

Design and Technology

‘Good buildings come from good people, and all problems are solved by good design’

Stephen Gardiner

Through Design and technology, we aim to equip our children with the skills necessary to actively contribute to the creativity, culture, wealth and well-being of themselves and their community. We aim to provide inspiring and practical opportunities for our children to take risks and so become more resourceful, innovative, enterprising and capable. We aim to develop a critical understanding of the impact of design and technology on daily life and the wider world, and to foster in our children an appreciation of the aesthetics and beauty of their own work and the work of others.

In line with the National Curriculum, we aim to provide opportunities for our children 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 for them to acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Through the evaluation of past and present design and technology, we aim to develop a critical understanding of how high-quality design and technology makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Curriculum coverage:

We believe that a design and technology curriculum should provide mirrors for the children in which they can see themselves reflected, and windows, through which they can look into the lives and stories of people who are different. Using this approach, we select subject content from the National Curriculum document and build schemes of work within design and technology that represent the unique community that we serve. Design and Technology is taught as a unique subject discipline as part of our geography projects. This is so that learning in geography can provide a context for work in design, ensuring real purpose to the units.

To supplement our Design and Technology projects, focused practical tasks are planned in each year group to enable the children to develop specific skills with a range of techniques, processes and equipment.

Curriculum Progression:

Our Design and technology curriculum comprises of three interrelated strands of knowledge:

Procedural knowledge:

Procedural knowledge represents the skills of a designer. This knowledge is vertically integrated so that the children revisit and deepen their knowledge and understanding in each year group as they progress through school. In planning, this knowledge is presented as our broad 'learning aims'. For example, the children are taught how to analyse existing designs and products. This is taught in every year group from year one to year six. As the children move through school, they are presented with an increasing range of designs and products and are taught how to analyse them in increasingly complex ways. This process is supported by the use of SOLO taxonomy, which enables the children to deepen their knowledge and understanding within year groups ensuring a mastery approach to curriculum.

Disciplinary knowledge:

Disciplinary knowledge in design and technology is the process of enabling children to use their substantive knowledge of products and materials around them to make links between and across different areas of the curriculum. Knowledge in design and technology will equip the children with the opportunity to explain how and why products have changed over time and how they might be further improved in the future. They can use their knowledge and understanding to suggest how existing products may be improved with the advances in modern technology. This is realised through an understanding of the methods or conceptual frameworks used by designers. We present these as the lens or 'Big ideas' that designers apply when viewing their subject.

In our Design and technology curriculum, disciplinary knowledge is shaped by a human-centered design process:*

- **Empathy and Optimism:**
Understanding people's lives and identifying problems from their perspective.
Knowing that even if we don't know the answer, that it's out there and we can find it
- **Exploration:**
Understanding that we always start from the place of not knowing, and that a firm foundation of knowledge is the best place from which to tackle a design challenge
- **Iteration:**
Understanding that by continually developing, refining and improving our work, we put ourselves in a place where we'll have more ideas, try a variety of approaches, unlock our creativity and arrive more quickly at successful solutions

* Taken and adapted from 'The Field Guide to Human-Centered Design' By IDEO.org – 'The philosophy of design and the mindsets that set us apart' 2015

- Making (and learning from failure):
Understanding that by making, we convey ideas, share them, and learn how to make them better

The explicit sharing of disciplinary knowledge means that we're able to show the children how designers use these 'Big Ideas' when approaching different stages of the design process. The same 'Big ideas' are taught, revisited and referred to in every year group as the children move through school.

Substantive knowledge:

Substantive knowledge represents the technical content and vocabulary that is taught in each year group – in planning, this knowledge is presented as specific 'learning outcomes' – the content we want the children to know and remember. In selecting the specific content, we ensure that the heritage of our children is highlighted and celebrated. As a result of our work on developing an anti-racist curriculum, deliberate choices are made about aspects of design and the range of designers studied so that our curriculum is representative of, and sensitive to, the community that we serve.

Repetition and retrieval:

Our Design and technology curriculum is built upon high levels of repetition to ensure that our children can do more and remember more as they progress through school. The two strands of Procedural knowledge and Disciplinary knowledge are revisited and developed in every class from year one to year six. This repetition ensures that our children reach the end of Key Stage Two with the ability to apply the skills and conceptual frameworks of designers with high levels of independence.

During the course of their Design and technology project, we share significant amounts of substantive and disciplinary knowledge with our children. In planning, our specific learning outcomes detail exactly the knowledge that we want the children to know, remember and apply. As in Art and design, sketchbooks are used for focused practice and redrafting in order to develop designs and embed specific skills during the course of the project.

Assessment:

We believe that Design and technology is more than just knowing designers, products, or materials. We assess the children's ability to apply their knowledge with a final assessment piece at the end of each project. This provides information on the children's ability to use a combination of substantive, disciplinary and procedural knowledge.

The end of unit assessment comprises of an unseen design or product that is related to the area of design that has been studied. The children analyse the piece, using the knowledge and skills they have developed during the project. This is used by teachers, alongside the child's own designs or product, to provide information on how well the children are learning the curriculum.