



Mountford Manor

Curriculum Policy

DT

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

Whole School Curriculum Intent:

At Mountford Manor Primary School, children are supported, guided and inspired through our excellent teaching practises, to achieve academic success through a [knowledge-engaged](#) approach to the curriculum, which centres around a key stimulus.

Developing the whole child is at the centre of everything we do and our intention is that the curriculum extends opportunity, raises aspiration and opens children's eyes to the world beyond their immediate environment.

Through our values based approach, the curriculum encourages children to become kind, considerate and accepting individuals who make positive contributions to their community and beyond.

At Mountford we aspire for children to **Make the Most** of their **Potential**.

To do this, we strive for children to;

- Be **Motivated Learners**
- Seek **Meaningful futures**
- Become **Proud citizens**

In order for us to ensure our pupils "Make the Most of their Potential" 5 instrumental **Golden Threads** underpin and weave through everything we do at the school. We believe these threads enable children to have the essential knowledge and skills that they need to be educated citizens.

1. **Embed values** and a sense of community
2. **Develop oracy** through immersing pupils in a language rich environment
3. **Cultivate a sense of value** in the love of reading
4. **Enable and facilitate opportunities** and **experiences** to accumulate advantage; inspiring ambition and aspiration.
5. **Encourage curiosity**; pupils want to pupils do more, to know more; and therefore remember more.

How the **5 Golden Threads** are embedded in our DT Curriculum

Golden Thread	How this is embedded in DT
Embed Values	Through learning various DT techniques and skills; children develop their resilience and persistence and through learning about different engineers understand about the importance of kindness and aspiration. Through group projects, children develop their both their cooperation and tolerance.
Develop Oracy Skills	Children are given opportunities in lesson to discuss their views and opinions on various designs and pieces of work they and their peers have created. Children are also given opportunity to discuss and give opinion on work of famous designers and engineers. In each unit of work, children are exposed to a range of DT vocabulary which broadens the words they use to describe; discuss and critic designs and pieces of work.
Cultivating a culture of readers	Where possible, children's DT work links to and/or is inspired by a key text.
Giving exposure to real life opportunities and experiences	Class teachers are encouraged to seek opportunities for children to experience DT through visits to museums and/or exhibitions. Where possible, children will be exposed to a wide range of materials, mediums, artefacts and experiences that broaden their awareness and appreciation of different types of Design and engineering. Children are

	made aware of the different types of careers and opportunities the world of DT can bring. The profile of DT is raised by giving opportunities for DT projects to be celebrated both with their peers but also across the wider community (including parents and carers)
Encourage curiosity	By covering a wide range of techniques and looking at various engineers and designers; children develop a good sense of knowledge and understanding of DT. By knowing more; gives children the confidence to find out more about themselves as an designers giving them confidence to seek more opportunities to build and develop things.

DT Curriculum Intent:

The intent of the DT Curriculum at Mountford Manor is to give children the opportunity to use their 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. Children will acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Children will learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they will develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Aims and Objectives

The DT curriculum at Mountford Manor aims to ensure that all pupils:

- 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
- 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.

Curriculum Map (Progression and sequencing):

EYFS - Expressive Arts and Design

2-year olds	<ul style="list-style-type: none"> •Make marks and attribute meaning to these when prompted. •Explore paint using a variety of tools such as brushes, vehicles and their fingers. •Use imagination to consider what they can do with different materials, and use these ideas to make simple models which express their ideas
3-year olds	<ul style="list-style-type: none"> •Use a variety of art tools with independence, choosing a tool for a specific purpose and carrying out their intention independently. •Make imaginative and complex small worlds with construction kits. •Explore materials freely and independently in order to develop their ideas about how to use them. Use their own ideas to decide which materials express their intention. •Join different materials together using glue, masking tape, glue guns, paper clips or split pins. •Create closed shapes with continues lines and begin to use these shapes to represent objects. Use appropriate vocabulary whilst discussing their shapes. •Draw with increasing complexity and detail, such as representing a face with a circle.

	<ul style="list-style-type: none"> • Show emotions in drawings and paintings and be able to talk about these • Independently explore colour and colour mixing and talk about the changes they are making to the colour.
Reception	<ul style="list-style-type: none"> • Produce recognisable drawings of people and objects • Draw shapes with increasing precision. • Articulate what they are drawing to an adult • Develop language of colour (secondary colours) and independently mix colours to make new colours through their own exploration. • Make marks using shape and pattern on a range of surfaces • Develop simple patterns by printing with objects using range of materials • Use paints and brushes to make a range of marks – dots, dabs, zig zags, wavy • Use scissors along straight and curved shapes • Build and join using a range of materials for a specific purpose • Uses a wide range of tools with greater accuracy to shape, assemble and join materials – glue, tape, scissors, string, staples, clips, weaving

In Key stage 1 and Key Stage 2, the DT curriculum is designed around a 2-year rolling programme (Cycle A and Cycle B) During each cycle, children focus on obtaining a concentrated set of skills and knowledge. This ensures that, on leaving each phase, the skills and knowledge required for the next stage of their development has not only been acquired but also deeply embedded.

Key Stage 1

Year 1 and 2	
Evaluating	<ul style="list-style-type: none"> • Know what a product is • Say what a product is for • Describe a product (who is it for, what is made from, how is it made, how it works) • Talk about their own work (features, design, opinion) • Describe how their product works • Know the features of familiar products • Give reasons for some features (colour choice, material used, joining technique) • Talk about my own and others' work (features, design, opinion) • Explain why they chose certain materials, techniques and tools • Describe how their product works
Knowledge of designers	<ul style="list-style-type: none"> • Know what a designer does • Know the names and the products of some British designers • Say what they like and dislike about the product and the designer
Design	<ul style="list-style-type: none"> • Think of ideas and with help can put them into practice • Know what a design is and its purpose • Use pictures and words to describe what they want to do (materials and tools) • Think of ideas and with help can put them into practice • Know what a design is and its purpose • Use pictures and words to describe what to do (materials, techniques, features-mechanics etc. and tools)
Making	<ul style="list-style-type: none"> • Know what materials can be used for my structure • Know what a join is and can use one • Measure and mark out materials with care and increasing accuracy • Cut materials safely (scissors, junior hacksaw) • Be careful to make work look as neat as possible • Find out how to make materials for structure stronger (folding, rolling and joining, columns and triangles)
Mechanics and electrics	<ul style="list-style-type: none"> • Explore how moving objects work. • Look at wheels, axles, turning mechanisms, hinges and simple levers. • Make a product that moves using a turning mechanism (e.g. wheels, winding) or a lever or a hinge (to make a movement)
Textiles	<ul style="list-style-type: none"> • Know that textiles have different properties: touch, insulation, texture and waterproof. I select the appropriate textile so that it does the job I want it to. • Describe textiles by the way they feel.

	<ul style="list-style-type: none"> • Alter a textile to make it stronger. • Make a product from textiles. • Measure, mark out and cut fabric. • Join fabrics using glue and running stitch. • Make sure my work is neat and tidy.
Cooking	<ul style="list-style-type: none"> • With help, use knives safely • Use a mixing bowl • Be aware of hygiene for cooking • Know some things are made and some things are natural • Know some things are dangerous to eat raw • Know heat changes food • Use a variety of utensils safely • Know what the food groups are • Know where some foods come from • Be aware there are different ways to cook • Prepare a healthy snack and breakfast

Lower Key Stage 2

Year 3 and 4	
Evaluating	<ul style="list-style-type: none"> • Start to research and evaluate existing products • Understand that products are designed for a purpose (e.g. a problem, an audience, an event) • Talk about own and others' work (features, design, opinion) • Explain why I chose certain materials, techniques and tools • Say what I would do to improve my product • Research and evaluate existing products to inform planning • Understand that products are designed for a purpose (e.g. a problem, an audience, an event) • Identify what is working well and what can be improved (this is during the make as well as at the end)
Knowledge of designers	<ul style="list-style-type: none"> • Know some designers from history • Talk about some of the tools, techniques and design used by the designer
Design	<ul style="list-style-type: none"> • Think of ideas and plan what to do next, based on what I know about materials and components • Select the appropriate tools, techniques and materials • Plan using specific materials and explain my choice • Use pictures and words to describe what I want to do (materials, techniques, features-mechanics etc. and tools) • Think of ideas and plan what to do next, based on what is known about materials and components • Select the appropriate tools, techniques and materials explaining my choices • Communicate my ideas using labelled sketches giving reasons for choices • Start to produce step by step plans
Making	<ul style="list-style-type: none"> • Use appropriate materials and an appropriate join • Measure and mark out materials with care and increasing accuracy (cm) • Use scoring and folding to shape materials accurately • Make cuts accurately (scissors and saws) • Make holes accurately (drill, punch) • Join materials to make products using both permanent and temporary fastenings • Methods of working are increasingly precise aiming for a high quality finish • Art skills to apply texture and design to my products
Mechanics and electrics	<ul style="list-style-type: none"> • Know the application of mechanisms to create movement. • Combine a number of components well in my product. • Use simple circuits to either illuminate or create motion. • Make a product that uses both electrical and mechanical components. • Products have a good finish so that a user will find it both useful and attractive.
Textiles	<ul style="list-style-type: none"> • Select the appropriate textile(s) for my product. • Use sharp scissors accurately to cut textiles. • Know that the texture and other properties of materials affect choice. • Textile work incorporates the views of intended users' and for the purpose. • Use art textiles skills such as stitching to help create a product that is sturdy and fit for purpose. • Combine materials to add strength or visual appeal

	<ul style="list-style-type: none"> Textile products include structural changes, such as plaiting or weaving to create new products such as rope, belts, bracelets etc.
Cooking	<ul style="list-style-type: none"> Select ingredients for my product with reasons Work in a safe, hygienic way Begin to measure out ingredients Understand what is healthy and unhealthy Boil and bake to cook Understand why we need a healthy diet Use knowledge of the food groups to plan a lunch Know where food comes from Prepare a healthy lunch

Upper Key Stage 2

Year 5 and 6	
Evaluating	<ul style="list-style-type: none"> Research and evaluate existing products giving reasons for the decisions of the designers (materials, design, tools, techniques) Use the ideas from current designers to help with plans Reflect on designs and develop them bearing in mind the way they will be used (during the process) Research and evaluate existing products giving reasons for the decisions of the designers (materials, design, tools, techniques) Use the ideas from current designers to help with own plans I reflect on own designs and develop them bearing in mind the way they will be used (during the process)
Knowledge of designers	<ul style="list-style-type: none"> Know how key events and individuals have influenced the world (in terms of products) Compare and contrast the work of different designers (e.g. historical and modern) Give reasons for the decisions made by the designer
Design	<ul style="list-style-type: none"> Use my knowledge of design, designers and further research to help influence my own design Create models or prototypes to show aspects of my design Produce step by step plans Use computer aided design Come up with solutions to problems as they happen. Use knowledge of design designers and further research to help influence own design Create models or prototypes to show aspects of my design Produce step by step plans Take part in technical discussions about my ideas
Making	<ul style="list-style-type: none"> Select from a variety of materials best suited to my design Measure using mm and then use scoring, and folding to shape materials accurately. Make cuts accurately and reject pieces that are not accurate and improve my technique. Joins are strong and stable, giving extra strength to products. Some joins are flexible to allow for dismantling or folding. Methods of working are precise so that products have a high quality finish. Use computer programming when creating a product
Mechanics and electrics	<ul style="list-style-type: none"> Choose components that can be controlled by switches or by ICT equipment. Product is improved after testing. Use science skills (resistance, batteries in series or parallel, variable resistance to dim lights or control speed) to alter the way electrical products behave. Use precise electrical connections. Explored mechanical movement using hydraulics and pneumatics. Use other DT skills to create housings for my mechanical components. Product are well finished in a way that would appeal to users
Textiles	<ul style="list-style-type: none"> Products have an awareness of commercial appeal. Experiment with a range of materials until I find the right mix of affordability, appeal and appropriateness for the job. Combine art skills to add colour and texture to my work. Mark out using patterns and templates Join textiles using art skills of stitching, embroidering and plaiting to make durable and desirable products.
Cooking	<ul style="list-style-type: none"> Explain why I have chosen ingredients in a dish Know why we need certain food types Grill, boil, fry and bake to cook

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| <ul style="list-style-type: none"> • Know about local produce • Understand seasonality and this affects food • Know where different crops can be found around the world • Understand the concept of carbon footprints • Know different cultures have different diets • Design and prepare a healthy dinner |
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The Teaching and Learning of DT

At Mountford Manor, we approach teaching and learning of DT through 6 Key Principles. These 6 principles are key to effective teaching but by its very nature, teaching is a creative profession so there is no prescribed formula for the way they are implemented in the classroom.

These 6 Key Principles are;

1.CHALLENGE

With the mastery learning model, rather than prejudging potential outcomes and stifling expectations by setting a host of differentiated learning objectives, there is a single challenging learning objective (Challenge for all). Staff are expected to consider what each individual student needs to achieve it and adjust their lesson accordingly.

All students may have different starting points but should aspire to the learning objective and a teacher should tailor and adapt their teaching;

- focused questioning;
- adult/ peer help with starting their sentences;
- Modelled and worked examples
- Manipulatives and practical apparatus to support learning

It is about equity of opportunity, not all getting exactly the same to reach the objective. The aim is to keep students in the challenge zone.

2.EXPLANATION

Three key principles should guide explanations:

1. Plan in to schemes of learning how to **link to and build on something already known**. a. Begin each lesson with a short review of previous learning (Rosenshine, 2012)
2. Allow for the **limitations of the working memory** when asking students to take on board new information, giving instructions, asking them to sort key bits of information etc. a. Present new information in small steps with student practice after each step (Rosenshine, 2012)
3. Where possible try to make the **abstract concrete** – think about and plan, how to make abstract ideas make sense:
 - a. Drawing diagrams; demonstrations; sharing and discussing images; taking the learning outside etc.
 - b. Provide scaffolds for difficult tasks (Rosenshine, 2012)
 - c. Direct explicit instruction (Kirschner, Sweller, Clarke, 2006)

3.MODELLING

Explain the key ideas, then model how to do it / what to do with it. This falls in to two main categories:

1. **Model the creation of products/procedures**. For example: write an essay, *show* them how to do it. Write it out on the board and discuss how/why you are doing each step as you go. Question them on what is being done. Explain, out loud, thought processes. If mistakes are made, point them out.
2. **Deconstruct expert examples and use worked examples** – have an excellent finished product and share it, discuss why it is good.

4.PRACTICE

Plan in time, during the lesson and over a series of lessons, for students to practice using new knowledge and skills. Consider the type of practice and its purpose:

1. Practice for fluency and long-term retention – repeating things in order to master them; coming back to things in subsequent lessons etc.
2. Deliberate ‘intelligent’ practice at the outer reaches of ability – allowing students to make connections and see patterns. Practising at the outer reaches of ability means students will have to layer skills and use them with agility.
 - a. Guide student practice (Rosenshine, 2012)
 - b. Require and monitor independent practice (Rosenshine, 2012)

5.FEEDBACK

Plan in how you will give feedback during/after lessons and – for this feedback to be meaningful -how you will allow students to respond to this feedback. Feedback is a two way process and the teacher should use the students’ feedback to inform future planning.

Moreover, it is our goal to nurture independent and agile learners who have the skills to be successful in an increasingly globalised and rapidly changing world. To achieve this, we must equip students to be critical and reflective learners in their own right by ‘learning how to learn’. Students need to be engaged in their own learning, be part of the creation of their ‘next steps’ and have the opportunity to assess their own work and that of their peers in a meaningful and useful manner.

1. Engage students in weekly and monthly review (Rosenshine, 2012)
2. Guide student practice

6.QUESTIONING

Some questions can be planned for but some should be responsive to what is happening in the lesson. When considering planned questions, they should be to:

1. Check for understanding – i.e. hinge questions that students should be able to answer at a certain point in the lesson, before they move on.
 - a. Ask a large number of questions and check the responses of all students,
 - b. Check for understanding (Rosenshine, 2012)
2. Provoke deeper thinking
3. Increase the ratio of participation and thinking of all students

Inclusion and the DT Curriculum

When teaching at Mountford Manor, staff are aware of children’s individual needs and how to best scaffold teaching and learning, to enable access for all. Teachers consider; a range of resources, classroom organisation and management strategies to ensure optimal access for all learners, including those with physical and learning needs. Teachers have access to specialist support for advice on target setting and assessment. All SEND pupils are identified (through the Swindon Core Standards paperwork and on the Mountford Manor’ SEND register). Their progress is systematically recorded and monitored in individual provision maps / Termly SEN assessments.

Monitoring and Assessment

EYFS

In EYFS the new skills and knowledge learnt in DT is evidenced by observations, photographs and work.

Children’s DT knowledge and skills are assessed by judging them against the Early learning goals set out in the EYFS Profile documentation.

Key Stage 1

In KS1 the new skills and knowledge learnt in DT is evidenced through work in books and work produced in class.

Children's design, technology and creating knowledge and skills are assessed by teacher judgement. These judgements are matched against whether pupil's work and pupil's responses to key questions show progress against the age-related expectations. To ensure progression of knowledge and skills from year group to year group, teachers are to use the key questions outlined in each unit of work as a measure of whether a child is on track. Any gaps in knowledge and skills is to be addressed so each child is best prepared for the next stage of their learning.

Key Stage 2

In KS2 the new skills and knowledge learnt in DT is evidenced through a combination of work in books and pupil's responses to key geographical questions.

Children's design, technology and creating knowledge and skills are assessed by teacher judgement. These judgements are matched against whether pupil's work and pupil's responses to key questions show progress against the age-related expectations. To ensure progression of knowledge and skills from year group to year group, teachers are to use the key questions outlined in each unit of work as a measure of whether a child is on track. Any gaps in knowledge and skills is to be addressed so each child is best prepared for the next stage of their learning.

Review

To be reviewed September 2023 by Lee Edmonds (Principal at Mountford Manor) & Jenny Shaw (DT coordinator).