Subject Overview

Design and Technology



Limitless Dreams Endless Opportunities

Design and Technology curriculum intent

Our curriculum intent for DT is for children to learn the knowledge and skills required to solve real world problems in varied and exciting contexts, drawing on their own and others' wants and needs to achieve this. We aspire pupils to draw on close cross curricular links with subjects such as mathematics, science, computing and art through their study of design and technology; becoming increasingly resourceful, innovative, enterprising and capable creators. Pupils will use analytical skills to draw conclusions, critiquing past and present products to determine impact upon consumers and the wider world, understanding the benefits design and technology brings to society. Pupils will use skills to enhance and improve their own designs and creations.

Through our study of Design and Technology, we aim 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.

Implementation

Curriculum structure & sequencing

We structure our DT curriculum by using the National Curriculum, as well as Projects on a Page. This allows all our children, in every year group, to have a full and in depth understanding of the designing, making, evaluating and cooking strands. In each year group, all children have the opportunity to complete a range of products that will focus on construction, textiles and cookery. Throughout KS2, pupils will develop their understanding of computer-aided design and use this to inform their designs.

Content & concepts

Our aim is to ensure that our DT curriculum shapes children into being critical designers and makers. In each unit, children research existing designs already in circulation and critique them, understanding what may be effective for their products.

Enrichment and personal development
TB adapted.

Assessment and next steps

We assess DT in a variety of ways, giving pupils the opportunity to explain their reasoning and metacognition of a topic as well as their accumulation of knowledge. This may be done through practical exercises, group tasks, quizzes or discussion. Children are assessed throughout the designing, planning, making and evaluation process through a mixture of formative and summative assessment.

Design and Technology in the Early Years Foundation Stage

Design & Technology in the Early Years Foundation Stage (EYFS) is an integral part of expressive arts and design, one of the seven key areas of learning outlined in the EYFS framework and supported by the non-statutory guidance provided by Development Matters. Design & Technology strands are set out in the early learning goal of 'Creating with Materials'.

At Manor Park, we encourage young learners to begin to foster the development of children's artistic and cultural awareness while nurturing their imagination and creativity. It is imperative that young children are offered consistent opportunities to engage with the arts, encouraging them to explore and experiment with a diverse range of media and materials. By providing a rich and varied exposure to artistic experiences, including what they see, hear, and participate in, we enable children to deepen their understanding, enhance their self-expression, expand their vocabulary, and refine their ability to communicate through the arts.

Development Matters guides educators to ensure the frequency, repetition, and depth of designing experiences are fundamental to children's progress in interpreting, appreciating, and responding to the creative world around them. This ensures that children are well-prepared to embark on a lifelong journey of .
design technology.



Expressive Arts and Design – Development Matters

Children in Reception will be learning to:

a) Explore, use and refine a variety of artistic effects to express their ideas and feelings.
b) Return to and build on their previous learning, refining ideas and developing their ability to represent them.
c) Create collaboratively, sharing ideas, resources and skills.

Expressive Arts and Design – Early Learning Goals

Creating with Materials

1. Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function;
2. Share their creations, explaining the process they have used;
3. Make use of props and materials when role playing characters in narratives and stories.

Inclusion within Design and Technology

We are an inclusive school and as such, do not believe in narrowing the curriculum for any learner. Our curriculum is designed with inclusion of all at heart, and our curriculum intent is therefore the same for all children.

However we are mindful that there are an abundance of factors which need to be considered in order for all learners to be able to access learning according to their individual needs; perhaps none more so than for those learners with Special Educational Needs and Disabilities (SEND).

Therefore, whilst our curriculum intent is the same for all learners; our implementation of the curriculum may well look different for different groups of pupils. Teachers will plan, scaffold, challenge and embed learning through activities which are adapted to meet children's needs – we call this adapted implementation. This is to ensure that our curriculum can be met by all within an inclusive environment, mindful and responsive to children's needs.

We use guidance set out within the NASEN teacher handbook to assist us in amending our implementation within Design and Technology. Examples of this, though not an exhaustive list, can be seen to the right. Note, these are suggestions of what may be implemented but all teachers will amend according to learner need.



Same intent, adapted implementation



Worked examples provided to children to generate discussion around topics studied and the opportunity to ask questions of this.



Assistance using tools and measuring to ensure assessment focus considers design and idea as much as practical execution.



Use partnered and turn based learning support to provide modelled examples to children and provide collaborative learning opportunities.



Use small group teaching opportunities to dedicate more time and support to provide additional learning opportunities to learners working towards a planned objective.



Provide learners with targeted resources to support their learning and understanding such as visual aids.

Manor Park Primary School Curriculum Road Map – Design and Technology

Year R

- Junk Modelling
- Joining Materials
- Smoothies

Year 1

- Slides & levers Moving picture card
- Templates & joining Glove puppets
- Cookery Healthy meals

Year 2

- Wheels & axles Transporting vehicle
- Freestanding structures Bridges
- Cookery Gingerbread

Year 3

- 2D shape to 3D product Waterproof bags
- Levers & linkages Pop up poster
- Cookery Balanced meal

Year 4

- CAD shell structures Gift boxes
- Switches & Circuits Torches

Year 5

- Cookery Toasties
- Frame Structures Wildlife house
- Electrical systems Automated nightlight
- Cookery Pizza

Year 6

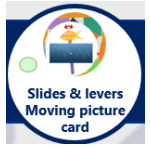
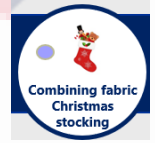
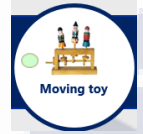
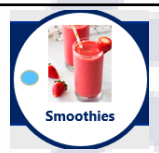
- Combining fabric Christmas stocking
- Moving toy
- Cookery Savoury biscuits

EAD – Creating with Materials

PD – Fine Motor Skills

- Electrical
- Cookery
- Structures and joining
- Textiles

Design & Technology Endpoints

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
						
To combine empty containers to make models to use within play.	To produce a themed moving picture card involving working sliders and levers.	To design and make a vehicle consisting of wheels, axles and structure, which can be used to transport items.	To design and create a waterproof bag which can be used to shield and protect items from water.	To plan, digitally design and create a Christmas gift box using computer aided design.	To plan, design and make a wildlife house which will be protected from the elements whilst safely housing an animal.	To plan, design and make a fabric Christmas stocking using computer aided design.
						
To investigate and evaluate different ways of joining materials when designing.	Combine and use varied textiles to design and make a glove puppet to entertain others.	Plan, design and make a bridge structure spanning between two surfaces and that can bear weight.	To create a pop up tourist poster that involves levers and linkages to engage an audience.	To design and create a torch using simple circuitry components.	To plan and create a motion activated security light that using computer programming	To design and make a moving toy which uses pulleys and gears to engage and entertain a consumer.
						
To share and describe my creations to others giving reasons for it's design during smoothie making.	Plan, prepare and produce a healthy meal plate incorporating a variety of fruits and vegetables.	Plan, prepare and produce decorated ginger bread biscuits for consumption by others.	Plan, prepare and produce a balanced meal plate incorporating food from the main food groups.	To design and make a toasty for consumption by others using cooking skills	To design and make a pizza for consumption by others, using cooking skills.	Plan, prepare and produce a savory biscuits , to be consumed by others and using locally / nationally sourced produce.

Design and Technology - Progression of Skills

	Reception	Year 1 & 2	Year 3 & 4	Year 5 & 6
Designing • Understanding contexts, users and purposes • Generating, developing, modelling and communicating ideas	Design products prior to making	• work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment • state what products they are designing and making • say whether their products are for themselves or other users • describe what their products are for • say how their products will work • say how they will make their products suitable for their intended users • use simple design criteria to help develop their ideas • generate ideas by drawing on their own experiences • use knowledge of existing products to help come up with ideas • develop and communicate ideas by talking and drawing • model ideas by exploring materials, components and construction kits and by making templates and mock-ups • use information and communication technology, where appropriate, to develop and communicate their ideas	work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment • describe the purpose of their products • indicate the design features of their products that will appeal to intended users • explain how particular parts of their products work • gather information about the needs and wants of particular individuals and groups • develop their own design criteria and use these to inform their ideas • share and clarify ideas through discussion • model their ideas using prototypes and pattern pieces • use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • use computer-aided design to develop and communicate their ideas • generate realistic ideas, focusing on the needs of the user *• make design decisions that take account of the availability of resources*	work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment • describe the purpose of their products • indicate the design features of their products that will appeal to intended users • explain how particular parts of their products work • carry out research, using surveys, interviews, questionnaires and web-based resources • identify the needs, wants, preferences and values of particular individuals and groups *• develop a simple design specification to guide their thinking* • share and clarify ideas through discussion • model their ideas using prototypes and pattern pieces • use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • use computer-aided design to develop and communicate their ideas • generate innovative ideas, drawing on research *• make design decisions, taking account of constraints such as time, resources and cost*
Making • Planning • Practical skills and techniques	Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills. Explore, use and refine a variety of artistic effects to	*• plan by suggesting what to do next* • select from a range of tools and equipment, *explaining their choices* • select from a range of materials and components according to their characteristics • follow procedures for safety and hygiene • use a range of materials and components, including	• select tools and equipment suitable for the task *• explain their choice of tools and equipment in relation to the skills and techniques they will be using* • select materials and components suitable for the task • explain their choice of materials and components according to functional properties and aesthetic qualities *• order the main stages of making* • follow procedures for safety and hygiene	• select tools and equipment suitable for the task *• explain their choice of tools and equipment in relation to the skills and techniques they will be using* • select materials and components suitable for the task • explain their choice of materials and components according to functional properties and aesthetic qualities *• produce appropriate lists of tools, equipment and materials that they need* *• formulate step-by-step plans as a guide to making*

Design and Technology - Progression of Skills

	express their ideas and feelings. Make use of props and materials when role-playing characters in narratives and stories.	construction materials and kits, textiles, food ingredients and mechanical components • measure, mark out, cut and shape materials and components • assemble, join and combine materials and components • use finishing techniques, including those from art and design	• use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components • measure, mark out, cut and shape materials and components with some accuracy • assemble, join and combine materials and components with some accuracy • apply a range of finishing techniques, including those from art and design, with some accuracy	• follow procedures for safety and hygiene • use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components • measure, mark out, cut and shape materials and components with some accuracy • assemble, join and combine materials and components with some accuracy • apply a range of finishing techniques, including those from art and design, with some Accuracy • accurately measure, mark out, cut and shape materials and components • accurately assemble, join and combine materials and components • accurately apply a range of finishing techniques, including those from art and design *• use techniques that involve a number of steps* • demonstrate resourcefulness when tackling practical problems
Evaluating • Own ideas and products • Existing products • Key events and Individuals (not a requirement for KS1)	Share their creations, explaining the process they have used.	• talk about their design ideas and what they are making • make simple judgements about their products and ideas against design criteria *• suggest how their products could be improved* • what products are • who products are for • what products are for • how products work • how products are used • where products might be used • what materials products are made from • what they like and dislike about products	• how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work • how well products achieve their purposes • how well products meet user needs and wants • who designed and made the products • where products were designed and made • when products were designed and made • whether products can be recycled or reused • about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products	• how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work • how well products achieve their purposes • how well products meet user needs and wants • how much products cost to make • how innovative products are • how sustainable the materials in products are • what impact products have beyond their intended purpose • about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products
Technical knowledge • Making products work		• about the simple working characteristics of materials and components • about the movement of simple mechanisms such as levers, sliders, wheels and axles • how freestanding structures can be made stronger, stiffer and more stable *• that a 3-D textiles product can be assembled from two identical fabric shapes* *• that food ingredients should be combined according to their*	• how to use learning from science to help design and make products that work • how to use learning from mathematics to help design and make products that work • that materials have both functional properties and aesthetic qualities *• that materials can be combined and mixed to create more useful characteristics* • that mechanical and electrical systems have an input, process and output *• the correct technical vocabulary for the projects they are undertaking* • how mechanical systems such as levers and linkages or pneumatic systems create	• how to use learning from science to help design and make products that work • how to use learning from mathematics to help design and make products that work • that materials have both functional properties and aesthetic qualities *• that materials can be combined and mixed to create more useful characteristics* • that mechanical and electrical systems have an input, process and output *• the correct technical vocabulary for the projects they are undertaking* • how mechanical systems such as cams or pulleys or gears create movement

Design and Technology - Progression of Skills

		sensory characteristics *• the correct technical vocabulary for the projects they are undertaking*	movement • how simple electrical circuits and components can be used to create functional products • how to program a computer to control their products • how to make strong, stiff shell structures *• that a single fabric shape can be used to make a 3D textiles product* *• that food ingredients can be fresh, pre-cooked and processed*	• how more complex electrical circuits and components can be used to create functional products • how to program a computer to monitor changes in the environment and control their products • how to reinforce and strengthen a 3D framework *• that a 3D textiles product can be made from a combination of fabric shapes* *• that a recipe can be adapted by adding or substituting one or more ingredients*
Cooking and nutrition • Where food comes from	To understand basic food handling, hygienic practices and person hygiene, including how to control risk by following simple instructions. That there is a wide variety of fruit and vegetables available, which can be grouped and individually named. To use a variety of simple tools and equipment	• that all food comes from plants or animals • that food has to be farmed, grown elsewhere (e.g. home) or caught • how to name and sort foods into the five groups in The eat well plate • that everyone should eat at least five portions of fruit and vegetables every day • how to prepare simple dishes safely and hygienically, without using a heat source • how to use techniques such as cutting, peeling and grating	that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world • how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source • how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking • that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The eat well plate • that to be active and healthy, food and drink are needed to provide energy for the body	that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world • that seasons may affect the food available • how food is processed into ingredients that can be eaten or used in cooking • how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source • how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking *• that recipes can be adapted to change the appearance, taste, texture and aroma* • that different food and drink contain different substances – nutrients, water and fibre – that are needed for health

Assessment within Design & Technology

We place great emphasis on the importance of assessing children's knowledge, understanding and skillset within Design & Technology.

When assessing Art, it is first essential to clearly articulate two important areas:

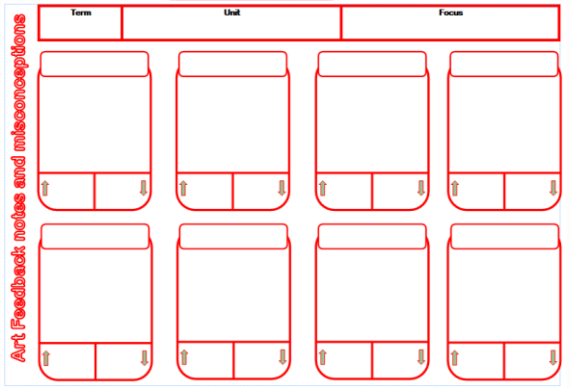
1. The specific endpoint for the unit being delivered,
2. The substantive and disciplinary knowledge to be taught to reach this endpoint.

At Manor Park Primary School, we have clearly mapped out all endpoints for all the Design and Technology units to be delivered, before specifying what substantive and disciplinary knowledge is to be taught within each unit to reach this endpoint. It is this knowledge and understanding that we assess children upon, believing accurate assessment can only be a reflection of what is taught to children . It is important to specify that the end piece that is produced within a unit of art is not simply the endpoint. Endpoints are made up primarily of the knowledge and skills of artists, technique and application (all recorded in sketchbooks); with the end product of their culmination forming the minority of assessment. The overall quality of an end piece is subjective, as art itself is, and as such the main focus of assessment is of things other than the created product.

As an organisational tool, the breakdown of this is organised on a single page as can be seen below; with the essential knowledge for each lesson being broken down :

Making judgements – formative assessment

When delivering lessons; teachers record notes, comments and reflections they feel pertinent to the formative assessment of their teaching and learning of Art, recording these in their feedback files (see right). Such feedback is then delivered at the start of the following lesson, in order for children to recap prior learning undertaken before building upon this; as well as to give them opportunities to address misconceptions develop greater understanding of concepts and what has been taught.



Making judgements – summative assessment

With the unit endpoint in mind, teachers will form a summative assessment for each child within a particular unit. This will be either, working towards / working at / working above the expected standard.

We define what the expected standard is by listing the essential substantive and disciplinary knowledge children should know in order to achieve this, also articulating what would classify a pupil who may be working below / above this. Teachers record this on a single page at the end of each unit, creating this summative judgement through a culmination of their formative assessments and evidenced work within children's books; against this framework of what is to be taught.