



Curriculum Aims



Subject – Design and Technology

Aims & content of the Design Technology curriculum at Mount Primary

At Mount Primary School, we follow the National Curriculum for Design and Technology. We teach Design and Technology through investigative and evaluative activities, focus skills tasks and the design, make and evaluate process. We teach children technical knowledge and allow them to apply this knowledge to create functional products with specific purposes. Children will know that they are creating **Something** for **Someone** with **Some purpose** (3Ss).

The National Curriculum requirements state that one food and nutrition project must be taught every year, this includes aspects such as food hygiene, safe food preparation and benefits of different food. This helps to build a strong knowledge of how to stay healthy throughout our lives.

One Design and Technology project must be delivered each term from Year 1 through to Year 6. The Curriculum design at Mount Primary School is structured to include a rotation of mechanical, electrical, structural and textiles projects. Many of these projects can be linked across the curriculum with subjects such as Computing and Science.

At EYFS, children are learning about many aspects of Design and Technology through play such as, selecting appropriate tools, joining materials, properties of materials, food hygiene and safety.

The knowledge and content included in the Design and Technology curriculum for Mount Primary School was chosen to provide children with a variety of experiences in which they are able to learn technical, project specific knowledge which they can apply when making any product. The content allows pupils to explore, take risks, work with others and make reasoned design choices. The curriculum is balanced in order for each age and stage to experience different aspects of the subject.

Progression across the curriculum is demonstrated within planning. Projects are split into electrical, mechanical, food, structural and textiles categories. Each project within a category builds upon the last by adding new information and planning.

Throughout KS2 children develop electrical knowledge of circuits moving from simple to parallel and experiment by adding new components such as buzzers, switches and motors. Children also gradually learn about programming, monitoring and controlling a product using an electric circuit; beginning with creating simple movement and developing into programming electrical products to react and respond to their environment.

From KS1 upwards children learn about different types of structures including benefits and advantages of their design. Children also gain knowledge of how to strengthen structures and apply this in structural projects throughout KS1 and KS2.

Throughout the curriculum, children's knowledge of nutritional qualities of food and the importance of these qualities are built upon; beginning in KS1 with the Eatwell Plate. Knowledge of food groups and their health benefits progresses through KS2 where children learn about the effects of different factors involved in food production and their effect on the food and therefore our health.

Children learn about movement through mechanical projects and create movement using a variety of tools and equipment. As they progress through key stages, children are given opportunities to choose the most effective ways to create movement for specific purposes.

Children revisit many aspects of learning in different contexts. The first is tool selection. Children learn about selecting appropriate tools for purpose in EYFS and, with every subsequent project, are able to make informed choices on the most effective tools to make a product. This is one of many design choices children will make across the curriculum; others include materials, joining techniques, ingredients and functional purpose.

These design choices are all part of the Design, Make, Evaluate cycle which children will follow to create finished products. Design choices, adaptations during making and testing/ reflecting on products are repeated in greater depth as they work through KS1 and KS2.

Children will also use exact technical skills from previous projects in new projects whilst adding in another element of Design Technology e.g. Wheels and axles are taught explicitly in Year 2 to design and make a

moving vehicle. This can be revisited in LKS2 by using wheels and axles to make a moving vehicle powered by an electrical component and again in UKS2 when building cams, pulleys and gears.

How do you know children have learned that knowledge?

The teaching pattern of Investigative and Evaluative Activities (IEAs), Focus Tasks (FTs) and Design, Make and Evaluate (DME) Projects allows for many opportunities to assess the children's understanding.

Investigative and Evaluative activities highlight gaps in knowledge which can be a focus moving forward during the project.

Focus Tasks give a clear opportunity for teachers to isolate and assess specific technical knowledge and skills. These can be used to assess prior learning at the beginning of a project or before making a product.

Informed and reasoned design decisions during the DME process show an understanding of technical knowledge. Actions and reactions to challenges during the making process show an application of knowledge. Reasoned reflections about finished products, whether they were successful or unsuccessful, shows an understanding of technical knowledge. A finished product does not have to be perfect to show that knowledge has been learned; correctly reflecting on what went wrong and how to fix it also indicates understanding.

Children can use knowledge mats during DME process as a guide or checklist. Many knowledge mats contain diagrams which can be recreated and tested during focus tasks.

There are strong links to Science (e.g. electricity, forces) in which knowledge and vocabulary can be overlearned. Techniques from the Art curriculum can be used as finishing effects during Design and Technology. Coding skills can be transferred from the Computing curriculum to program, monitor and control electrical products in KS2.

How the Design Technology curriculum caters for all learners:

- A range of accessible materials/tools provided to choose from which are appropriate to children's level of learning.
- Appropriate seating positions for SEND pupils to access demonstrations should be considered
- Well-pitched design specifications which can be adapted to simplify or add challenge all learners are planned
- Use of STEM roles within groups (Scientist, Technician, Engineer, Mathematician) which require different levels of effort and knowledge to be undertaken successfully.
- Targeted assessment/ support for disadvantaged pupils.
- Focus Tasks allow for targeted teacher/TA support for SEND and disadvantaged pupils to enable progression through the project.
- Ensuring that SEND children are not overstimulated by the practical, noisy, collaborative nature of the subject by providing clear explanations of steps in the DME process.
- Support materials/ instructions/ knowledge mats can be used as a scaffold during the DME process.
- Whilst deciding whether a product will be functional, the voice of all pupils must be heard. SEND pupils' needs and desires must be considered when making a collaborative product. The product is not functional if it does not meet the needs of all users.
- Clear links to career paths creates ambition through Design and Technology.

How does your content selection develop pupils' cultural capital? (Knowledge they need to become educated citizens – introducing them to the best that has been thought and said and to appreciate human creativity and achievement).

Children will be made aware of the fact that Design and Technology has changed our lives and made them easier/ more functional. The need for functional products is endless and Design Technology teaches them skills that prepare them for a world that doesn't exist yet.

Working in design teams allows children to practice social skills such as turn taking, confidence to share ideas and compromise. All children's voices are important and must be heard within groups as finished

products are representative of whole group effort. Products which benefit SEND children (e.g. ear defenders, fidget toys) can be made by all pupils to ensure that all children understand that they are all equal no matter what barriers individuals may face.

Design and technology relates to the local area through the structural design aspect of the curriculum. Children will investigate and evaluate play equipment in their local area and design their own equipment based on observations.

International links are made through the study of seasonality. Children will be able to explore where our food comes from and why we import different foods into the UK.

Children will learn about structures all over the world as well as research and prepare dishes which are eaten on religious holidays/celebrations and the national dishes of other countries, increasing their cultural capital. In Year 3, children will explore different fabric patterns and clothing styles from countries around the world and use these fabrics to create their own finished product. Children will make links to religion through DT in Year 5 and 6, making Jewish Challa bread to celebrate Hanukkah a fabric advent calendar to celebrate Christmas.

Opportunities to work outside the classroom include – Secondary school visits to work with more advanced and technical equipment, local area/Liverpool city centre visits to observe variation in structures, Imagine That! Science and discovery centre (Wavertree, Liverpool).