a Curriculum for KS1 and KS2. These are built and centred around the National Curriculum for Design Technology which can be found [here](#). This scheme was selected because it offers a well-rounded and progressive pathway to support exploring, acquiring and applying key knowledge and skills for the different dimensions of Design Technology.

Design and Technology is taught in units of learning, where the knowledge and skills being learnt are closely related and sequenced so that they are continually built on over time. A unit of learning will be completed in one half-term (consisting of at least 6 discrete lessons) so that there are ample opportunities for the acquisition and application of learning over time. Units begin with a design brief that provides the pupils with a question or problem. They will consider purpose and target audience and give children the opportunity to spend time pulling apart the brief and working collaboratively to identify their knowledge of these areas. The children will carry out independent research, modelling, teaching, questioning of users, current product research and evaluation. They will generate ideas through drawing, modelling and finalisation of their design. As part of the making phase they may be asked to make a prototype or a completed product.

The children evaluate their products against the design brief and specification, by testing their product and getting feedback from their target audience before stating the changes that they had to make and what would improve it further. Each unit of learning will be focused around a key question related to children's understanding of the world and may be linked to their learning in other subjects including Science, Geography or History.



Design and Technology



Throughout and beyond the sequence:

- Introduce and revisit key learning language (introduce as and when necessary to avoid overload)
- Making meaningful connections in learning by using related, connected and interconnected contexts for solid opportunities to master the knowledge and skills
- Use a range of diverse approaches to ensure students are motivated to learn and content is taught in the most appropriate and engaging way
- Make effective use of responsive teaching to ensure that students' learning is supported through questioning and feedback



Design Technology Whole-School Overview

	Autumn	Spring	Summer	Connecting Across the Curriculum
EYFS Nursery/ Reception	Nursery - What have I made? Reception - What will I make and how will I make it? Children will begin developing early design and technology skills. The children will be encouraged to access learning in both indoor and outdoor learning environments. They will be provided with the opportunity and resources to: • build with a purpose-use construction to create something with a purpose. • work together to solve problems and find solutions • discuss ideas with others and develop their language for communication and thinking. • share, turn take and collaborate • talk about what they have made, explain their choices and say what they like about their work and that of others. • Make birthday cards, puppets, models, signs • measure, count and develop an awareness of size and space. • use a range of tools and equipment to develop control, cutting, joining and folding. • develop gross motor control through den building, creating obstacle courses • expressing and representing ideas			• Writing and drawing • Ascribing meaning • Communication and Language • Physical Development – Fine Motor • Art and Design • Communication and Language • Understanding World
Year 1	How can I make a moving toy? (wheels and axles) To identify wheels and axles in the real world. To explain that when a wheel and axles are joined they form a simple mechanism that provides movement. To know and use technical vocabulary relating to wheels and axles. To design and create their own moving vehicle simple wheels and axles and explore the different ways these can be made and move. To evaluate how effective their moving product is and explain why the strengths/ weaknesses of their wheel/axle mechanism.	How can I make a picture move? (Levers and sliders,) To identify simple sliders and levers in the world. To explain that sliders and levers are mechanisms that provide movement. To know and use technical vocabulary relating to sliders and levers. To design and create own simple mechanism with levers or slides and talk about how their mechanism works how they work. To evaluate how effective a slider or lever is and explain why it is good and or how it can be better.	How is bread made? To name and sort fruit and vegetables. To understand where fruit and vegetables come from and that food comes from plants and animals. Begin to learn how food comes from a source to our plate - wheat to flour to bread. Learn basic food preparation skills including cleaning/washing before eating, peeling, chopping and preparing skills. Following a recipe, measuring/weighting and mixing ingredients, process for bread making, rising, kneading, proving, hygiene.	• History – toys from the past/Geol • Numeracy – Measure • Science/PSHE- Health and Hygiene

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Design Technology Whole-School Overview

Year 2	How can materials be joined successfully? Investigating and evaluating joining techniques To identify different ways textiles are used. To identify different fabric fasteners and say how they work. To explain what a template is and demonstrate how to use one. To know and use technical vocabulary relating to textiles joining and fastening. To design and create a simple puppet. To evaluate how effective their product is and explain why it is good and how it could be improved further.	What local sourced food could I use to make a healthy snack? Understand that food has to be reared (comes from elsewhere) grown or caught and further develop their understanding of how their food comes from a source to our plate. Begin to explore the food groups and learn the need for a healthy, balanced diet. Start to identify how the food groups meet our needs e.g. carbohydrates=energy. Explore the eat well plate and how the different parts of a meal fit into the section of the plate. Learn how to prepare food by grating, slicing, chopping and cutting. Make a healthy salad or fruit kebab using seasonal or locally sourced ingredients.	How can I make a new building for Kenya? To identify free standing structures and explain how they know they are freestanding. To identify similarities and differences in f/s structures. To know and use technical vocabulary relating to sliders and levers. To experiment with different assembly techniques for strength and stability. To design and create a free standing structure for a building in Kenya. To evaluate how effective their f/s structure was and explain why it is good and or how it can be better	- Science : Food and Healthy Eating - PSHE - STEM
Year 3	How can I safely prepare my family healthy meal? Begin to learn which food is grown (tomatoes, wheat, potatoes), reared (pigs, chicken, cattle) and caught (fish) in the UK, Europe and Wider World. Learn that different parts of the plant can be eaten-root, <u>tuber</u> , stem, fruit, flower. Begin to understand how food is imported and exported and the benefits and limitations of this. Develop food preparation, safety and hygiene skills including hair tied up, wearing aprons, washing hands, food preparation, use of different chopping boards	How can I make an exciting book for a younger child with moving parts? Investigate, understand and use lever and linkages, and fixed and loose pivots. Generate realistic ideas and use annotated sketches and prototypes to develop, model and communicate ideas for a moving book. Select and use tools with some accuracy to cut, shape and join paper and card. Investigate and analyse their own and others' products with lever and linkage mechanisms.	How can I keep a special item safe? Generate design plans to make a receptacle to keep an object safe Produce annotated sketches, prototypes, final product sketches and pattern pieces. Select fabrics and fastenings according to their functional characteristics. Investigate a range of 3-D textile products and their fastenings. Test their product against the original criteria and with the intended user.	- PSHE – what is special, taking responsibility - Science/PSHE – Health and hygiene - Literacy/Geography



Design Technology Whole-School Overview

Year 4	How can we light up Christmas? To identify what uses an electrical system. To explain how an electrical system works and how it provides power to make the components work. To create handmade switches and explain how and why they work. To create electrical circuits to provide power to a product prototype. To design a Christmas decoration that lights up and is controlled by a switch. To evaluate the effectiveness of the product by referring to the specification.	Is there enough to go around? Further develop understanding of food grown in the UK and Europe. Identify foods grown in the UK and why these may thrive in our climate. Prepare hygienically savoury food. Carry out safe and hygiene food preparation and begin to understand what could happen that food poisoning can occur if not followed. Children think about rationing and self-sufficiency which was an issue during WW2. Discuss issues of injustice and inequality around the world still today. Children are then to be given a problem to solve whereby they are given a small number of food items from which to create a meal.	How can we bridge the gap? Identify bridge structures in the world and explain why they are used. Investigate and explain how bridge structures are created and what gives them strength. Create bridge structures from different materials and test their strength. Design and make a bridge structure to span a river. To carefully measure, cut to ensure the dimensions are correct and use appropriate joining techniques	- Science – electricity - History – WW2 – rationing - Geography – rivers - PSHE – Equality/Injustice - Eco – Sustainability
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Curriculum Provision in Design and Technology

Effective Teaching and Learning

Design Technology teaching focuses on enabling children to investigate and problem solve. We place an emphasis on developing safe and accurate techniques and acquiring technical knowledge about how things work that provides children with an opportunity to meet a given brief. We encourage children to think about design processes and understand how design and construction has contributed to the world in which they live. We encourage visitors to come into the school and enrich lessons and learning with first hand experiences or expertise that can be shared, often building upon the school's strengths within STEM.

We recognise and value the importance of research and evaluation skills, learning about and learning from design. We focus on helping children to overcome barriers, developing the skills of resilience and perseverance within Design Technology lessons, showing that they can modify and adapt designs when they face a difficulty. At St Nicholas we teach Design Technology to all children, whatever their ability and individual need. This is in accordance

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with the school's curriculum policy of providing a broad and balanced education to all children. Through our Design Technology teaching we provide learning opportunities that enable all pupils to make good progress. We strive hard to meet the needs of those pupils with special educational needs, those with disabilities, those with special gifts and talents, new arrivals and those learning English as an additional language, and we take all reasonable steps to achieve this.

We recognise that in all classes children have a wide range of ability in history, and we seek to provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this by

- setting some tasks which are open-ended and can have a variety of responses;
- setting tasks of increasing difficulty, some children not completing all tasks;
- providing resources of different complexity, depending on the ability of the child
- adapting techniques, materials or equipment used to support/challenge pupils as needed

Teachers' planning will set high expectations and provide opportunities for all pupils to achieve, so that everyone can take part in lessons safely and effectively.

Responsive Teaching and Learning

As a school that is responsive to the needs of our children, we set high expectations for all to ensure they have the best possible opportunity to achieve their very best. To support us in achieving our ambition, we recognise that we need to 'Scaffold and Support', and 'Stretch and Challenge'.

Scaffold and Support is our approach to planning and implementing provision that gives every pupil the very best chance to secure the learning intentions; this can be through a range of support strategies such as additional modelling, questioning and resources to scaffold pupils' thinking and learning, to build further children's self-efficacy.

Stretch and Challenge involves strategies that aim to deepen learning and thinking, where critical evaluation and thinking play a key role in pupils seeing their learning from different dimensions.

Scaffold and Support in Design and Technology	Stretch and Challenge in Design and Technology
• Children have skills clearly and expertly modelled • Children have access to quality and achievable WAGOLLS • Children are guided to make links with previous learning • Children are supported with their designs through bespoke templates and guidance for research • Children access tools that support as needed e.g squeeze scissors	• Children can independently choose resources which are appropriate for the task and justify why they have used those • Children can confidently articulate the task related to the DT journey and make active links to the real world and other areas of the curriculum • Children can decide their own starting points by taking inspiration from other designs and evaluating the purpose of the task

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	Children can evaluate and analyse their work independently, explaining the choices they have made and what adaptations have taken place to suit their plan
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Whilst the class teacher takes a central role in facilitating learning, there are many opportunities for children to promote, acquire and apply our St Nicholas Skills for Lifelong Learning:

A St Nicholas learner will always apply their lifelong learning skills:

			
Eager	Resilient	Reflective	Collaborative
I see, I think, I wonder...	I set goals to challenge myself.	I use what I already know to help me.	I listen to others.
I plan and think through my learning.	I break my learning and task into chunks.	I think about how I am getting on.	I explain things to others.
I think of new and creative ideas.	I find tools to help me with my learning.	I listen and respond to feedback.	I talk about my learning.
I dive deeper into my learning.	I keep going and never give up.	I am proud of what I can do.	I am honest and trustworthy.
I apply my learning to real life.	I use mistakes to help me learn.	I see where to go next.	I work as part of a team.

Giving Feedback to Learners

Feedback for Learners

Children are provided with different types of feedback both during and after lessons. There will be opportunities during lessons for children to extend their learning. This is through verbal, written, self, teacher and peer feedback.

The Role of Assessment

Children demonstrate their ability in Design Technology in a variety of different ways. Teachers will assess children's work by making informal judgements during lessons. Much of the assessment will be formative whereby teachers watch and make observations about the learners approach to the task. When a summative judgement is made at the end of the unit this will take into account a range of factors including:

- Design
- Making process
- Finished product/prototype
- Evaluation

and apply a best fit model.

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It is important that children take a more central role in assessment and feedback through self and peer assessment, where the expectation is that they will take responsibility for recognising their achievements and how they can move forward. Children demonstrate their ability in Design and Technology in a variety of different ways.

On completion of a piece of work, the teacher assesses the work and gives oral and written feedback to inform attainment and promote next steps to ensure progression. Pupils are encouraged to make judgements about how they can improve their own work and participate in peer assessment.

Staff recognise that some children may have more ability in the design and evaluation elements depending upon Literacy skills, however may need more support with the practical element of a task.

On completion of a project, the teacher assesses the work and uses this information to plan for future learning. Written or verbal feedback is given to the child to help guide his or her progress. Children will be given the opportunity to showcase their learning in a 'showcase and share' lesson at the end of a unit.

Enrichment and Engagement

There will be opportunities to enrich children's understanding of Design Technology beyond the classroom through workshops, themed days, external visits and virtual workshops from experts. We will develop links within industry where possible to set Design Technology within a real life context and ensure children see the role of the subject in contributing to the world in which they live.

Curriculum Evaluation in Design and Technology

At St Nicholas, we use a range of quantitative and qualitative evidence-gathering techniques that are triangulated to draw together valid, accurate and robust evidence-based findings to make rigorous evaluations about the impact of our teaching and learning. This supports us to celebrate achievements whilst also recognising key priorities for future development. It is important that we evaluate our curriculum against our aims and aspirations. Please note that not all evidence-gathering techniques outlined below take place simultaneously; we select techniques that we know will give us the most purposeful information and impact at a point in time.

These evidence-based findings are drawn together and directly feed into subject leader action planning, which is then shared with the Local Academy Board (LAB) to hold the school to account for teaching, learning and children's progress and achievement in Design and Technology.

How do we evaluate?	What are we evaluating? Why are we evaluating in this way?	Who is involved?
We look at children's work.	Looking at children's work helps us to see the opportunities they have had to apply their learning	Subject Leader Children Colleagues

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	meaningfully and in ways that reflect a deeper approach to learning.	
We talk to the children about their learning and let them share their views in different ways.	Talking to children and recognising their views helps us to see identify the extent to which children are engaged and interested in their learning, and what we can do to make their experiences even more meaningful.	Subject Leader Children
We talk to and gather views from parents about their child's learning and experiences.	Gathering views from parents helps us to shape our understanding of children's experiences and opportunities across the curriculum from a different yet important perspective.	Subject Leader Colleagues Children Parents
We have professional and reflective discussions with our colleagues.	Professional and reflective discussions with colleagues helps to share and exchange ideas about effective practice and priorities for moving forward.	Subject Leader Colleagues
We visit lessons to see strategies, opportunities and experiences used for learning.	Visits to lessons help colleagues to recognise the extent to which strategies, opportunities and experiences in lessons have an impact on maximising children's progress and meeting their needs.	Subject Leader Children Colleagues
We look at subject planning.	Reviewing subject planning is important to explore how appropriate the design of the curriculum is in maximising learning progress and to ensure that children build the bigger picture of knowledge and skills over time.	Subject Leader Colleagues
We look at and analyse pupil progress and achievement.	Analysing children's progress and achievement in more detail helps to develop lines of enquiry and identify key groups or subject areas that may benefit from further development.	Subject Leader Colleagues

Identifying Staff Continual Professional Development Needs

Continual Professional Development (CPD) is integral to the development of teaching and support staff to ensure that they are well-equipped to plan, deliver and evaluate a high-quality curriculum. The direction of CPD is steered through triangulated findings from the evidence-gathering techniques and staff audits.

CPD will be facilitated in the following ways:

- **Colleague Networking:** Working with other colleagues to build capacity and staff self-efficacy through a bespoke package of CPD (such as professional discussion and observation). This may be through working with staff at St Nicholas, across the MAT or beyond.
- **Staff Workshops:** Personalised whole-school staff developmental sessions to support pedagogical knowledge, strategies to motivate, challenge and support, and subject knowledge development. This may include inviting 'experts' to support staff development or enrolling members of staff in face-to-face or virtual courses.

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Expectations and Responsibilities

The Local Academy Board (LAB), Senior Leadership Team, Subject Leader and Teaching Staff have key responsibilities to uphold the high expectations, principles, design and provision of our Design and Technology curriculum as follows:

Local Academy Board	Senior Leadership Team/ Subject Leader	Teaching Staff
- Rigorously review the policy and expectations for Design and Technology to ensure it meets the school's curriculum principles, drivers and rationale. - Hold the subject leader and school to account for the design, provision and evaluation of Languages (French). - Regularly meet with the subject leader to explore findings from evidence-gathering and discuss how this will feed into subject action planning. - Plan for and communicate potential financial, time and resourcing commitments with the LAB, that will be required as part of the subject action plan.	- Implement evidence-gathering techniques to gather a well-rounded evaluation of the impact of the design and provision in Design and Technology, including working in collaboration with members of the LAB. - Widen pupils' celebration of diversity and intercultural understanding through facilitating a range of engaging, inspirational and aspirational enrichment opportunities. - Identify and plan to address key priorities for development that will move the curriculum forward, including potential financial, time and resourcing commitments required. - Identify staff CPD needs and design bespoke developmental sessions and coaching that will address key priorities, including subject knowledge. - Support staff across the school to deliver a balanced, progressive, high-quality and consistent Design and Technology curriculum, that supports and challenges children.	- Plan lessons that motivate, challenge and inspire pupils using a range of teaching and learning strategies. - Provide pupils with clear, concise and constructive feedback about their learning progress and achievement. - Use a range of evidence to make a robust and accurate assessment of pupil attainment and progress. - Communicate progress and achievement with parents/carers. - Ensure that lessons are well-resourced to support pupils' learning. - Support the facilitation of engaging, inspirational and aspirational enrichment opportunities that widen pupils' celebration of diversity and intercultural understanding. - Adapt teaching and learning strategies, resources and activities to support children who require additional support or challenge.



If you require any further information regarding the content of this policy, would like to know more about or feel you could contribute to our Design and Technology curriculum, please contact the subject leader using the following contact details:

Name of Subject Leader: Mrs J Sollom

Telephone (School Office): 01902 842998

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Subject Leader E-Mail Address: Office@st-nicholas.staffs.sch.uk (FAO: DT Subject Leader)

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