



Milton Mount Primary School

Design and Technology Progression Document

EYFS, Key Stage 1 & Key Stage 2

Design and Technology

Intent

At Milton Mount, we are Designers! We believe learning should be relevant and engaging and allow children to exercise their creativity and innovation through exploration, designing and making.

We intend to help develop children's sense of the varied needs of a user and how this impacts the purpose and functionality of a product so that they can design and make products that show innovation and authenticity through their creative, technical and practical expertise whilst drawing on their learning from other subjects.

Our curriculum starts in the Early Years Foundation Stage focusing on the early learning goal – expressive arts and designs, and continues up through to Year 6, following the new National curriculum requirements and six interrelated principles that have been agreed by the National Curriculum Expert Group for D&T.

Do More

The curriculum is structured and sequenced so that all children actively engage in exploration and trial and error-based lessons that they will be able to answer in detail at the end of each unit. Our aim is to plan, create and teach engaging, purposeful lessons that include children to create a range of structures, mechanisms, textiles, electrical systems and food products with a real-life purpose. D&T allows children to apply the knowledge and skills learned in other subjects, particularly Maths, Science and Art.

Know More

Each unit begins with exploration and investigation. Children are taught to analyse and evaluate existing market products and their effectiveness in meeting the needs of the user. Children acquire a broad knowledge of designing, making and evaluating and through this develop skills they can use and apply in a range of contexts including structures, mechanisms, textiles, electrical systems and food products

Remember More

Sticky starters are used at the start of each lesson which allows children to make meaningful connections between units and topics. Through a series of three questions, children are able to recall key knowledge and skills from last week, last term and last year. This enables children to bring previous knowledge into current learning, helping them to make connections within the world around them.

Experience More

Through the DT curriculum children should be inspired by real world experts including engineers, designers, chefs and architects. A combination of visitors, trips, themed days and a focus on first hand experiences help to ensure a memorable learning experience for all. Some trips and visitors have included: visits from engineers at Gatwick, trips to the STEM centre and bridge building workshops. We endeavour to draw on local businesses such as Gatwick Airport to help support children's understanding of areas such as engineering to try and give real life examples of work to inspire children's designs.

Consider more

By doing, knowing, remembering and experiencing more, children at Milton Mount will have gathered a designer's perspective of the world around them. They will be able to make links, connections to the substantive concepts as well as generate their own lines of exploration. They will continually question the effectiveness of their own and others products, evaluating how well their products meet the needs, wants, values, interests and preferences of the intended users.

Design and Technology Curriculum Map

D.T	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS Expressive art and design	<p>Ongoing throughout the year: Creating with Materials and Being Imaginative and Expressive Materials and Structures Textiles Cooking and Nutrition</p>					
Year 1	Cooking and Nutrition	Art Focus	Mechanisms	Art Focus	Textiles	Art Focus
Year 2	Art Focus	Materials and Structures	Art Focus	Mechanisms	Art Focus	User centred design/mechanisms
Year 3	Art Focus	Cooking and Nutrition	Mechanisms	Art Focus	Art Focus	Materials and Structures
Year 4	Textiles	Art Focus	Cooking and Nutrition	Art Focus	Art Focus	Electrical systems
Year 5	Art Focus	Mechanisms	Materials and Structures	Art Focus	Electrical Systems	Art Focus
Year 6	Art Focus	User centred design	Electrical Systems	Art Focus	Art Focus	Textiles

Progression Design Technology

Overview

EYFS

Design Technology is embedded throughout the EYFS curriculum, particularly Physical Development and Expressive Arts and Design. Weekly planning provides opportunities for children to access activities and an enabling environment to explore designing and making skills independently throughout the week. Whereas the activities on the curriculum map are adult led and are DT focused.

Explicit DT Links to Early Learning Goals:

Physical Development

- Use a range of small tools, including scissors.
- Begin to show accuracy and care when drawing.

Expressive Arts and Design

- 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.
- Return to and build on their previous learning, refining ideas and developing their ability to represent them.
- Create collaboratively, sharing ideas, resources and skills.
- Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology.

KS1

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.

KS2

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

Progression

D.T	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS Continuous Provision						
Textiles/materials	Understanding: how different materials/textures feel and explore freely e.g. malleable, fabrics, natural.	Skill: Junk modelling with different materials. Junk modelling will continue to be offered in continuous provision.	Knowledge: understand the purpose of different textiles/materials. e.g. winter clothing.	Skill: Collage using Eric Carle as inspiration Skill: follow instructions to make own play dough. collage cow, sheep etc. Black and white bits of paper cut, cotton wool, material etc.	Skill: Weaving (natural and manmade materials)	Skill: Sewing using a pre-running stitch with natural resources.
3d work	Understanding: to know what transient art is. Transient art will continue to be offered in continuous provision.	Skills: to use simple joins when using different materials to create 3D work, e.g. cellotape, masking tape, stick glue. Three Billy Goats Bridges Paper Chains	Skill: creating work to celebrate special days e.g. decorations (paper chains, bunting) for lunar new year, valentine's Day.	Skill/Knowledge: Natural art in the style of Andy Goldsworthy	Skill: Making own props/puppets to retell a story. Folding techniques e.g. fans, aeroplanes, books. Choosing materials for effect e.g. feather headdress	Skill focus: be able to select tools and techniques needed to assemble and join materials they are using for a specific reason.
Cutting	Cutting Skill: Using one handed tools and equipment, for example, making snips in paper with scissors.	Cutting skill: use scissors to cut in a straight line. Snowflakes Christmas cards Paper Chains	Cutting skill: use scissors to cut curved lines. Decorations (paper chains, bunting) for lunar new year, valentine's Day.	Cutting Skill: use scissors to cut shapes. Decorations (paper chains, bunting) for lunar new year, valentine's Day. Malevich inspired art 	Cutting Skill: use scissors independently.	Cutting skill: use scissors for a particular purpose when combining different media and materials. Card making station – Make cards for Bog Baby to say goodbye
Cooking and Nutrition		Skill: To work as a group to follow a recipe To observe how different ingredients mix together. To know how to	Learn about your diet and how to stay healthy Discover different types of fruit Explore different types of vegetables	Skill: to discuss how fruit and vegetables are grown. Learn about chicken and eggs Discover that cows produce milk Explore the use of wheat and flour to make dough (link to Little Red Hen) Examine different ingredients, then weigh them to make a mixture (Easter/Lent)		

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design	<p>To discuss your own transient art</p> <p>To discuss special days and ideas to celebrate these e.g. cards, decorations. Discuss and orally plan your own decoration to show or celebrate a special event.</p> <p>Choosing materials for effect e.g. feather headdress Discuss why they have chosen certain materials e.g. likes, dislikes, feel. Choose materials for a specific reason. To discuss and orally plan the tools and techniques needed to assemble items</p> <p>To show your ideas through illustrations, models, mock ups and drawings including through spoken descriptions.</p> <p>Learn about your diet and how to stay healthy Discover different types of fruit Explore different types of vegetables Skill: to discuss how fruit and vegetables are grown. Learn about chicken and eggs Discover that cows produce milk</p>	<p>Design purposeful, functional, appealing products for themselves and other users based on design a design brief. (Learn the importance of a design brief)</p> <p>Generate, develop, model and communicate their ideas through talking and drawing,</p> <p>Design a purposeful and functional object using templates.</p> <p>Design an appealing story book using a guide to control a moving part</p> <p>Design a healthy fruit salad using a food combination which work well together.</p>	<p>Design purposeful, functional, appealing products for themselves and other users based on design criteria (Learn the importance of a clear design criteria.)</p> <p>Generate, develop, model and communicate their ideas through the use of mock ups and labelled drawings.</p> <p>Design a stable structure with functional opening or moving parts based on different types of structures found in your local area.</p> <p>Design a functional moving vehicle which uses wheels, axles and axle holders which allow the vehicle to move. Generate, develop, model and communicate their ideas through the use of labelled drawings which show the product from different angles.</p> <p>Design a healthy and nutritious savoury snack/meal considering the taste, texture, smell and appearance of the dish.</p> <p>Design a user centred tool to aid a user whose mobility is restricted. Design a tool which uses levers and linkages to scoop or grab another object. Draw and label a series of design options before choosing your preferred design.</p>	<p>Use research and design criteria to inform the design of functional, appealing products that are fit for purpose, aimed at particular consumers e.g a group Generate, develop, model and communicate their ideas through discussion and annotated sketches that highlights the special features and facades. Design a stable structure that is aesthetically pleasing with key features to appeal to a specific group/purpose by selecting materials to create a desired effect.</p> <p>Use research and design criteria to inform the design of functional, appealing products that are fit for purpose, aimed at particular consumers e.g an individual Generate, develop, model and communicate their ideas through discussion and annotated sketches which show the impact of the pneumatic mechanism and where this sits within the secure housing. Design a functional and appealing toy which uses pneumatic systems to make parts move.</p> <p>Design a healthy and nutritious savoury snack/meal considering the taste, texture, smell and appearance of the dish.</p>	<p>Use research and design criteria to inform the design of functional, appealing products that are fit for purpose, aimed at particular consumers e.g. individuals or groups</p> <p>Generate, develop, model and communicate their ideas through discussion, annotated sketches including cross-sectional diagrams</p> <p>Create a design a template inspired by an existing object on the market that matches the design criteria.</p> <p>Use research and design criteria to inform the design of appealing products that are fit for purpose/nutritious, aimed at particular consumer from a different area of the world. Design a healthy and nutritious snack/meal within a given budget, drawing upon previous taste testing. Write an amended method for a recipe to incorporate the relevant changes to ingredients.</p> <p>Generate, develop, model and communicate their ideas through discussion, annotated diagrams using electrical symbols and annotated cross-sectional diagrams. Design a torch which used a simple electrical circuit by identifying a design criteria and target audience. Draw a labelled diagram using electrical symbols.</p>	<p>Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at improving the life of a particular group Generate, develop, model and communicate their ideas through annotated sketches which shows the impact of load on the tension of the bridge as well as detailing the reinforcements or support put in place to strengthen the design. Design a stable structure that is able to support weight, considering how the structure will be used, considering effective and ineffective design.</p> <p>Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals Generate, develop, model and communicate their ideas through annotated cross-sectional sketches and exploded diagrams. Design a functional, appealing toy aimed at a particular individual or group, naming each mechanism and its input and output accurately. Explain your choice of cam to create a desired movement.</p> <p>Generate, develop, model and communicate their ideas through discussion, trial and error and annotated diagrams with electrical symbols which detail the positive and negative parts in relation to the battery. Design an electronic 'steady hand' game using a simple controlled electrical circuit which contains a buzzer. Create a labelled diagram showing the positive and negative parts in relation to the battery.</p>	<p>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</p> <p>Generate, develop, model and communicate their ideas through exploded diagrams and computer-aided design.</p> <p>Create a design using appropriate templates considering the main component shapes, sizes and proportions.</p> <p>Design an object using a simple controlled electrical circuit to make a part move. Create a labelled diagram showing the positive and negative parts and movement of key features in relation to the battery.</p> <p>Research the varying needs and/or characteristics of a user whose mobility has suddenly become restricted by becoming the user for a period of time. Use this to develop your own design brief and success criteria. Design a prototype for a functional and purposeful tool based on user centred design which uses a range of previously taught DT skills to produce the required output.</p>
Make	<p>Using one handed tools and equipment</p> <p>Cutting skill: use scissors to</p>	<p>Follow a design to create moving models that use levers and/or sliders. Independently cut and assemble parts with support from the</p>	<p>Follow a given process flow chart to cut and assemble parts in the correct order so that the wheels on a vehicle are able to move smoothly. Use jigs to accurately mark, measure and make axle holders that are in line.</p>	<p>Create a product with a desired motion using a pneumatic system that sits within a secure housing. Use Syringes and balloons to create your choice pneumatic systems to</p>		<p>Create a process flow chart that can be used to assemble parts in order. Measure, mark, cut and assemble with increasing accuracy to create a toy with linkage systems to convert</p>	

	<p>cut in a straight line. Use scissors to cut curved lines. Use scissors to cut shapes Use scissors independently Use scissors for a particular purpose when combining different media and materials.</p> <p>Joining Skill: join materials they are using for a specific reason. To use simple joins when using different materials to create 3D work, e.g. sellotape, masking tape, stick glue. Sewing using a pre-running stitch with natural resources..</p> <p>Modelling skills: Select appropriate resources to make a junk model. Select and use a variety of junk modelling resources. Use folding techniques e.g. fans, aeroplanes, books. Making own props/puppets to retell a story. be able to select tools and techniques needed to assemble items Weaving (natural and manmade materials) follow adult led instructions to make own play dough.</p> <p>Skill: To work as a group to follow a recipe To observe how different ingredients mix together. Explore the use of wheat and flour to make dough (link to Little Red Hen) Examine different ingredients, then weigh them to make a mixture (Easter/Lent)</p>	<p>teacher to position the moving part correctly.</p> <p>Cut fabric neatly with scissors and use fabric glue or a running stitch to decorate a product. Sequence steps for construction so that the product is functional.</p> <p>Know how to keep them and their workspace clean and safe.</p> <p>Chop fruit safely using a chopping board and children's knife. Use a bridge or claw grip to cut fruit safely.</p>	<p>Make a structure using 3d shapes according to design criteria. Create joints and structures from paper/card, tape and glue.</p>	<p>make a functional and appealing pneumatic toy.</p> <p>Make a structure using nets of 3d shapes according to design criteria. Create joints and structures from paper/card, tape and glue that show special features for individual designs. Make facades from a range of recycled materials.</p> <p>Know how to prepare themselves and their workspace to cook safely in, learning the basic rules to avoid food contamination.</p> <p>Follow the instructions within a baking recipe. Cook safely using basic hygiene rules. Cut, weigh/measure ingredients as listed in the recipe. Use equipment safely including knives and ovens.</p>	<p>Making and testing a paper template with accuracy and in keeping with the design criteria. Use a selection of running stitch and cross stitch to create an aesthetically pleasing design. Tie a strong knot using a pre-threaded or independently threaded needle.</p> <p>Work safely and hygienically with independence. Know how to avoid cross-contamination.</p> <p>Follow the instructions within a baking recipe and adapt this where necessary to ensure the consistency and texture is correct. Cut, weigh/measure ingredients as listed in the recipe adapting these measures where needed. Use equipment safely including knives, hot pans and hobs.</p> <p>Make and assemble a functional torch with a working electrical circuit and switch to match the design criteria and brief. Use appropriate equipment to attach materials.</p>	<p>a rotary movement to a linear movement that animates a scene. Use correct sawing techniques to saw safely. Independently measure, and mark wood accurately.</p> <p>Make a chosen bridge style (truss, suspension, beam etc) that spans a given distance and supports a load. Identify where a structure needs reinforcement, using card corners for support. Independently mark, measure and cut materials to the desired lengths.</p> <p>Make an electronic game using a simple controlled electrical circuit referring to the design criteria. Map out where different components of the circuit will go. Use appropriate equipment to attach materials cutting the wire for the game component so that it is the desired length.</p>	<p>Select, measure, mark and cut fabric independently using fabric scissors. Decorate and join fabric using applique using an individually designed template aimed at a specific user or audience. Using template pinning panels on to the fabric. Thread a needle and tie a strong knot independently. Select a stitch style to join neatly using a range of running stitches and back stitches, working neatly sewing small neat stitches. Use a blanket stitch or fastening to seal the cushion so that it is functional. Sewing accurately with even regularity of stitches</p> <p>Make and test an electronic circuit to control a moving part. Map out where different components of the circuit will go in order to improve its function. Construct a stable base to house the electrical equipment. Use appropriate equipment to cut and attach materials, cutting and reattaching wires where parts need fixing or adapting. Create a switch.</p>
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			<p>Make a 'helping hand' using linkages using card for levers and split pins for pivots Experimenting with linkages adjusting the widths, lengths and thicknesses of card used</p>				<p>To carefully consider the manufacture process by selecting the required tools, resources, materials and processes needed to make a working prototype of your chosen model. To create a functional prototype for a functional and purposeful tool based on user centred design which uses a range of previously taught DT skills to produce the required output.</p>
<p>Evaluate</p>	<p>Understanding: how different materials/textures feel and explore freely e.g. malleable, fabrics, natural.</p> <p>Review your own model and add additional features.</p> <p>Discuss how well your product suits a special event.</p>	<p>As a group, test a finished product, seeing whether it moves as planned and if not, explain how it can be fixed.</p> <p>Review the success of a product against a design brief.</p> <p>Identify aspects of their peers work that they particularly like and why. Reflect on a finished product, explaining likes and dislikes. Troubleshoot scenarios posed by the teacher. Discuss as a class the success of their joining.</p> <p>Test and evaluate different food combinations, describing their likes and dislikes. Describe the appearance, taste and smell. Evaluate which grip was most effective. Suggest information that would need to go on the packaging.</p>	<p>Evaluate what you like, dislike and what works best about different designs. Test your design and use peer feedback to modify/adapt your final design to better match the design criteria. Evaluate the effectiveness of your axle and wheel system and discuss what would improve the performance of your vehicle.</p> <p>Compare the stability of different shapes and identify the weakest part.</p> <p>Test the strength of their own structure and evaluate the strength, stiffness and stability of their own structure. Evaluate own designs against design criteria.</p>	<p>Use the views of others to improve the appeal of a product against the requirements of an intended user.</p> <p>Testing and modifying the functionality of a product and its outcome, suggesting improvements.</p> <p>Evaluate own work and the work of others based on the aesthetics of the finished product in comparison to the original design. Suggest points of modification to improve the strength, stiffness, stability and aesthetics of their own individual model.</p> <p>Taste test food combinations describing the taste, texture and smell of vegetables.</p> <p>Use design criteria to help test and review the success of your dish.</p>	<p>Evaluate the end product and think of other ways in which to create a similar item. Suggest modifications for improvement – identifying particular skills that were a strength.</p> <p>Evaluate and compare food combinations and product variety describing the taste, texture and smell of a variety of ingredients.</p> <p>Use design criteria to help test and review the success of your dish and discuss the impact of the budget on the selected ingredients.</p>	<p>Evaluate the effect of shape and workmanship has on the speed, direction and accuracy of the final product.</p> <p>Suggest and act on points for improvement to ensure the products is fit for purpose for its intended user.</p> <p>Describe what characteristics of a design and construction made it the most effective considering ineffective designs and models. Test and adapt and improve their own bridge structure by identifying points of weakness and reinforcing them as necessary. Identify what makes a successful structure and suggest points for improvement for own bridges and those of others using technical vocabulary.</p>	<p>Discuss whether some aspects of design criteria are more important than others. Test and evaluate the strength and neatness of their stitches and the impact this would have on the intended user. Evaluate work continually as it is created, discussing adaptations or next steps to improve their own work and that of others.</p>

				<p>Describe the benefits of seasonal and local vegetables and the impact on the environment.</p> <p>Suggest points for improvement when making a savoury product against the intended users nutritious needs.</p>	<p>Suggest points for improvement when making a product against the nutritional value.</p> <p>Test and evaluate the success of a final product taking inspiration from the work of peers. Evaluate the effectiveness of the electrical system.</p>	<p>Evaluate the completed product against the original design sheet and looking at modifications that could be made to improve the reliability or aesthetics of it or to incorporate another type of electrical device e.g. buzzer.</p>	<p>Test own and others finished products, identifying what went well and suggestions for improvements using technical vocabulary.</p> <p>Evaluate the completed product against the original design sheet and looking at modifications that could be made to improve the reliability or functionality of it and/or to incorporate another type of electrical device e.g. working lights or siren with a switch.</p> <p>Evaluate the success of the prototype by conducting market research with the intended user. Plan and discuss adaptations and alterations with the required user to better suit the product to the individual users varying needs.</p>
			<p>Evaluate the success of your lever and linkage system against the specific users' personal needs. Evaluate the effect adjusting the widths, lengths and thicknesses of card used had on the output of the mechanism.</p>				

Technical Knowledge

Materials and Structures	<p>Understand that materials can be used for different purposes.</p> <p>To know what transient art is.</p>		<p>Identifying natural and man-made structures Identifying when a structure is more or less stable than another</p> <p>Knowing that shapes and structures with wide, flat bases or legs are the most stable Understanding that the shape of a structure affects its strength</p> <p>Using the vocabulary: strength, stiffness and stability Knowing that materials can be manipulated to improve strength and stiffness</p> <p>Building a strong and stiff structure by folding paper</p>	<p>Identifying suitable materials to be selected and used for the chosen building considering weight, compression, tension</p> <p>Extending the knowledge of wide and flat based objects are more stable</p> <p>Understanding the difference between frame and shell structure</p>		<p>Exploring how to create a strong beam</p> <p>Identifying arch and beam bridges and understanding the terms: compression and tension</p> <p>Identifying stronger and weaker structures Finding different ways to reinforce structures</p> <p>Understanding how triangles can be used to reinforce bridges</p> <p>Articulating the difference between beam, arch, truss and suspension bridges</p>	
Mechanisms		<p>Learning that levers and sliders are mechanisms and can make things move</p> <p>Determining what movement the mechanism will make</p>	<p>Learning that mechanisms are a collection of moving parts that work together in a machine</p> <p>Learning that there is an input and output in a mechanism</p> <p>Identifying mechanisms in everyday objects</p>	<p>Understanding how pneumatic systems work</p> <p>Learning that mechanisms are a system of parts that work together to create motion</p>		<p>Knowing that an input is the motion used to start a mechanism</p> <p>Knowing that output is the motion that happens as a result of starting the input</p> <p>Knowing that mechanisms control movement Describing mechanisms</p>	

		Using the vocabulary: up, down, left, right, vertical and horizontal to describe movement	Learning that a linkage is a system of levers that are connected by pivots Exploring wheel mechanisms Learning how axels help wheels to move a vehicle	Understanding that pneumatic systems can be used as part of a mechanism Learning that pneumatic systems force air over a distance to create movement		that can be used to change one kind of motion into another	
Textiles	Understand the purpose of different textiles/materials. e.g. winter clothing.	Learning different ways in which to join fabrics together: pinning, stapling, gluing			Learning the importance of a strong knot. Learning that stitches can be used for aesthetic purposes such as cross stitch. Learning the steps that make it easier to successfully thread a needle with support. Decide how many of the criteria should be met for a product to be considered successful.		Understanding that fabrics can be layered for affect Understanding the need to count the thread on a piece of even weave fabric in each direction to create uniform size and appearance Articulating the benefits and disadvantages of different fastening types Learning the steps that make it easier to successfully thread a needle independently. Learning different stitches are used for different purposes. Understanding that there are different types of fastenings and what they are.
Food and nutrition		Learn how and where fruits are grown. Identify if a food is a fruit or vegetable and use this knowledge to form your design. Describe and group fruits by texture and taste.		Learning that climate affects food growth Working with cooking equipment safely and hygienically Learning that imported foods travel from far away and this can negatively impact the environment Learning that vegetables and fruit grow in certain seasons Learning that each fruit and vegetable gives us nutritional benefits Learning to use, store and clean a knife safely.	Understanding the impact of the cost and importance of budgeting while planning ingredients Understanding the environmental impact of using seasonal and local vegetables. Understand that the nutritional value of a meal alters if you remove, substitute or add ingredients. Describe the benefits of seasonal and local vegetables and the impact on the environment.		
Electrical Systems					Learning how electrical items work Learning what electrical conductors and insulators are Understanding that a battery contains stored electricity and can be used to power products Identifying the features of a torch Understanding how a torch works Articulating the positives and negatives about different torches	Learning the key components used to create a functioning circuit Learning that graphite is a conductor and can be used as part of a circuit Learning what a series circuit is Understanding that breaks in a circuit will stop it from working	Understanding how motors work Learning that batteries contain acid, which can be dangerous if they leak. Understand that switches create a break in a circuit and help to save energy. Learning that when electricity enters a magnetic field it can make a motor
User Centred Design			Learn that User Centred Design focusses on the users and their needs in each phase of the design process Learn that uses within a group of people all have their own varying needs e.g. varied height, arm length or mobility.				Learn that products vary and can adapt depending on the varying needs of the user. Learn that User Centred Design tries to understand the context in which users may use a system or product. Learn that we do not all use equipment in the same way. Prototypes can be used to assess the effectiveness of a product on the intended user.

The development of SMSC and the promotion of British Values in the D and T Curriculum

<p>Spiritual Children:</p> <ul style="list-style-type: none"> • Have opportunities to wonder at human achievement • Reflect on ingenious products and inventions, the diversity of materials and ways DT can improve quality of life. • Develop determination to succeed eg finding solutions to problems and improving lives. • Explore and develop belief in themselves. • Explore and develop what animates themselves and others. • Develop a climate and ethos whereby they can grow, flourish, respect others and be respected. • Make cross-curricular connections between aspects of their learning eg use of triangles to develop a strong structure due to mathematical knowledge (YR5) • Relate their learning to a wider frame of reference eg asking Why?, How? Where? What? In doing so, enhance their understanding of why technological advancements have occurred. 	<p>Moral Children</p> <ul style="list-style-type: none"> • Are encouraged to take responsibility for their actions eg in respect of themselves, each other, property, care of the environment and developing codes of behaviour.
<p>Social Children</p> <ul style="list-style-type: none"> • Work co-operatively in team building activities that develop collaborative working and reflect the principles of a democratic society. • Develop personal qualities which are valued in civilised society eg thoughtfulness, honesty, respect for difference, moral principles. • Build independence and resilience through the development of design to solve a problem. • Exercise leadership and responsibility when working collaboratively, recognising others' strengths and sharing ideas and resources for greater overall development. • 	<p>Cultural Children</p> <ul style="list-style-type: none"> • Are encouraged to recognise and nurture gifts and talents. • Reinforce the school's cultural values through displays, posters and exhibitions etc. • Understand how different cultures have contributed to design and technology eg batik design (Yr6)

British Values

- Children
- Are creative and inventive through practical and investigative activities – in Food Technology, they learn about British food and food from other cultures eg by creating a Roman meal (Yr6)
 - Respect each other through project and cross curricular work eg sewing Anglo Saxon bookmarks (Yr 4)
 - Investigate existing designs and learn or improve on new skills and techniques. H
 - Have opportunities to use their acquired knowledge to design their own products and further develop their ideas through modification and evaluation.
 - Express their opinions in terms of their designs.
 - Are encouraged to consider sustainability through the use of recycled products, together with environmental issues – materials, manufacturing and sourcing
 - Develop mutual respect and tolerance of those with different faiths and belief. This is embedded in children's learning in Design Technology across the school.

Vocabulary Progression Design and Technology

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
General	Plan Draw Design Ideas Make Build Combine Join Shape Tools Final Like Dislike feel Change Better Worse different	Product Design brief appealing templates plan prepare materials model Evaluate improve Prefer Successful Unsuccessful	Purposeful Functional User Design Criteria Mock ups Labelled Feedback Modify Adapt Effect/impact Progress Reflection Original Measure jig	Fit for purpose Aim Individual/group Annotated sketches Desired Consumer Develop Test Benefits Review mark	Inform Target audience Alter Cross-sectional diagrams Inspired Existing Market Amend Accuracy Aesthetically pleasing Appropriate Modifications assemble Incorporate	Innovative Exploding diagrams Consider Effective/ineffective Process flow chart Workmanship Intended user Reliability	Prototype Computer aided design Graphics Components Proportions Varying Restricted Manufacture process Aspects Market research Survey Characteristics Context mimic
Cooking and Nutrition	One handed Equipment Tools Instructions Fuit Vegetable Clean dirty	Healthy Combination Safe Workspace Bridge grip Claw grip Ingredients amount		Nutritious Balanced vitamins Savoury Taste Texture Smell Appearance Contamination disease Hygiene Weigh Measure Grams/kilograms Recipe Seasonal/local Climate Imported Source	Budget Nutritional value Dietary requirements Cross contamination Bacteria disinfect Storage Substitute Incorporate Consistency presentation Variety environmental		
Textiles	Materials Effect Choice Decoration Join Sewing Pre-running Weaving Prop Puppet Shape fix	Template Fabric Running stitch Step sequence Pinning Stapling Gluing Attach Cloth, foam, felt			Cross stitch Knot Pre-threaded threaded		Proportion Mark Applique Pinning panel Back stitch Blanket stitch Fastening Layered uniform size
Materials and Structures	Junk-modelling Folding Combine Straight Curved		Stable Functional Structure 3d shape Joints Tabs Strength Weakness Base Stiffness manipulated	Key features Net Facades Compression Tension Frame Shell		Support Truss Suspension Beam Span arch Load reinforcement	

Mechanisms		Lever Slider Mechanism Movement Up/down Left/right Vertical/horizontal	Input Output Linkage Pivots Axle jig	Pneumatic Housing Secure Syringe Motion force		Cam Cam box Dowel Snail cam Peg cam Pear-shaped cam Off-centre cam Shaft Crank Handle saw Rotation Rotary motion Linear motion Oscillating reciprocating	
User Centred Design			User centred design Restricted Phase Varying needs mobility				Context Prototypes Market research survey
Electrical Systems					Simple circuit Switch Device Conductor Insulator	Components Graphite Conductor Series circuit Controlled Positive negative	Motors Acid Break Magnetic field