Limitless Dreams,
Endless Opportunities

Manor Park School
& Nursery

Design Technology Curriculum

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Subject Specific Planning Documents Design Technology – Cycle A

Contents of this scheme of work:

1. Our intent, implementation and impact
2. Explanation and overview of key historical concepts within our curriculum.
3. Progression of disciplinary knowledge and substantive knowledge and skills
4. Subject end points
5. Subject road map

Intent

Design and Technology prepares children to deal with tomorrows rapidly changing world. It encourages children to become independent thinkers and solve problems creatively, as individuals and as part of a team. It is the intent of Manor Park, for Design and Technology to be taught in all year groups. DT projects are often made cross curricular, allowing children to apply the knowledge and skills learned in other subjects, particularly Maths, Science, History and Art. Skills are taught progressively to ensure that all children are able to learn and practice in order to develop as they move through the school. Children's interests are captured through theme learning, ensuring that links are made in a cross curricular way, giving children motivation and meaning for their learning. Children will learn basic cooking skills. We encourage children 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. Evaluation is a vital part of the design process and allows children to adapt and improve their product, this is a key skill which they need throughout their life.

Implementation

To ensure high standards of teaching and learning in design and technology, we implement a curriculum that is progressive throughout the whole school, which provides a broad framework and outlines the knowledge and skills taught in each Key Stage. Design and technology is taught as part of a termly topic. At Manor Park, we ensure that design and technology is given the same importance as the core subjects, as we feel this is important in enabling all children to gain 'real-life' experiences. Children design products with a purpose in mind and an intended user of the products. Food technology is implemented across the school with children developing an understanding of where food comes from, the importance of a varied and healthy diet and how to prepare this. Design and technology is a crucial part of school life and learning and it is for this reason that as a school we are dedicated to the teaching and delivery of a high quality Design and Technology curriculum; through well planned and resourced projects and experiences. Children learn to take risks, be reflective, innovative, enterprising and resilient. Through the evaluation of past and present technology they can reflect upon the impact of Design Technology on everyday life and the wider world. Educational visits are another opportunity for the teachers to plan for additional design and technology learning outside the classroom. At Manor Park, the children have many opportunities to experience design and technology on educational visits. The children have visited local museums, food establishments and had visitors into school to share learning and have hands on experiences. At Manor Park, teachers make use of the outdoor areas when planning for their children.

Impact

Our design and technology curriculum is high quality, well thought out and is planned to demonstrate progression. We focus on progression of knowledge and skills and discreet vocabulary progression also form part of the units of work.

We measure the impact of our Design and Technology curriculum through the following methods;

- assessing children's understanding before and after the unit is taught,
- images and videos of the children's practical learning,
- marking of work in Learning Adventure books.

The teaching of Design and Technology is monitored through Lesson Observations, Book Scrutiny, Pupil Voice and Learning Environment reviews. All monitoring is recorded and feedback is given to class teachers to ensure that teaching practice is supported and improved. All of these measures help to monitor the curriculum and raise the aspirations of our children. This ensures our children will develop skills and attributes they can use beyond school and into adulthood.

Overview of Subject Content with key concepts

	Autumn	Spring	Summer
Reception	**All about me – significant family events**	**Food/Spring festivals – customs, traditions**	**Toys, Families –**
Year 1	Times are Changing Construction – Cup and Ball 	Home Sweet Home Mechanisms – Moving Pictures 	Let's Explore Food Technology – Fruit salad 
Year 2	Why did London burn? Mechanisms – Fire Engines 	Come Fly With Me Construction - Kites 	Remarkable Rainforests- Food Technology – Plant based salad 
Year 3/4	Could you escape from Roman Pompeii? Sewing – Roman Purses 	Where will the River take You? Construction - Bridges 	Who were the Gregarious Greeks? Food Technology – Tzatziki and flat bread 
Year 5/6	Keep Calm and Carry on Construction – Anderson Shelters 	Gateway to the World Food Technology – European Traybake 	Mad about Science Mechanisms – moving dinosaur (Linked to Evolution and Inheritance) 

Progression of substantive knowledge and disciplinary knowledge for Design Technology – Cycle A

EYFS Creating with Materials

Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.
Share their creations, explaining the process they have used.

Substantive Knowledge	Disciplinary Knowledge and other skills			
Children know:	Making-planning practical skills and techniques	Technical knowledge	Food preparation, cooking and nutrition.	Evaluating - own ideas and existing products
• To know how to use scissors safely. • To cut along a straight line. • To cut along a wavy line. • To join to items using tape. • To use glue to fix items together • To know how draw a plan of my model. • To know that I can adapt and change something I have made. • To know that some materials are better for building with than others. **Introduced to the following vocabulary:** Scissors, cut, straight, join, hold, fix, glue, shape, safely, colour, design, plan, create, make, explain, why, change, together, features, pieces.	• Develop their small motor skills so that they can use a range of tools competently, safely and confidently • Use a range of small tools, including scissors, paintbrushes and cutlery. • Use one-handed tools and equipment, for example, making snips in paper with scissors. • Children can self-select from a range of tools, materials and construction kits in the continuous provision. • Children learn by experimenting with tools. • Design and make a boat • Making / decorating cards for various occasions. • Design and build models, adapting work where necessary. • Design and create models from junk • Den making in the outdoor area. • Create models from construction kits • Design and make a home for a character from a story e.g., Stickman • Build models in the outdoor area using large construction linked to ongoing topic • Learn skills e.g., rolling, pinching, cutting etc with playdough • Use playdough to make models e.g., 'Diva lamps', spiders etc	**Vocabulary:** Scissors, cut, straight, join, hold, fix, glue, shape, safely, colour, design, plan, create, make, explain, why, change, together, features, pieces. •Explore how things work. • They make use of fixing and joining materials such as sellotape, masking tape, string, pipe cleaners and glue. use of fixing and joining materials such as sellotape, masking tape, string, pipe cleaners and glue.	• Observe the effects of cooking e.g., baking cakes / spaghetti Bolognese	• Through questioning children are encouraged to talk about what they like about their work and other children's designs and how they would improve it. • Help to design and make small worlds in line with topic. • Children work collaboratively to create models together • Develop their own ideas and then decide which materials to use to express them. • Share their creations, explaining the process they have used.

Key Stage 1 National Curriculum

Purpose of study
Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they 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.

Key stage 1
Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment]. When designing and making, pupils should 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

Substantive Knowledge				Disciplinary Knowledge and other skills				
Children know:				Making-planning practical skills and techniques	Food preparation, cooking and nutrition.	Technical Knowledge	Evaluating - own ideas and existing products	
Year 1	**Times are changing** **Construction – cup and ball** To know what a cup and ball are To be able to use a cup and ball To explain how to join parts To use a template To explain which joining technique is the most suitable for different products.	**Home Sweet Home** **Mechanisms – moving picture** To explain what a mechanism is. To Explain how they can make characters in a storybook move with a mechanism. To use correct vocabulary to explain how a mechanism moves in a book, e.g. up, down, side to side, left and right.	**Let's Explore** **Food technology – fruit salad** Name a variety of fruits Demonstrate their understanding of basic food hygiene Cut and prepare fruit safely under supervision	Generate ideas and recognise characteristics of familiar products Use pictures and words to describe what they want to do Show that, with help, ideas can be put into practice Use tools and materials with help, where needed Choose materials from a range suggested by teacher	Name and sort foods into the five groups in the eat-well plate Know that everyone should eat at least five portions of fruit and vegetables every day -Prepare simple dishes safely and hygienically, without using a heat source	Talk about the simple working characteristics of materials and components. Use the correct vocabulary for the projects they are completing Understand about the working characteristics of some materials Understand how mechanisms can be used in different ways Explain the movements of simple mechanisms such as levers, sliders, wheels and axles.	Talk about the appearance, finish and texture of the product.	

Year 2	***London's Burning*** ***Mechanisms – fire engines*** *Explain what a mechanism is* *Label the main parts of the fire engine and explain how each part works* *Explain the meaning of the vocabulary, stable, strong, weak, flexible and stiff* *Design and make a vehicle consisting of wheels, axles and structure, which can be used to transport items*	***Come Fly With Me*** ***Construction – design a kite*** *Explain how a kite is used.* *Explain why a product needs testing before use.* *Confidently explain what stable, strong, weak, flexible and stiff mean*	**Remarkable Rainforests** **Food technology – plant based salad** Design and Make a plant based salad Identify and name the parts of plants which can be eaten Grate, measure and mix a range of ingredients safely Make a salad using a least 4 different plants	Begin to generate ideas and plan what to do next, based on their experience of working with different materials Use models, pictures and words to describe their designs Select appropriate tools and materials and know why they have chosen them Use correct technical vocabulary for projects from a range selected by teacher Begin to assemble, join and combine materials and components in a variety of ways. Design and make a vehicle consisting of wheels, axles and structure, Design and make a kite which works which can be used to transport items	Name and sort foods into the five groups in the eat-well plate Know that everyone should eat at least five portions of fruit and vegetables every day Prepare simple dishes safely and hygienically, without using a heat source Use techniques such as cutting and peeling Grate, measure and mix a range of ingredients safely Make a salad using a least 4 different plants	Know food ingredients should be combined according to their sensory characteristics Talk about the simple characteristics of materials and components. Use the correct vocabulary for the projects they are undertaking. Explain how mechanisms can be used in different ways Talk about the movements of simple mechanisms such as levers, sliders, wheels and axles. Know how to make freestanding structures stronger, stiffer and more stable.	Begin to recognise areas which have gone well as work progresses Begin to suggest things they could do better in the future Talk about how products are used and what materials are used.	

Key Stage 2 National Curriculum

Purpose of study
Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they 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.

Key stage 2
Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. When designing and making, pupils should be taught to:

Design
- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make
- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate
- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

Technical knowledge
- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products

	Substantive Knowledge			**Disciplinary Knowledge and other skills**				
	Children know:			Making- planning practical skills and techniques	Food preparation, cooking and nutrition.	Technical Knowledge	Evaluating - own ideas and existing products	
Year 3/4	**What did the Romans do for us?** **Textiles – Roman Purses** Create a holder out of material which can be used to hold coins Demonstrate the ability to cut fabric accurately Use appropriate stitching techniques to join their fabrics Choose an appropriate fastening for their holder and attach it securely Evaluate their design and make required adjustments	**Where will the river take you?** **Construction - Bridges** Construct a bridge to hold a given weight to cross a river Identify arch and beam bridges and explain what 'compression and tension' mean. Find different ways to reinforce structures. Identify points of weakness and reinforce them as necessary.	**Who are the gregarious Greeks?** **Food Technology– Tzatziki and Flat Bread** How to prepare a Greek tzatziki with flatbread using the appropriate ingredients Demonstrate the ability to measure, weigh and combine ingredients independently Clearly express the importance of food hygiene when preparing food products	Generate ideas by collecting and using information Begin to produce step-by-step plans Communicate alternative ideas using words, labelled sketches and models Select appropriate tools, equipment, materials, components and techniques to develop a product Measure, mark out, cut and shape a range of materials accurately Join, assemble and combine materials accurately Construct a bridge to hold a given weight to cross a river Find different ways to reinforce structures. Create a holder out of material which can be used to hold coins Choose an appropriate fastening for their holder and attach it securely	Demonstrate safe and careful procedures for handling food. Discuss that a healthy diet is made up from a variety and balance of different food and drink Prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, -how Use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.	Demonstrate the ability to cut fabric accurately Use appropriate stitching techniques to join their fabrics Use learning from science to help design and make products that work Combine and mix materials to create more useful characteristics Use the correct technical vocabulary for the projects they are undertaking Make strong, stiff shell structures Reinforce and strengthen a 3D framework	Evaluate their design and make required adjustments Compare their own work with that of others Say what they think and feel about their own work Reflect on their designs as they develop, bearing in mind the way the product will be used Begin to identify what is working well and what could be improved Discuss how real products have been designed and if they achieve their purpose.	

Year 5/6	**Keep Calm and carry on Construction – Anderson Shelters** Create an Anderson shelter based on a 3D wooden framework Demonstrate their ability to use hand tools safely and proficiently Identify, use and modify the joining techniques for their shelter Evaluate against original criteria and suggest modifications	**Gateway to the World Food Technology – Tray Bakes** Create a tray bake linked to a European country of their choice Research and follow a recipe Identify ingredients and equipment required to be successful Evaluate their product identifying strengths and areas for development.	**Mad About Science Mechanisms – Moving Dinosaurs** Design and make a free standing dinosaur with moving parts To know that mechanisms control movement. Construct mechanisms and/or structures as detailed in the design template by using levers, pulleys and gears to produce movement. Evaluate their product against their design	Create an Anderson shelter based on a 3D wooden framework Demonstrate their ability to use hand tools safely and proficiently Design and make a free standing dinosaur with moving parts Develop criteria for their designs and use these to explore design proposals Make models and drawings to explore and test their design thinking Produce step-by step plans as a guide for making Explain how different materials and processes might be used Measure, mark out, cut and shape a range of materials with increasing precision Join, assemble and combine components with increasing precision Use appropriate finishing techniques to strengthen and improve the appearance of the product	Adapt recipes to change the appearance, taste, texture and aroma Prepare and cook a variety of dishes safely and hygienically including, where appropriate, the use of a heat source Use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking	To know that mechanisms control movement. Construct mechanisms and/or structures as detailed in the design template by using levers, pulleys and gears to produce movement. Use learning from science and Maths to help design and make products that work Combine and mix materials to create more useful characteristics Know that mechanical and electrical systems have an input, process and output Use the correct technical vocabulary for the projects they are undertaking Identify, use and modify the joining techniques for their shelter	Evaluate against original criteria and suggest modifications-begin to test and evaluate their products Show an understanding of the situations in which their designs will have to function Evaluate their products and their use of information sources Reflect on the quality of design and quality of build as they work Recognise that the quality of the product depends on how well it meets its purpose Evaluate their ideas and products against their original design specification.	

Curriculum End Points – Design Technology

The end points for each year group show how children apply the disciplinary and substantive knowledge and other skills they are taught before moving on with their learning.

Year 1 – Cycle A		
Cup and Ball game - Construction	Moving Pictures - Mechanisms	Fruit Salad – Food technology
Children can: • Assemble, join and combine materials • Identify the most suitable joining technique for their design • Design and make a successful cup and ball	Children can: Explain what a mechanism is. Explain how they can make characters in a storybook move with a mechanism. Use correct vocabulary to explain how a mechanism moves in a book, e.g. up, down, side to side, left and right.	Children can: Name a variety of fruits Demonstrate their understanding of basic food hygiene Cut and prepare fruit safely under supervision
Year 2 – Cycle A		
Fire engines - Mechanisms	Kites - Construction	Plant Based Salad – Food technology
Children can: Explain what a mechanism is Label the main parts of the fire engine and explain how each part works Explain the meaning of the vocabulary, stable, strong, weak, flexible and stiff Design and make a vehicle consisting of wheels, axles and structure, which can be used to transport items	Children can: Explain how a kite is used. Explain why a product needs testing before use. Confidently explain what stable, strong, weak, flexible and stiff mean Design and make a kite which works	Children can: Identify and name the parts of plants which can be eaten Grate, measure and mix a range of ingredients safely Make a salad using a least 4 different plants

Years 3 and 4 – Cycle A		
Roman Purses– Sewing	Bridges – construction	Tzatziki and flat bread – Food Technology
Children can: Create a holder out of material which can be used to hold coins Demonstrate the ability to cut fabric accurately Use appropriate stitching techniques to join their fabrics Choose an appropriate fastening for their holder and attach it securely Evaluate their design and make required adjustments	Children can: Construct a bridge to hold a given weight to cross a river Identify arch and beam bridges and explain what 'compression and tension' mean. Find different ways to reinforce structures. Identify points of weakness and reinforce them as necessary.	Children can: Prepare a Greek tzatziki with flatbread using the appropriate ingredients Demonstrate the ability to measure, weigh and combine ingredients independently Clearly express the importance of food hygiene when preparing food products
Years 5 and 6 – Cycle A		
Anderson Shelters– Construction	Tray Bake – Food technology	Design a moving dinosaur- Mechanisms
Children can: Create an Anderson shelter based on a 3D wooden framework Demonstrate their ability to use hand tools safely and proficiently Identify, use and modify the joining techniques for their shelter Evaluate against original criteria and suggest modifications	Children can: Create a tray bake linked to a European country of their choice Research and follow a recipe Identify ingredients and equipment required to be successful Evaluate their product identifying strengths and areas for development.	Children can: Design and make a free standing dinosaur with moving parts To know that mechanisms control movement. Construct mechanisms and/or structures as detailed in the design template by using levers, pulleys and gears to produce movement.

Year One

Cup and ball game- Construction.
Design and make a purposeful old fashioned game using materials.

Moving picture- Mechanisms.
Design and create a moving picture using mechanisms.

Fruit salad- Food Technology
Design, make and evaluate a healthy snack.

Year Two

Fire engine- Mechanisms.
Design and create a moving fire engine using wheels, axles and chassis before evaluating.

Let's fly a kite! – Construction.
Design and construct a kite using different materials.

Plant Based Salad salad- Food technology.
understand and apply the principles of a healthy and varied diet

Taziki and flat bread- Food Technology.
To understand and apply the principles of a healthy and varied diet

Building a bridge- Construction
Generate ideas and design a bridge through annotated sketches. Make the bridge and evaluate designs against others.

Roman purse- Sewing
Designing and making Roman purse using sewing skills.

Year Three/ Four

In addition, all year groups will...use their imagination and creativity to design and make products. Take risks, become resourceful, work independent and collaboratively. Use knowledge and skills from other subject areas.

Year Five/Six

Anderson shelters- Construction
Create an annotated sketch of a shelter. Choose materials and tools to make shelter. Test and evaluate design.

European tray bakes- Food Technology
To design and make a tray bake from an European country.

Mechanisms – Moving Dinosaur
Select appropriate tools, materials, components and techniques Assemble components

Manor Park Primary School Curriculum **Road Map- DT cycle A**