St Dennis Primary Academy

Design Technology

"Design is not just what it looks like and feels like. Design is how it works." – Steve Jobs

Intent

St Dennis Primary Academy's Design and Technology curriculum aims to inspire children to be innovative and creative thinkers who have an appreciation for the product design cycle through investigating and researching, developing skills, designing, making and evaluating. We want our children to develop confidence to take risks, through drafting design concepts, modelling and testing so they can be reflective learners who evaluate their own work and the work of others.

We have developed our own curriculum, which aims to build an awareness of the impact of design and technology on our lives and encourages children to become resourceful, enterprising citizens who have the skills to contribute to future design advancements. We aim to equip pupils with the knowledge and skills to understand the importance of sustainability, safety, and ethical considerations in their projects.

Through engaging, hands-on activities, students will explore a variety of materials, techniques, and technologies, encouraging them to solve real-world problems and develop their own ideas. Our curriculum promotes a growth mindset, teamwork, and independence, preparing students to become thoughtful creators and consumers in a rapidly changing world

Implementation

As **designers**, we learn to design, make and evaluate using cooking and nutrition, textiles, mechanisms, structures and digital technology to solve problems and develop practical skills.

The National Curriculum organises the DT attainment targets into five strands:

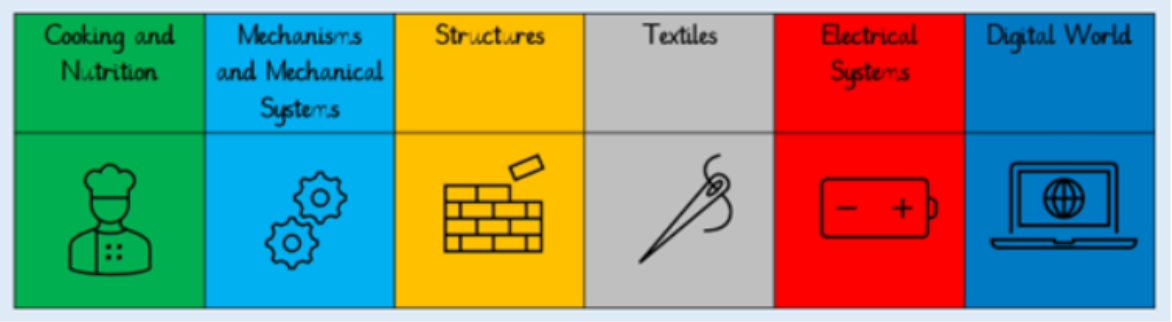
- Design
- Make
- Evaluate
- Technical knowledge
- Cooking and Nutrition (this has a separate section with a focus on specific principles of skills and techniques in food - where it comes from, diet and seasonality)

Five units are taught each year through key areas which are:

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

In addition to this, in Key Stage 2 there are:

- Digital world
- Electrical systems



We use a spiral curriculum, with key areas revisited a number of times with increasing complexity, allowing children to revisit and build on their previous learning.

Our DT units follow a five-step process, to ensure children understand how their learning is part of the wider world and provides aspirational ideas for their futures. It also encompasses practise of skills, so children become experts before they apply that skill to make a product.

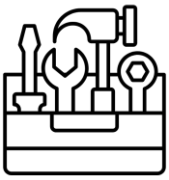
We follow a sequence of researching real-life jobs and careers, developing our skills, then designing, making and evaluating to solve problems and improve our work.

Research

When we are **researching**, we:

- Look at existing products
- Consider who designed and made them and why
- Understand the industry that has supported this product and how we might pursue that as a career

Skill



When we are developing a **skill**, we:

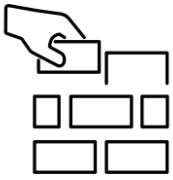
- Identify what the key skill is
- Identify the tools we need
- Observe others demonstrating the skill
- Repeatedly practise the skill

Design

When we are **designing**, we:

- Understand what we are designing
- Have a clear brief about who the product is for and what it needs to include
- Create clear designs that fit the brief and are fit for purpose

Make



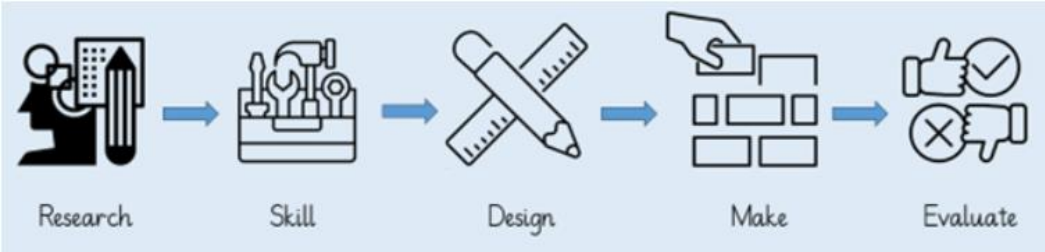
When we are **making**, we:

- Select and use the correct tools and equipment safely
- Apply the skills we have practised
- Follow our design carefully
- Take care to be accurate and have good finishing skills

Evaluate

When we are **evaluating**, we:

- Explore and compare to existing products
- Consider the quality of our final product
- Reflect on the success based on the design brief
- Understand what could happen next with the product



Adaptations

At St Dennis Primary Academy, we prioritise creating an inclusive environment for all pupils in Design and Technology, particularly those with Special Educational Needs or Disabilities (SEND). Our approach is designed to foster communication, collaboration, and independent learning.

Seating Arrangements

We implement appropriate seating arrangements that facilitate effective communication and interaction among all pupils, including the teacher. By encouraging pair work and small group activities, we provide opportunities for discussion, peer support, and collaborative project work.

Accessible Resources

Our resources are designed with accessibility in mind. We use clear labelling in large print, accompanied by images, to promote independent use. Engaging floor books of completed and ongoing work serve as valuable teaching tools and inspire creativity. Alternative tools are available for pupils as required, such as larger needles when sewing.

Multi-Sensory Learning

We recognise the importance of multi-sensory approaches and tailor our teaching to accommodate each child's preferred learning style. A variety of strategies, including visual aids and alternative communication methods such as sign language or symbol systems, are employed to enhance understanding.

Health and Safety Awareness

We ensure that all children are informed about health and safety issues related to equipment use. For those who may have difficulty recognising potential dangers, we provide close monitoring to ensure safe participation in activities.

Sensory Accommodations

For children with sensory needs or aversions to certain materials (such as clay or chalk), we offer plastic gloves to ensure comfort during hands-on activities. Additionally, we accommodate students with light sensitivity by using non-reflective interactive whiteboards to minimise glare.

Scaffolding Learning

Support from additional adults is strategically planned to scaffold learning experiences, empowering students to gradually work more independently. Our goal is to create a supportive environment where every child can thrive in their DT education.

By focusing on these key areas, we strive to provide a nurturing and effective learning environment for all DT pupils with Special Educational Needs or Disabilities.

Impact

Impact is monitored through formative and summative opportunities. Lesson objectives are assessed against 'show what you know' activities and quizzes are used at the beginning of a unit as a 'Memory Masters' activity. This is to illicit what has been remembered to ensure any critical knowledge is revisited and recapped before moving on. Critical skills and knowledge have been identified, and these are assessed against at the end of every unit.

Children leave St Dennis Primary Academy equipped with a range of skills to enable them to succeed in their secondary education and be innovative and resourceful members of society.

Through our design and technology curriculum, children:

- Understand the functional and aesthetic properties of a range of materials and resources.
- Understand how to use and combine tools to carry out different processes for shaping, decorating and manufacturing products.
- Build and apply a repertoire of skills, knowledge and understanding to produce high quality, innovative outcomes, including models, prototypes, CAD and products to fulfil the needs of users, clients and scenarios.
- Understand and apply the principles of healthy eating, diets and recipes including key processes, food groups and cooking equipment.
- Have an appreciation for key individuals, inventions and events in history and of today that impact our world.
- Recognise where our decisions can impact the wider world in terms of community, social and environmental issues, encouraging sustainability and ethical awareness.

- Make connections between other curriculum areas, helping pupils to retain and apply their knowledge.
- Build confidence and resilience.
- Self-evaluate and reflect on learning at different stages and identify areas to improve.

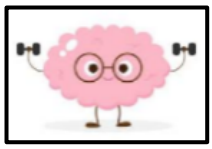
We measure the impact of our curriculum through the following methods:

- Retrieval quizzes
- Show what you know assessments
- Peer evaluation
- Pupil conferencing

DT Unit and Lesson Structure

Memory Masters

We plan for **Memory Masters** at the beginning of every unit of learning, as we recognise the value in pupils having the opportunity to **re**visit, **re**call, **re**vise, **re**member, **re**inforce, **re**learn and **re**flect upon previously taught content. This enables them to **re**tain key knowledge across the whole curriculum to know more and remember more.

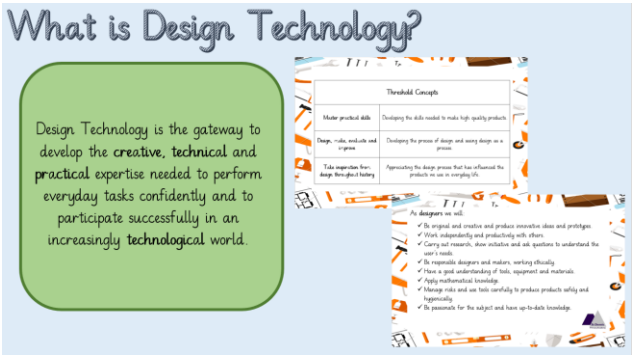


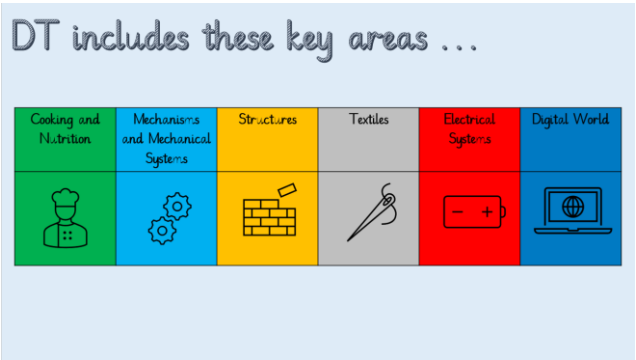
Memory Masters sessions in KS1 will be evident in floor books through a Learning Objective, showing the Memory Masters symbol. Alongside this, there will be an opportunity for pupils to record their achievements. Examples of this could be a score from a quiz, a scale of confidence or key information remembered. In KS2 memory masters will be in the form of a quiz. These will be delivered using Socrative and can be accessed through iPads.

Monday 11th September 2024	T TA I P G
MEMORY MASTER	
Topic: Retrieval Task:	

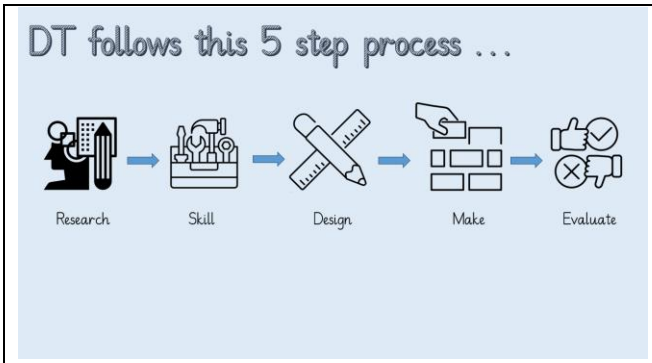
Pedagogy

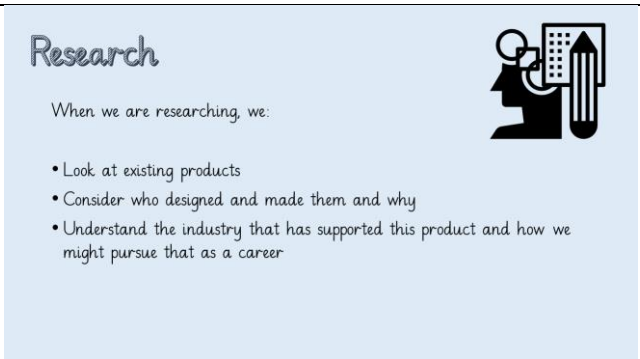
Following the Memory Masters element, we **remind ourselves what DT is and the different areas within the subject.**





We follow a five step lesson structure in DT. Each lesson, the step is shared, alongside the key points of this step.





Feedback and Feedforward

At the beginning of lesson, there is a **feedback and feedforward** element to review prior learning within the unit, in readiness to build connections. The **Knowledge Organiser** (stuck in book at beginning of the unit) may be used to support this.

In line with our **Marking and Feedback Policy**, this element may also include:

- Work to praise and share to address misconceptions
- Excellent examples of presentation
- Targeted support

Learning Objective and Success Criteria with Key Vocabulary and Sentence Stems

The **Learning Objective with Success Criteria** are then shared *(format for books is in planning folder).*

Definitions of key vocabulary for this lesson and any relevant vocabulary from previous lessons.

Sentence Stems are also shared and repeated. These can be accessed here:

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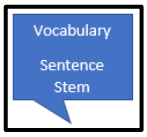
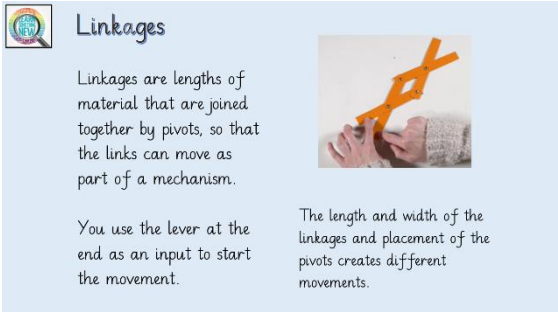


New Learning and Guided Practice *(Key Concept Introduction / Modelling / Questioning)*

Key knowledge and concepts are **introduced**, and it is explained that these will be learnt through discussion, exploration or given information.

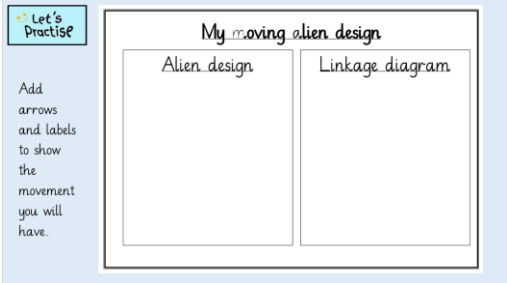
Questioning *(throughout lesson)*

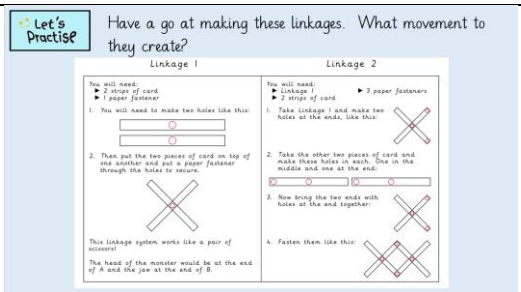
Questioning techniques are also considered e.g. pose, pause, pounce, bounce / think, pair, share / whiteboards / cold calling / lolly lotto etc.



Independent Practice / Practical Learning

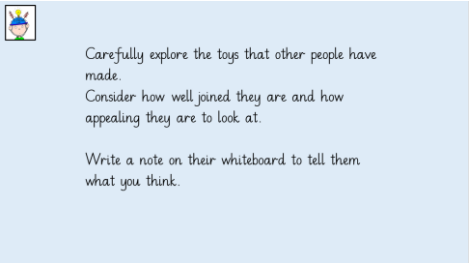
Let's practise can take on a variety of forms, depending of the subject matter being explored. In DT lessons this could be practising a skill, like chopping or grating, designing a product, evaluating something they have made, researching a product or making a product.





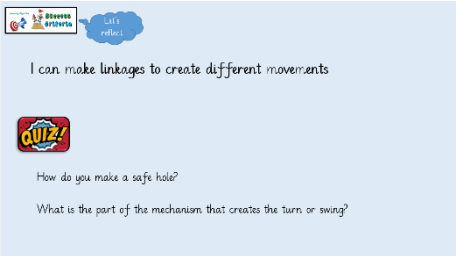
Think Deeper – An extra challenge!

Provide an extra challenge to apply knowledge and assess understanding.



Let's Reflect *(Formative Assessment)*

Learning Objective and Success Criteria are revisited to ensure children know what they have learnt. This also provides feedback that improves children's learning.



At the end of each lesson, we use one or two questions to assess understanding of the key content. These questions build to a final cumulative quiz that is used as an assessment.

End of Unit *(Formative and Summative Assessment)*

At the end of a unit, assessment is carried out through a complete cumulative quiz and a 'Show what you know' activity. Sentence stems are used to support this along with key vocabulary. There may also be diagrams to label. These could also include sections of the knowledge organiser with elements missing for children to complete.