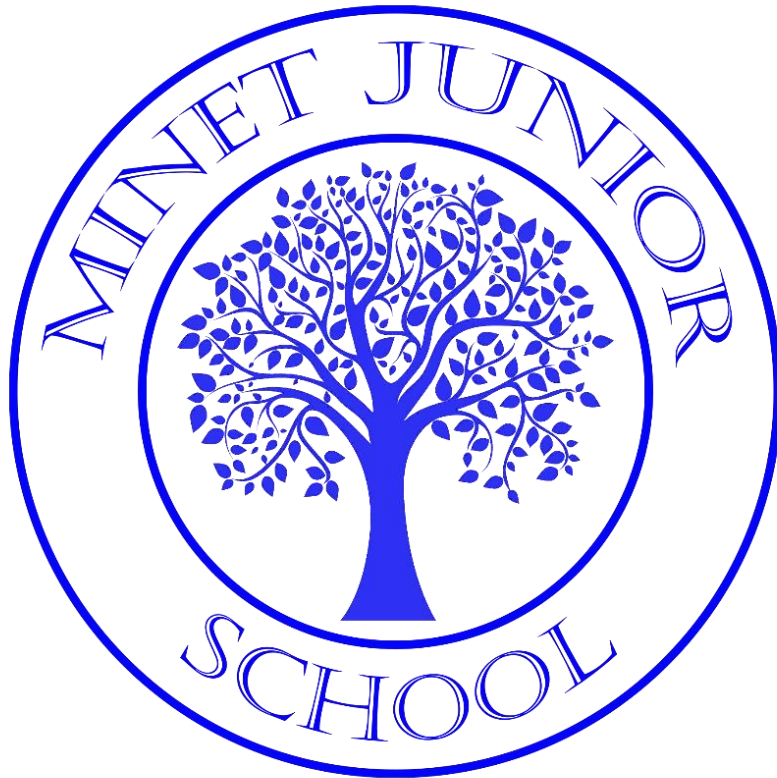


Design and Technology Policy



Completed by D Molloy
2023-2024

Intent

At Minet Junior School we intend to teach Design and Technology as an inspiring and practical subject. We intend children 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. We aim to, wherever possible, aim to create strong cross curricular links with other subjects, such as Mathematics, Science, Computing, and Art. We want Design and Technology to provide children opportunities to take risks, be reflective, innovative, enterprising and resilient to support them to be successful in later life.

Implementation

Through a variety of creative and practical activities, we teach the knowledge, understanding and skills needed to engage in an iterative process of designing and making. We believe that teaching pupils in practical and creative lessons how to design, make and evaluate products will help to prepare them for life after school. Design and Technology is a crucial part of school life and learning and it is for this reason that as a school we are dedicated to the teaching and delivery of a high-quality Design and Technology curriculum.

This is implemented through:

- A well thought out, whole school, yearly overview of the DT curriculum which allows for progression across year groups in all areas of DT (textiles, mechanisms, structures, food and electrical systems)
- Well planned and resourced projects providing children with a hands-on and enriching experience
- A range of skills being taught ensuring that children are aware of health and safety issues related to the tasks undertaken
- Teachers being given ownership and flexibility to plan for Design and Technology; often teaching DT as a block of lessons to allow the time needed for the children to be critical, inventive and reflective on their work.
- Each project from Year 3 to Year 6 addressing the principles of designing, making, and evaluating and incorporating relevant technical knowledge and understanding in relevant contexts.
- Pupils being introduced to specific designers, chefs, nutritionists, etc. helping to engender an appreciation of human creativity and achievement and increase the cultural capital from which they can draw in the future.

- Cultural Week explores cuisines from across the world- parents are invited to talk about their customs which include their native cuisine.

As a school, we promote Design and Technology in the wider school through a DT after school club and a weekly gardening session where the children learn about where our food comes from by growing their own, and the importance of a balanced, healthy and varied diet and how to prepare this. We have an allotment plot at school and each year we aim to grow and harvest food.

Impact

We ensure 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 in order to design and make high-quality prototypes and products for a wide range of users and critique, evaluate and test their ideas and products and the work of others , understand and apply the principles of nutrition and learn how to cook. They gain a firm foundation of knowledge and skills to see them equipped to take on further learning in High School. Pupil's skills and knowledge are assessed ongoingly by the class teacher, throughout lessons and a summative assessment is completed termly. This informs the Design and Technology coordinator of any further areas for curriculum development and support training requirements for staff.

S.M.S.C.

DT contributes to our S.M.S.C development through:

Spiritual Development:

- ▶ Collaborative work develops children's respect for the abilities of others and a better understanding of themselves.

Moral Development:

- ▶ They learn to appreciate the value of similarities and differences. A variety of experiences teaches them to appreciate that all people are equally important.

Social Development:

- ▶ Collaborative learning and the dialogue around the design, development and evaluation cycle allows children to develop important speaking and listening skills, teaching them to appreciate the thoughts and opinions of others.

Cultural Development:

- ▶ Children develop a better understanding of the essential contribution design and technology has to the creativity, culture, wealth and wellbeing of the nation.

British Values

The DT curriculum promotes the British Values of tolerance and resilience through the continual process of designing, making, evaluating and improving purposeful products. Pupils are encouraged to become life-long learners, alongside developing cross-curricular skills, through enterprising and problem solving.

Pupils are encouraged to persevere and to feel reassured when making mistakes and taking risks, thus developing self-confidence and self-esteem. Teamwork is central to DT through peer-assessment, peer-mentoring and group work. Mutual respect is developed as children work together, build confidence, support and inspire each other.

Provision

Contribution of D&T to the wider curriculum:

1. Literacy

D&T teaching contributes to improving standards in literacy by creating opportunities for:

Speaking and listening

Children can be seen to:

- ▶ maintain attention and participate actively in collaborative conversations, staying on topic and initiating and responding to comments
- ▶ use spoken language to develop understanding through speculating, hypothesizing, imagining and exploring ideas
- ▶ speak audibly and fluently with an increasing command of Standard English

Reading and Comprehension:

- ▶ Reading and interpreting instructions, plans and design specifications
- ▶ Research and read about relevant topics, materials, or historical contexts related to their design projects.

Writing and Communication:

- ▶ Document their design processes, which involves writing descriptions, explanations, and reflections.
- ▶ Present and articulate their design ideas, concepts, and decision-making processes.

Vocabulary Development

- ▶ Gain specific vocabulary related to design and technology, such as materials, tools, processes, and design principles.

Critical Thinking and Analysis

- ▶ Analyse problems, evaluate design options, and make informed decisions.
- ▶ Evaluating the functionality, aesthetics, and ergonomics of existing products, to develop analytical skills.
- ▶ Analyse and interpret data related to their design projects, such as survey results or user feedback, and communicate their findings effectively.

Collaboration and Peer Feedback

- ▶ Work in teams, promoting effective communication and collaboration skills.
- ▶ Provide constructive feedback to their peers on design ideas, sketches, or prototypes, which enhances their communication and critical thinking abilities.

2. Maths

Problem Solving and Reasoning

- ▶ Identify problems, generate ideas, and develop solutions, fostering problem-solving skills. Work with geometric shapes, patterns, and spatial reasoning when planning and building designs.
- ▶
- ▶ Apply mathematical concepts to address design challenges.
- ▶ Reason and justify design decisions using mathematical principles, such as proportion, scale, or symmetry.

Measurement and Geometry

- ▶ Measuring and working with various dimensions.

- ▶ Apply mathematical concepts related to length, area, volume, and angles when designing and constructing.

Data Analysis and Graphing

- ▶ Collecting and analysing data, providing opportunities for students to develop data analysis skills.
- ▶ Interpret data, create graphs or charts, and draw conclusions to inform their design decisions.

Numeracy Skills

- ▶ Work with numerical concepts, reinforcing their numeracy skills.
- ▶ Calculate measurements, estimate quantities, and convert between different units of measurement during design and construction.
- ▶ Integrate mathematical concepts, such as fractions, ratios, percentages, or proportions.

Scale and Proportion

- ▶ Creating models or prototypes, providing opportunities for students to work with scale and proportion.
- ▶ Apply the principles of scale when designing and building their projects.

3. Science

D&T teaching contributes to improving standards in science by creating opportunities for children to learn about the social and economic implications of science and to maximise pupils' engagement with and motivation to study science.

Hands-on Experiments and Investigations

- ▶ Explore scientific concepts in a practical and applied manner.
- ▶ Conduct investigations, collect data, and analyse results.

Application of Scientific Principles

- ▶ Apply scientific principles and concepts in real-world contexts.
- ▶ Consider scientific principles related to forces, energy, materials, or structures when designing and constructing projects.

- ▶ Explain the scientific principles behind design choices and discuss the impacts of these principles on the functionality of the project.

Materials and Properties:

- ▶ Selecting appropriate materials based on their properties, such as strength, flexibility, conductivity, or solubility.
- ▶ Compare and contrast materials, considering their properties and suitability for specific design purposes.

Engineering and Technology

- ▶ Engage in engineering practices and technological innovations, which are closely linked to scientific advancements.
- ▶ Engage in design processes, such as problem identification, brainstorming, prototyping, and evaluation, within D&T projects.
- ▶ Discuss how engineering and technology contribute to scientific discoveries, advancements, and real-world applications.

Sustainable Design

- ▶ Incorporate sustainability concepts and environmental considerations—understanding of ecosystems and conservation.
- ▶ Consider the environmental impacts of design choices, such as material sourcing, energy efficiency, or waste reduction.
- ▶ Explore sustainable design practices, such as recycling, repurposing, or incorporating renewable energy sources.

4. ICT

DT teaching contributes to improving standards in literacy by creating opportunities for children to demonstrate that they are responsible, competent, confident and creative users of information and communication technology.

- ▶ Designing and prototyping digital products or interfaces, providing hands-on experience in digital design.
- ▶ Awareness about the importance of cybersecurity, privacy, and practicing responsible digital citizenship.
- ▶ Awareness about the importance of cybersecurity practices, ethical considerations, and online safety within D&T projects involving digital components.
- ▶ Awareness about digital footprints, online behaviour, digital rights, and responsible use of technology.

Roles and responsibilities:

The DT leader is responsible for providing a whole school overview of skill progression across the subject using the National Curriculum guidance and in-school skill assessment tool; Target Tracker. The DT leader also provides a list of resources that are available in school. This list is updated yearly and is stored on the staff intranet. The DT leader is also responsible for monitoring and evaluating the standards of teaching and learning within DT at the school. The quality of work in DT will be monitored through observations of the learning environment and the DT leader will carry out learning walks during DT teaching and will assess quality of provision and learning.

Year group teams are responsible for ensuring time is given over for teaching the DT curriculum and that it is being taught within their year group. They will agree how and when the key skills for their year group will be taught across the year and will be recorded on the termly overview chart. Year group teams are also responsible for ordering resources needed for effective teaching. These will be submitted for review and signed off by the DT leader.

Class teachers are responsible for ensuring key skills for their year group are taught effectively. Skill based learning objectives will be recorded on short term planning. Progress in pupils' skill progression will be evident by annotated planning, teacher feedback on pupil responses to tasks and within the learning environment.

Health and Safety

The general teaching requirement for health and safety applies in this subject. Teachers will refer to the relevant risk assessment documents before each activity, considering their tools, materials and equipment being used. Before undertaking practical tasks, children should be taught to use tools correctly in order to ensure safety.