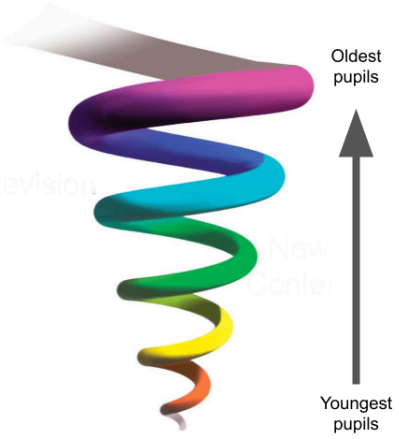
Design and Technology Learning at South Moreton

Intent:

At South Moreton, our Design and Technology curriculum is deeply connected to our vision: “The World for our Children, Our Children for the World.” Through practical exploration and problem-solving, we empower our young learners to become innovative thinkers, equipping them with the skills to design, create, and evaluate solutions for the ever-changing world around them. By studying a range of designers, engineers, and cultures, children develop an appreciation for diverse perspectives and sustainable practices. Our curriculum fosters curiosity, imagination, and resilience, ensuring students grow into confident global citizens who embrace creativity, respect different viewpoints, and contribute positively to the world through thoughtful and purposeful design.

Implementation:

At South Moreton School, our Design and Technology curriculum is built upon evidence-informed pedagogies to ensure high-quality teaching and learning. We recognise that effective curriculum design and instructional strategies can positively impact academic outcomes across multiple subjects. To achieve excellence, we integrate research-backed approaches from Rosenshine, Sweller, and Mayer, alongside recommendations from the 2011 Ofsted subject review for Design and Technology



By embedding evidence-informed approaches that follow our South Moreton spiral model, we ensure our Design and Technology curriculum equips pupils with the skills, knowledge, and creativity to thrive in an evolving world. By teaching Design and Technology on an alternating term basis with Art and Design from Early Years to Year 6, this ensures that children experience a well-rounded creative education. Our commitment to excellence, innovation, and sustainability prepares students to become confident problem-solvers and responsible global citizens.

What overarching curriculum principles inform the design of the Design and Technology curriculum?

Sequenced and coherent
At South Moreton, our Design and Technology curriculum is carefully structured to ensure a coherent and progressive learning journey, where pupils build upon prior knowledge and skills in a sequenced manner. Guided by the Skills Progression Document, each stage of learning systematically introduces new techniques, materials,

and design concepts, allowing pupils to develop increasing confidence and competence in their abilities. In the early years, children engage in fundamental construction and design tasks, fostering creativity, problem-solving, and basic technical understanding. As they advance through the curriculum, the complexity of projects grows, incorporating more refined methods and principles. In KS2, pupils are challenged to apply sophisticated design thinking, integrating advanced techniques such as mechanical systems, electronics, and structural engineering principles into their creations.The curriculum has been written with the idea of 'Real-World Contexts': Encouraging pupils to solve real-world problems makes learning more meaningful and helps them understand the impact of design on society By providing clear progression pathways, we ensure pupils develop resilience, independence, and the ability to think critically about design challenges, preparing them for more advanced application of skills in later education and beyond.

Evidence informed

Our Design and Technology curriculum is built on a foundation of evidence-informed practice, ensuring the rigorous application of research outcomes, and best pedagogical approaches. Grounded in both general educational research and subject-specific expertise, our curriculum is designed to deliver high-impact learning experiences that foster creativity, problem-solving, and technical proficiency. By integrating insights from effective curriculum sequencing, and research-based instructional strategies, we create a coherent and progressive learning journey that supports pupils in developing increasingly sophisticated design and making skills. This approach not only strengthens pupils' understanding of key concepts but also enhances their ability to apply complex principles and techniques in construction tasks as they progress through the curriculum. Through structured skill development, and reflective practice, we equip learners with the knowledge and resilience necessary to excel in a dynamic and evolving technological world.

Curriculum Alignment with National Standards

Our curriculum follows the National Curriculum for Design and Technology, ensuring pupils develop technical knowledge, practical skills, and problem-solving abilities.

We provide opportunities for pupils to design, make, and evaluate products, fostering creativity and resilience.

Evidence-Informed Pedagogies

Rosenshine's Principles of Instruction guide our teaching, emphasising explicit instruction, scaffolding, and retrieval practice to support knowledge retention.

Sweller's Cognitive Load Theory informs lesson design, ensuring pupils engage with manageable challenges that enhance learning efficiency.

Mayer's Multimedia Learning Principles help integrate digital tools and visual representations to deepen understanding.This evidence from this principle proves that people learn better from words and pictures than from words alone. Children at South Moreton are taught and their learning enhanced by combining words and pictures at every step of their Design and Technology units. This supports information retention more effectively

Practical, Hands-On Learning

Pupils engage in real-world problem-solving, applying their knowledge to design solutions that address environmental, social, and technological challenges.

We incorporate modern technologies, including electronics,and sustainable materials, to prepare pupils for future innovation.

Teacher Development and Training

Professional development during CPD sessions with the subject lead ensures teachers receive **subject-specific training**, addressing gaps identified in the Ofsted review.

Cross-Curricular Integration

Using Bloom's taxonomy and carefully structured evaluation question to guide discussion, pupils develop critical thinking and teamwork skills, enhancing their ability to collaborate and communicate effectively.

Assessment and Continuous Improvement

Formative assessments and the inclusion of hinge questioning throughout the small steps within lessons track pupil progress, ensuring adaptive teaching strategies meet individual learning needs.

Regular curriculum reviews incorporate feedback from pupils, teachers, and external experts, maintaining alignment with best practices.

Flexible and accessible

Our curriculum has been written to be flexible and accessible, ensuring all pupils can engage meaningfully with learning while adapting to diverse needs. Our key principles for achieving this include:

Adaptive Curriculum Design

The curriculum is structured yet adaptable, allowing teachers to modify content based on pupils' abilities, interests, and prior knowledge.

Our progressive skills framework ensures pupils build upon previous learning, with increasing complexity in design and making tasks.

Inclusive Teaching Strategies

Scaffolding and explicit modelling is provided for ALL children as an integral part of the lesson providing those who need it, additional support while offering challenges for more confident learners. Our resources are purposefully created to be accessible, for example by using accessible fonts and colours with good contrast.

Multi-sensory approaches, including hands-on activities, digital tools, and visual aids, enhance accessibility for all pupils, including those with SEND.

Real-World Application and Engagement

The curriculum incorporates **real-world problem-solving**, making learning relevant and engaging.

Diverse

Our Design and Technology curriculum has been designed to be diverse and globally inclusive, ensuring pupils develop an understanding of different cultures, perspectives, and sustainable practices. The key principles for achieving this include:

Embedding Cultural Diversity in Design Thinking

Pupils Explore **design traditions from different cultures**, learning how materials, techniques, and aesthetics vary globally.

Projects, such as our Food Tech units, encourage cross-cultural appreciation, helping pupils understand how design and availability impacts communities worldwide.

Promoting Global Citizenship Through Sustainability

The curriculum emphasises ethical and sustainable design, encouraging pupils to consider environmental impact and responsible resource use, recycling and reusing materials as far as possible.

Pupils engage in problem-solving activities that address global challenges, such as climate change, accessibility, and social equity.

Teacher Training and Curriculum Development

S**ubject-specific training** every term ensures teachers can deliver a diverse and globally relevant curriculum.

At South Moreton, we regularly **review and update** our curriculum to reflect technological advancements and global design trends.

Which subject-specific principles underpin intent and implementation?

Our curriculum involves several subject-specific principles that guide our intent and implementation:

- **Creativity and Expression**: Our curriculum fosters creativity, allowing children to explore their ideas and express themselves through various Design forms
- **Skill Development**: Our curriculum focuses on developing proficiency in techniques such as creative thinking, problem-solving, and practical skills. These skills are developed through designing and making products, using various tools and technologies, and applying concepts like precision measurement and safety standards. It also cultivates transferable skills like teamwork, communication, and self-management, which are valuable in various fields.
- **Critical Thinking**: Our curriculum encourages children to evaluate and analyse their work and the work of other designers, using the language of Design and Technology

- **Cultural diverse and Historical Context**: Our curriculum supports the children's understanding of how key events and individuals in Design and Technology have helped shape the world designers.
- **Progression and Challenge**: Our curriculum is intellectually challenging and creatively demanding, ensuring progression in skills and understanding as children advance through the school.
- **Flexible and accessible**: Our curriculum caters to diverse learning needs, including students with special educational needs and disabilities (SEND), promoting independence and originality.

These principles aim to engage, inspire, and challenge students, equipping them with the knowledge and skills to design, appreciate, and critically understand Design and Technology

How does our Design and Technology curriculum meet the aims of the National Curriculum?

National curriculum aim	Our curriculum reflects these by
Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world	Encouraging children within each unit to think imaginatively using Bloom's taxonomy to question and guide ideas when developing solutions to the real-world challenges that they have been asked to explore(for example, food miles within food tech units and sustainable fashion within textiles technology projects). Through their design projects, they explore aesthetics, functionality, and sustainability, and they are encouraged to adopt a creative mindset that is essential for the development and change of their products. Our curriculum provides hands-on experience with tools, materials, and digital technologies. Pupils gain knowledge of engineering principles, manufacturing and processes for example, within the electrical systems unit in Autumn Term) , ensuring they have the expertise and confidence to prepare them for an increasingly technological society.
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	Leveraging their knowledge gained from South Moreton's carefully considered skills progression document and Design and Technology curriculum. Developing design criteria fit for their design brief ensuring they are **designing something for somebody for some purpose** . Learning is centred on applying theoretical knowledge from their extensive research in their lessons to the practical work when making their final product at the end of the term. Whether making prototypes, refining design concepts, or working collaboratively on projects with their peers, pupils develop confidence in their ability to perform everyday tasks.
Critique, evaluate and test their ideas and products and the work of others	Ensuring that children don't just design and create, but actively reflect on their work and the work of others using Bloom's taxonomy to design questions that target specific levels of cognitive thinking, ranging from basic recall to complex analysis and creation.By using Using star diagrams to evaluate, not just at the end of a unit but as soon as the design brief has been given, For example, in food tech, children are encouraged to taste test using this diagram to feedback on taste and texture which later informs the design process when they create their own product . Pupils engage in iterative design cycles where they analyse their initial ideas, test prototypes, and refine their ideas based on performance and self and peer evaluation.
Understand and apply the principles	Equipping pupils with practical food skills (such as food preparation using the safe use of knives for chopping) and developing their understanding of healthy and sustainable diets which includes the

of nutrition and learn how to cook.	nutritional value of food and the airmiles involved in delivering it to the plate. Teaching children to make informed decisions about food and drink, and to celebrate food as an important part of different cultures, and source of nourishment, connection, and joy.

How do we ensure our curriculum is inclusive for all pupils?

In our curriculum,tasks are broken down into manageable steps and children are provided with visual aids, templates, or structured frameworks to support learning within the subject, such as demonstrations for practical activities and scaffolded prompts to help with analysing their own and others' work.

Throughout the curriculum, from early years up to Year 6, there are always opportunities to use tactile materials, audio-visual resources which are available on their chromebooks, and hands-on activities to engage different learning styles. Tools and materials are adapted to be more accessible, such as thicker tool handles for pupils with physical or sensory impairments.

Using Rosenshine's principles, techniques and processes are clearly and explicitly modelled, ensuring all pupils understand the steps involved in creating art. Children are also provided with opportunities to practise skills with their teacher for support before moving on to more independent work.

All children, no matter what their background, have access to the high-quality materials and tools which are available for each unit, and by introducing all pupils to a diverse range of artists and art forms, we believe this helps to broaden their horizons and inspire creativity. We celebrate the achievements of each and every child, however small, to build self-esteem and motivation.

For our EAL children, we use images, demonstrations, and non-verbal cues to support understanding. We Incorporate key vocabulary with visual aids and provide opportunities for pupils to discuss their work in their first language if needed, using the chromebooks to assist with this. We Pair EAL learners with learning partners for fostering communication and shared learning.

We challenge more able pupils through carefully structured tasks that promote higher-order thinking, drawing on *Bloom's Taxonomy* to encourage analysis, evaluation, and creative problem-solving. Our pupils are supported to articulate their ideas using tier 2 and 3 vocabulary, strengthening their subject-specific language and reasoning.

Our approach is informed by the **EEF's "Teacher Feedback to Improve Pupil Learning"** guidance report, which emphasises the importance of purposeful, actionable feedback to drive pupil progress. We embed opportunities for reflection and iteration within the design process, helping pupils to refine their ideas and deepen their understanding through sustained engagement. Children are encouraged to reflect this deeper understanding of the design process on their Design sheets within their lessons. Additionally, we draw on the **EEF's "Using Digital Technology to Improve Learning"** report, using technology selectively to enhance design thinking, support independent learning, and extend challenge through tools that promote exploration and precision.

By combining the National Curriculum's emphasis on iterative design with evidence-based strategies from the EEF, we ensure our most able learners are stretched intellectually, creatively, and practically—making DT a dynamic and relevant subject that connects meaningfully with the wider world.

Design and Technology in the The Early Years

Our children first encounter Design and Technology in the early years foundation stage (EYFS). In the EYFS statutory guidance, it emphasises the use of hands-on exploration, problem-solving, and creativity to help young learners develop foundational skills. Using Ofsted guidance and EYFS frameworks recommendations from subject specific reports which include the Education Endowment foundation guidance reports and the 2011 Ofsted Research Review for Design and Technology, our curriculum advocates:

Encouraging Practical Exploration
Children are encouraged to engage in play-based learning that allows them to experiment with materials, tools, and construction techniques.
Activities foster curiosity and problem-solving, helping children understand how things work and how they can be made or improved.
Developing Fine Motor and Technical Skills
Our EYFS learners are introduced to basic tools and materials, such as scissors, glue, and simple construction sets, to develop fine motor skills.
They are encouraged to sort and categorise materials based on their properties (e.g., opaque, flexible, strong) which helps them build early scientific thinking.
Embedding Communication and Vocabulary
Children are encouraged to describe their designs, explain their choices, and discuss how objects function using bloom's taxonomy to guide discussion and thoughts.
Children are exposed to technical (tier 3) vocabulary related to materials and construction which has been built into each unit of work which supports the childrens' language development.

Supporting Creativity and Independence
Our children are provided with open-ended tasks which allows children to experiment, innovate, and refine their ideas.
They evaluate their creations which fosters resilience and independent thinking.

How do we know children achieve in Design and Technology ? How are pupils assessed in Design and Technology?

Formative assessment takes place throughout each lesson, with teachers making judgements to adapt teaching in order to ensure the most secure development of knowledge. Each unit gives opportunities for the full range of attainment targets to be assessed. Teachers will use their assessments over time to support further planning, ensuring lessons are adapted to support knowledge acquisition and to address misconceptions. At the end of the academic year, teachers will make judgments on attainment in line with National Curriculum expectations.
Pupils develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world by being taught to:

Key Stage 1 Subject Content

When designing and making, pupils should be taught to:
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

Key Stage 2 Subject Content

When designing and making, pupils should be taught to:

Design

Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups

Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately

Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate

Investigate and analyse a range of existing products

Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work

Understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

Apply their understanding of how to strengthen, stiffen and reinforce more complex structures

Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]

Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]

Apply their understanding of computing to program, monitor and control their products.

Curriculum planning

<u>Lessons</u>

Children are taught Design and Technology in Key Stage 1 and 2, on an alternating term basis with Art and Design. This approach ensures that children experience a well-rounded creative education.

Plans are structured according to the principles above, building skills and knowledge via a spiral model.

<u>The South Moreton ‘Super-curricular layer’</u>

At South Moreton, we enrich our Design and Technology curriculum by inviting industry experts to work with our pupils, adding an exciting extra-curricular layer that brings the subject to life. Through hands-on

engagement with real-world challenges and opportunities, children gain a deeper understanding of how DT connects to the wider world—making their learning more meaningful, relevant, and inspiring.

Curriculum planning and the skills progression for Design and Technology for EYFS, KS1, and KS2 can be found in the documents below (please click on the link)

Design and Technology Curriculum at South Moreton School