

Design is intelligence made visible – Alina Wheeler

Rationale

At Mount Street Academy, we are Designers! We want our children to love design technology. We want them to have no limits to what their ambitions are and grow up wanting to be architects, graphic designers, chefs or carpenters.

We know that Design and Technology is often one of a child's favourite subjects. Children enjoy making decisions for themselves and being able to engage in practical activities with a purpose. They love creating products they can see, touch and taste and feel proud to have done so. We realise our responsibility to nurture creativity and innovation through design, and by exploring the designed and made world in which we all live. Therefore, our design and technology curriculum has been carefully considered so that our children develop their design and technology capital. We want our children to remember their DT lessons which develop the skills and knowledge they need to take them to the next step in the journey to become designers and technologists.

INTENT

Design and Technology at Mount Street Academy will develop children's skills and knowledge in design, structures, mechanisms and a range of materials, including food. By combining their design and making skills with knowledge and understanding children will learn to create quality functional products. We encourage children's creativity and imagination, and to think about important issues in everyday life.

Children will design and make products that address real and relevant briefs within a variety of contexts, considering their own and others' needs and wants. Our children will be encouraged to take risks and become resourceful, independent and resilient.

Through consideration of past and present design and technology, children will develop a critical understanding of its impact on daily life and the wider world. They will understand that gaining design and technology knowledge and skills can enable them to contribute to the creativity, culture, wealth and well-being of the nation.

At Mount Street Academy we intend to equip children with not only the minimum statutory requirements of the design technology National Curriculum but to also prepare them through the lens of DT for the opportunities, responsibilities and experiences which they will encounter later.

Our DT curriculum will include opportunities for children to:

- Demonstrate originality and the willingness to take creative risks
- Develop a positive attitude to learning, independent working and passion for the subject and knowledge of technological innovations in materials, products and systems.
- Understand how to work constructively and productively with others.
- Carry out research and ask questions to develop their understanding of users' needs.
- Know how to be responsible designers and makers, working ethically
- Using materials carefully and work safely.
- Develop understanding of which tools, equipment and materials to use to make their products.
- Manage risks to manufacture products safely and hygienically.

In DT curriculum aims are:

- To build and apply a repertoire of knowledge, understanding and skills in order to design and make products for a range of users
- To enable children to discover and explain how things work, in order to draw and model their ideas
- To encourage imaginative thinking in children and to enable them to talk about what they like and dislike when designing and making
- To foster enjoyment, satisfaction and purpose in designing and making
- To encourage children to select appropriate tools and techniques for making a product, whilst following safe procedures
- To evaluate their ideas and products as well as existing products and the work of others
- To understand and apply the principles of nutrition and learn how to cook

Children will develop their skills during their time with us using the ELG (Expressive Arts and Design statements) and the NC (KS1 DT objectives) as the basic structure of our curriculum design.

There are specifically chosen designers and their work included in the curriculum (their work, context and influences), therefore developing children's knowledge explicitly.

Learning will be planned carefully over time so that children have opportunities to practise and develop their expertise as they move sequentially through the school.

By the end of KS1, a Mount Street designer will be able to...

Plant their design using drawings, labels and explanations.

Be able to talk about designers through time and how a product has influenced the world today.

Know how to use a variety of tools safely.

Know the opportunities for a future in the design and technology field



Be able to evaluate a finished product, explaining what went well and what could be improved next

Understand the need for a target audience.

Understand design and technology as a process.

Be confident and resilient problem solvers.

KS1 National Curriculum objectives:

Through a variety of creative and practical activities, pupils will be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They will work in a range of relevant contexts.

When designing and making, pupils will 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.

EYFS

In order to progress in design and technology in the early years, children need to be confident in many of the prime areas of learning. The main focus for design and technology falls under the Expressive Art and Design Early Learning Goals.

Moving and Handling

Being able to handle tools, objects and malleable materials safely and with increasing control

ELG *Children show good control and coordination in large and small movements. They move confidently in a range of ways, safely negotiating space.*

They handle equipment and tools effectively, including pencils for writing.

Health and selfcare

Eats a healthy range of food stuffs and understands need for variety of food.

Shows understanding of the need for safety when tackling new challenges, and considers and manages some risks.

Shows understanding of how to transport and store equipment safely.

Practises some appropriate safety measures without supervision.

Expressive arts and design: Exploring and using media and materials (EAD)

Involves enabling children to explore and play with a wide range of media and materials, as well as providing opportunities and encouragement for sharing their thoughts, ideas and feelings through a variety of activities in art, music, movement, dance, role- play, and design and technology

Early Learning Goal

Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Skills/Key subject disciplines

Design and Technology education involves two important elements:

1. Learning about the designed and made world and how things work
2. Learning to design and make functional products for particular purposes and users.

There are three core activities which children need to engage with in order to achieve well in Design and Technology:

- Activities which involve investigating and evaluating existing products
- Focused tasks in which children develop particular aspects of knowledge and skills
- Designing and making activities in which children design and make 'something' for 'somebody' for 'some purpose'

These three activities are combined in sequence to create a Design and Technology project.

IMPLEMENTATION

Subject Leaders, alongside the Curriculum Lead, develop year group specific long-term curriculum maps which identify when the different subjects and topics will be taught across the academic year. They link prior knowledge to new learning to deepen children’s learning and ensure smooth progression.

All children in school design and make **Something for Somebody for Some purpose**. The three Ss definition is memorable and serves to provide consistency and focus to the approach, whilst promoting a genuine D&T experience for children.

As part of a project, children will always research in order to generate understanding and will practice practical skills needed before they design, make and evaluate their final product. This iterative approach to understanding DT as a process is taken for every design technology topic and allows scope to generate further thoughts and actions as they work through the process:

- **Investigative and Evaluative Activities**
Children will learn from a range of existing products and find out about D&T in the wider world;
- **Focused Tasks**
Children are taught specific technical knowledge, designing skills and making skills;
- **Design, Make and Evaluate Assignment**
Children create functional products with users and purposes in mind.

In KS1, children in year 1 and year 2 have three design and technology projects over the course of the year, including food and nutrition. These are usually blocked which helps to ensure that the children see the whole process from start to finish – from existing products through to their finished product. We believe that by organising our curriculum this way, we improve the potential for our children to retain what they have been taught, to alter their long-term memory and as a result, improve the rate of progress they make.

In KS1, we use the DATA ‘Projects on a Page’ in order to structure our projects thoroughly and support teachers with subject knowledge and ideas.

****add EYFS**

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Nursery						
Reception						
Year 1	Cooking and Nutrition		Wheels and axels (Moon buggy)	Mechanism s (pop up card)		
Year 2	Cooking and Nutrition (Fruit kebabs)	Freestandin g structures (Model castle)		Textiles (mother’s day felt flower)	Levers and Sliders (Sea creature)	

Progression

Our Progression document defines the specific knowledge, skills and techniques which will be developed from EYFS to Year 2:

Early Learning Goal <i>Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</i>	
<p>30-50 months At the end of nursery, children should be secure at 30-50 months and be demonstrating early skills in 40-60 months. (See development matters)</p>	<p>40-60 months At the end of Reception, children should be secure within the ELG (0-60S). (See Development Matters.)</p>
<p>KUW Technology</p> <ul style="list-style-type: none"> • To recognise a range of technology is used in places such as homes and schools. • Select and use technology for a particular purpose <p>Expressive arts and Design Exploring and using media and materials</p> <ul style="list-style-type: none"> • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function <p>Being imaginative</p> <ul style="list-style-type: none"> • Use what they have learnt about media and materials in original ways, thinking about uses and purposes. • Represent their own ideas, thoughts and feelings through design and technology. <p>Physical Development Health and self-care</p> <ul style="list-style-type: none"> • Understand the importance of a healthy diet Talk about ways to keep healthy and safe 	

	Year 1	Year 2
<p>RESEARCH & DESIGN Developing, planning and communicating ideas</p>	<ul style="list-style-type: none"> • Begin to draw on their own experience to help generate ideas and research conducted on criteria. • Begin to understand the development of existing products: Explain what they are for, how they work, what materials have been used. • Start to suggest ideas and explain what they are going to do. • Understand how to identify a target group for what they intend to design and make based on a design criteria. • Begin to develop their ideas through talk and simple drawings. • Make templates and mock ups of their ideas in card and paper or using ICT (if relevant) • Communicate with others about how they want to construct their product • Explain how they intend to fix simple materials 	<ul style="list-style-type: none"> • Start to generate ideas by drawing on their own and other people's experiences. • Begin to develop their design ideas through discussion, observation, drawing and modelling. • Identify a purpose for what they intend to design and make. • Understand how to identify a target group for what they intend to design and make based on a design criteria. • Develop their ideas through talk and drawings and label parts. • Make templates and mock ups of their ideas in card and paper or using ICT (if relevant) • Begin to explain why they chose a certain material • Develop their own ideas from given starting points
<p>CREATE Working with tools,</p>	<ul style="list-style-type: none"> • Begin to make their design using appropriate techniques. 	<ul style="list-style-type: none"> • Begin to select tools and materials; use correct vocabulary to name and describe them.

equipment, materials and components to make quality products	<ul style="list-style-type: none"> • Begin to 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. • Attach features to a vehicle (e.g. an axel and wheels) • Identify and talk about products which use electricity to make them work • With help measure, mark out, cut and shape a range of materials. • Explore using tools e.g. scissors and a hole punch safely. • Begin to assemble, join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape. • Begin to use simple finishing techniques to improve the appearance of their product. • Make a product which moves • Attempt to make their model stronger if it needs to be • Select appropriate resources and tools for their building projects 	<ul style="list-style-type: none"> • Build structures, exploring how they can be made stronger, stiffer and more stable. • With help measure, cut and score with some accuracy. • Learn to use hand tools safely and appropriately. • Start to assemble, join and combine materials in order to make a product – e.g. a pop up card or a working model drawbridge (mechanisms) • Demonstrate how to cut, shape and join fabric to make a simple product. • Use basic sewing techniques. • Start to choose and use appropriate finishing techniques based on own ideas. • Select the best tools and materials • Be able to join things (materials/ components) together in different ways • Measure materials to use in a model or structure • Create working circuits to light a bulb or work a buzzer • Join fabric using a running stitch, glue and tape
EVALUATE Evaluating processes and products	<ul style="list-style-type: none"> •Start to evaluate their product by discussing how well it works in relation to the purpose (design criteria). •When looking at existing products explain what they like and dislike about the Products and why. •Begin to evaluate their products identifying what they felt worked well and what changes they might make next time. 	<ul style="list-style-type: none"> •Evaluate their work against their design criteria. •Look at a range of existing products explain what they like and dislike about Products and why. •Evaluate their products as they are developed, identifying strengths and improvements/changes they would make next time. •With confidence talk about their ideas
Food and Nutrition	<ul style="list-style-type: none"> •Begin to understand that all food comes from plants or animals. •Explore common food sources (e.g. from food or animals) •Start to understand how to name and sort foods into the five groups in (e.g. use the ‘The Eat well plate’) •Know that everyone should eat at least five portions of fruit and vegetables every day (check current guidelines!) •Know how to prepare simple dishes safely and hygienically, without using a heat source. •Know how to use techniques such as cutting •Learn how to use the claw chop and the bridge hold •Measure and weigh food items using non-standard measures (e.g. spoons and cups) 	<ul style="list-style-type: none"> •Understand that all food comes from plants or animals. •Develop understanding of where different foods come from (e.g. foods which are farmed, grown elsewhere (e.g. home) or caught) and also food from native to different countries. •Understand how to name and sort foods into the five groups in (e.g. use the ‘The Eat well plate’) •Know that everyone should eat at least five portions of fruit and vegetables every day (check current guidelines!) •Recognise the need for a variety of food in a diet •Demonstrate how to prepare simple dishes safely and hygienically, including using a heat source •Demonstrate how to use techniques such as cutting, peeling and grating •Demonstrate how to use the claw chop and the bridge hold •Measure and weigh food items using non-standard and standard measures

Horizontal links across subjects

The vast majority of subjects are taught discretely but staff make meaningful links across subjects. The skills learned in D&T can also help with learning across the curriculum:

- Properties of materials in science

- Measuring accurately in maths.
- Use of computer control through computing
- Drawing skills, 3d modelling and architecture in art and design.
- Food and nutrition in Science and PSHE

Local links and Cultural Capital

At Mount Street Academy we value the cultural opportunities which a sound design and technology curriculum offers. We are lucky to live in a culturally rich city, which offers diversity through old and modern. We recognise that it is our responsibility to create experiences in DT which enrich children's knowledge, understanding and passion for design and technology and the potential which it offers for personal development as well as future pathways, such as employment. Children are encouraged to be creative and innovative, and are supported to consider important issues such as sustainability and enterprise.

We ensure that children have the opportunity to work with a local chef in school

DT enrichment – e.g. meccano workshops

SMSC

IMPACT

<https://www.data.org.uk/for-education/primary/maximising-children-s-progress-in-ks1-and-ks2/>

The development of design and technology capability is one of the main aims of Design and Technology curriculum and is assessed when children undertake a Design, Make and Evaluate Assignment (DMEA), where they engage in the process of designing and making, drawing on their

Design and Technology	
<p>Spiritual</p> <ul style="list-style-type: none"> • Ability to be reflective about their own beliefs, religious or otherwise, that inform their perspective on life and their interest in and respect for different people’s faiths, feelings and values • Sense of enjoyment and fascination in learning about themselves, others and the world around them • Use of imagination and creativity in their learning • Willingness to reflect on their experiences 	<p>Children develop a sense of fascination as they explore the design of objects in order to understand how they are constructed and function. Children use this knowledge combined their own imagination and creativity to develop and make their own designs. From this, children then reflect on their work by critically evaluating the quality of their design and whether it is fit for purpose.</p>
<p>Moral</p> <ul style="list-style-type: none"> • Ability to recognise the difference between right and wrong readily apply this understanding in their own lives and, in so doing, respect the civil and criminal law of England • Understanding of the consequences of their behaviour and actions • Interest in investigating and offering reasoned views about moral and ethical issues, and being able to understand and appreciate the viewpoints of others on these issues 	
<p>Social</p> <ul style="list-style-type: none"> • Use a range of social skills in different contexts, including working and socialising with pupils from different religious, ethnic and socioeconomic backgrounds • Willingness to participate in a variety of communities and social settings, including by volunteering, cooperating well with others and being able to resolve conflicts effectively • Acceptance and engagement with the fundamental British values of democracy, the rule of law, individual liberty and mutual respect and tolerance of those with different faiths and beliefs; the pupils develop and demonstrate skills and attitudes that will allow them to participate fully in and contribute positively to life in modern Britain 	<p>Foundation Stage children have the opportunity, throughout the year, to develop signs and artefacts relating to their role-play area, to develop a range of social skills in different contexts. E.g. The Healthcare centre, Vets etc</p>
<p>Cultural</p> <ul style="list-style-type: none"> • Understanding and appreciation of the wide range of cultural influences that have shaped their own heritage and that of others • Understanding and appreciation of the range of different cultures within school and further afield as an essential element of their preparation for life in modern Britain • Knowledge of Britain’s democratic parliamentary system and its central role in shaping our history and values, and in continuing to develop Britain • Willingness to participate in and respond positively to artistic, sporting and cultural opportunities • Interest in exploring, improving understanding of and showing respect for different faiths and cultural diversity, and the extent to which they understand, accept, respect and celebrate diversity, as shown by their tolerance and attitudes towards different religious, ethnic and socio-economic groups in the local, national and global communities 	

knowledge, understanding and skills.

We have established a number of ‘building blocks’ that ensure that children develop their D&T capability. Children make progress in D&T as they develop an increasing capability to design and make good quality products with a range of materials, for a variety of users and purposes.

At Mount Street Academy, we have broken down assessment descriptors to support teachers in assessing Design and Technology. This means that skills in design technology are progressive and build year on year.

Assessment information is collected twice a year and analysed by the DT subject lead. This helps to inform the overall picture of the quality of education in design technology at Mount Street. Our monitoring cycle is developed through action plans which are developed as an ongoing document over the course of the year and feed into the subsequent year. This informs when and what monitoring will be undertaken.

Monitoring in design technology includes: book scrutinies, lesson observations and/or learning walks, pupil and staff voice. All of this information is gathered and reviewed using a school SEF document. It is used to inform further curriculum developments, including the need for CPD.

ASSESSMENT

The learning outcomes in each unit show how children might demonstrate what they have learnt. Pupils will be assessed against the Key Learning Expectations after each unit. Pupils should be involved in actively evaluating their work and thinking about possible improvements. The work children produce will serve as a record of the achievement.