

# D&T Curriculum



**Happy Hearts, Open Minds, Bright Futures**

Jesus promised: "I came that you may have life and have it to the full."

- John 10:10




## Our Vision

Every child at Fladbury will know they are loved by God, have a **happy heart** and be part of a flourishing, well-led school. When they leave Fladbury, they will be well-prepared to meet challenges, confident in their abilities and look forward to their **bright future** with an **open mind**.

## Our Design Technology Aims

At Fladbury, our Design Technology curriculum inspires our children to be creative and real problem solvers. It is important to us that our children acquire a broad range of subject knowledge and draw on the elements of STEM (Science, Technology, Engineering and Mathematics). At Fladbury the children are prepared to take risks and through evaluation of past and present design, our children develop a critical view and understanding of the impact of DT on their daily lives and the wider world.



Happy Hearts	Open Minds	Bright Futures
		
<p>Through our Design and Technology Curriculum, the lens of our Christian value of 'joy' and our vision statement 'happy hearts', we will enjoy designing and making our own products for a purpose.</p> <p>Being creative allows us to express ourselves and enjoy the act of creating and producing something purposeful for identified individuals or groups.</p> <p>Our children will nurture an enjoyment of Design and Technology through carefully planned and enthusiastically delivered learning opportunities. For example, through making delicious, seasonal food products and tasting our efforts!</p>	<p>Through our Design and Technology Curriculum, we will learn to foster an 'Open Mind' about discovering the way in which different products are made and developed over time.</p> <p>Children are encouraged to think carefully about the way products have been created. They will be open to different techniques in Design and Technology. They will use wisdom to help them understand why and how products were created and apply this wisdom to their own designs.</p> <p>The natural curiosity of children at Fladbury is encouraged and nurtured to allow children to have an open mind and make their own creations.</p>	<p>Through learning about Design and Technology, children are given a sense of hope for their bright future as they can design their own products for a purpose and see how inventions have come into existence and how they help change our world.</p> <p>Children can see how they have the ability to create products that are useful and purposeful and help them to develop the skills needed to create a variety of products</p>

## Spirituality in Design Technology

Fladbury's definition of Spirituality is: Spirituality is about understanding that we are part of something bigger than ourselves. It's the connections and relationships we have with God, with others, with ourselves and with nature. It brings about a sense of awe and wonder and can lead to asking big questions about who we are and our place in God's world.

Within Design Technology the process of creative thinking and innovation inspires our children to bring out undiscovered talents, which in turn breeds a self confidence and belief in their abilities. It encourages them to be creative and exercise their imaginations, using their insight as they develop their ideas. DT encourages our children to appreciate and reflect upon the aesthetic nature of materials and design.

Intent	Implementation	Impact
<p>At Fladbury First School, because of our vision, we believe that the children should have high-quality Design and Technology lessons that will engage and inspire them to think innovatively and develop their creativity.</p> <p>We aim to provide a broad and balanced curriculum and ensure the progressive development of knowledge and skills.</p> <p>Children will learn to design products for a purpose and be able to make and evaluate them with confidence.</p> <p>We want the children to experience the fullness of life by learning new skills and knowledge in DT that will stay with them as they continue their life and look forward to a bright future.</p>	<p>Design and Technology is mainly taught through a topic approach alongside History and Geography.</p> <p>Our Creative Curriculum is carefully planned to engage and excite all our learners.</p> <p>The activities in Design and Technology build upon the prior learning of the children.</p> <p>Children in their designing and making will apply knowledge and skills of: textiles, food, mechanisms and structures.</p> <p>Children will look at existing products before considering their own designs to support their knowledge and imagination.</p>	<p>Through the teaching of Design and Technology we enable all children to talk about how things work and to develop their technical knowledge.</p> <p>Apply a growing body of knowledge, understanding and skills in order to design and make prototypes and products for a wide range of users.</p> <p>Encourage children to select appropriate tools and techniques when making a product, whilst following safe procedures.</p> <p>Develop an understanding of technological processes and products, their manufacture and their contribution to our society.</p> <p>Foster enjoyment, satisfaction and purpose in designing and making things.</p> <p>Critique, evaluate and test their ideas and products, and the work of others.</p> <p>Understand and apply the principles of nutrition and to learn how to cook.</p> <p>Understand how key events and individuals in design and technology have helped shape the world.</p>

# National Curriculum

## Early Years

### Preschool

Notice patterns with strong contrasts and be attracted by patterns resembling the human face. Start to make marks intentionally.

Explore paint, using fingers and other parts of their bodies as well as brushes and other tools.

Express paint, using fingers and other parts of their bodies as well as brushes and other tools.

Express ideas and feelings through making marks, and sometimes give a meaning to the marks they make.

Create closed shapes with continuous lines, and begin to use these shapes to represent objects.

Draw with increasing complexity and detail, such as representing a face with a circle and including details.

Use drawing to represent ideas like movement or loud noises.

Show different emotions in their drawing and paintings, like happiness, sadness, fear etc.

### Reception

Explore, use and refine a variety of artistic effects to express their ideas and feelings.

Return to and build on their previous learning, refining ideas and developing their ability to represent them.

Create collaboratively, sharing ideas, resources and skills.

### Early Learning Goals

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.

## Key Stage One

Pupils should be taught:

To use a range of materials creatively to design and make products.

To use drawing, painting and sculpture to develop and share their ideas, experiences and imagination.

To develop a wide range of art and design techniques in using colour, pattern, texture, line, shape, form and space.

About the work of a range of artists, craft makers and designers, describing the differences and similarities between different practices and disciplines, and making links to their own work.

## Lower Key Stage Two

Pupils should be taught to develop their techniques, including their control and their use of materials, with creativity, experimentation and an increasing awareness of different kinds of art, craft and design.

Pupils should be taught:

To create sketch books to record their observations and use them to review and revisit ideas.

To improve their mastery of art and design techniques, including drawing, painting and sculpture with a range of materials.

Learn about great artists, architects and designers in history.

# Our Cycles of Learning

Cycle A	Autumn		Spring		Summer	
<b>Maple</b> Preschool Reception	<ul style="list-style-type: none"> <li>Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</li> <li>Share their creations, explaining the process they have used.</li> <li>Explore, use and refine a variety of artistic effects to express their ideas and feelings.</li> <li>Return to and build on their previous learning, refining ideas and developing their ability to represent them.</li> <li>Create collaboratively, sharing ideas, resources and skills.</li> </ul> <p style="text-align: right;"><b>(See Early Years Curriculum)</b></p>					
<b>Elm</b> Year 1/2		Mechanisms Sliders and Levers (Christmas Cards)		Food Preparing Fruit and Vegetables (Sandwiches)		Mechanisms Wheels and Axles (Transport)
<b>Oak</b> Year 3/4			Mechanical Systems Levers and Linkages (Egyptian Shadufs)		Electrical Systems Simple Circuits and Switches (Lighthouse)	Structures Shell Structure (Landmark Structures)

Cycle B	Autumn		Spring		Summer	
<b>Maple</b> Preschool Reception	<ul style="list-style-type: none"> <li>Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</li> <li>Share their creations, explaining the process they have used.</li> <li>Explore, use and refine a variety of artistic effects to express their ideas and feelings.</li> <li>Return to and build on their previous learning, refining ideas and developing their ability to represent them.</li> <li>Create collaboratively, sharing ideas, resources and skills.</li> </ul> <p style="text-align: right;"><b>(See Early Years Curriculum)</b></p>					
<b>Elm</b> Year 1/2		Structures Freestanding Structures (Toy Boxes)		Textiles Templates and Joining (Puppets)		Food Healthy and Varied Diet (Salads)
<b>Oak</b> Year 3/4		Food Healthy and Varied Diet (Harvest Soup)		Textiles 2D shape to 3D product (Anglo-Saxon Purses)	Mechanical Systems Pneumatics (Roman Chariots)	

# Mechanisms

	Sliders and Levers	Wheels and Axles
<b>Prior Learning</b>	<p>Early experiences of working with paper and card to make simple flaps and hinges.</p> <p>Experience of simple cutting, shaping and joining skills using scissors, glue, paper fasteners and masking tape.</p>	<p>Assembled vehicles with moving wheels using construction kits.</p> <p>Explored moving vehicles through play.</p> <p>Gained some experience of designing, making and evaluating products for a specified user and purpose.</p> <p>Developed some cutting, joining and finishing skills with card.</p>
<b>Designing</b>	<p>Generate ideas based on simple design criteria and their own experiences, explaining what they could make.</p> <p>Develop, model and communicate their ideas through drawings and mock-ups with card and paper.</p>	<p>Generate initial ideas and simple design criteria through talking and using own experience.</p> <p>Develop and communicate ideas through drawings and mock ups.</p>
<b>Making</b>	<p>Plan by suggesting what to do next.</p> <p>Select and use tools, explaining their choices, to cut, shape and join paper and card.</p> <p>Use simple finishing techniques suitable for the product they are creating.</p>	<p>Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing.</p> <p>Select from and use a ranged of materials and components such as paper, card, plastic and wood according to their characteristics.</p>
<b>Evaluating</b>	<p>Explore a range of existing books and everyday products that use simple sliders and levers.</p> <p>Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria.</p>	<p>Explore and evaluate a range of products with wheels and axles.</p> <p>Evaluate their ideas throughout and their products against original criteria..</p>
<b>Technical Knowledge and understanding</b>	<p>Explore and use sliders and levers.</p> <p>Understand that different mechanisms produce different types of movement</p> <p>Know and use technical vocabulary relevant to the project.</p>	<p>Explore and use sliders and levers</p> <p>Understand that different mechanisms produce different types of movement.</p> <p>Know and use technical vocabulary relevant to the project.</p>



# Mechanical Systems

	Levers and Linkages	Pneumatics
<b>Prior Learning</b>	<p>Explored and used mechanisms such as flaps, sliders and levers.</p> <p>Gained experience of basic cutting, joining and finishing techniques with paper and card.</p>	<p>Explored simple mechanisms, such as sliders and levers, and simple structures.</p> <p>Learnt how materials can be joined to allow movement.</p> <p>Joined and combined materials using simple tools and techniques.</p>
<b>Designing</b>	<p>Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user.</p> <p>Use annotated sketches and prototypes to develop, model and communicate ideas.</p>	<p>Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user.</p> <p>Use annotated sketches and prototypes to develop, model and communicate ideas.</p>
<b>Making</b>	<p>Order the main stages of making.</p> <p>Select from and use appropriate tools with some accuracy to cut, shape and join paper and card.</p> <p>Select from and use finishing techniques suitable for the product they are creating.</p>	<p>Order the main stages of making.</p> <p>Select from and use appropriate tools with some accuracy to cut and join materials and components such as tubing, syringes and balloons.</p> <p>Select from and use finishing techniques suitable for the product they are creating.</p>
<b>Evaluating</b>	<p>Investigate and analyse books and, where available, other products with lever and linkage mechanisms.</p> <p>Evaluate their own products and ideas against criteria and user needs, as they design and make.</p>	<p>Investigate and analyse books, videos and products with pneumatic mechanisms.</p> <p>Evaluate their own products and ideas against criteria and user needs, as they design and make.</p>
<b>Technical Knowledge and understanding</b>	<p>Understand and use lever and linkage mechanisms.</p> <p>Distinguish between fixed and loose pivots.</p> <p>Know and use technical vocabulary relevant to the project.</p>	<p>Understand and use pneumatic mechanisms.</p> <p>Know and use technical vocabulary relevant to the project.</p>



# Structures

	Free Standing	Shell
<b>Prior Learning</b>	<p>Experience of using construction kits to build walls, towers and frameworks.</p> <p>Experience of using basic tools e.g. scissors or hole punches with construction materials e.g. plastic, card</p> <p>Experience of different methods of joining card and paper</p>	<p>Experience of using different joining, cutting and finishing techniques with paper and card.</p> <p>A basic understanding of 2-D and 3-D shapes in mathematics and the physical properties and everyday uses of materials in science.</p>
<b>Designing</b>	<p>Generate ideas based on simple design criteria and their own experiences, explaining what they could make.</p> <p>Develop, model and communicate their ideas through talking, mock ups and drawings.</p>	<p>Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and purpose of the product.</p> <p>Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas.</p>
<b>Making</b>	<p>Plan by suggesting what to do next.</p> <p>Select and use tools, skills and techniques, explaining their choices.</p> <p>Select new and reclaimed materials and construction kits to build their structures.</p> <p>Use simple finishing techniques suitable for the structure they are creating.</p>	<p>Order the main stages of making.</p> <p>Select and use appropriate tools to measure, mark out, cut, score, shape and assemble with some accuracy.</p> <p>Explain their choice of materials according to functional properties and aesthetic qualities.</p> <p>Use finishing techniques suitable for the product they are creating.</p>
<b>Evaluating</b>	<p>Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings.</p> <p>Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria.</p>	<p>Investigate and evaluate a range of existing shell structures including the materials, components and techniques that have been used.</p> <p>Test and evaluate their own products against design criteria and the intended user and purpose.</p>
<b>Technical Knowledge and understanding</b>	<p>Know how to make freestanding structures stronger, stiffer and more stable.</p> <p>Know and use technical vocabulary relevant to the project.</p>	<p>Develop and use knowledge of how to construct strong, stiff shell structures.</p> <p>Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes.</p> <p>Know and use technical vocabulary relevant to the project.</p>

# Textiles

## Templates and Joining

## 2D Shape to 3D Product

**Prior Learning**

Explored and used different fabrics.  
Cut and joined fabrics with simple techniques.  
Thought about the user and purpose of products.

Have joined fabric in simple ways by gluing and stitching. Have used simple patterns and templates for marking out. Have evaluated a range of textile products

**Designing**

Design a functional and appealing product for a chosen user and purpose based on simple design criteria.  
Generate, develop, model and communicate their ideas as appropriate through talking, drawing, templates, mock-ups and information and communication technology.

Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s.  
Produce annotated sketches, prototypes, final product sketches and pattern pieces.

**Making**

Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing.  
Select from and use textiles according to their characteristics.

Plan the main stages of making.  
Select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing.  
Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern.

**Evaluating**

Explore and evaluate a range of existing textile products relevant to the project being undertaken.  
Evaluate their ideas throughout and their final products against original design criteria.

Investigate a range of 3-D textile products relevant to the project.  
Test their product against the original design criteria and with the intended user.  
Take into account others' views.  
Understand how a key event/individual has influenced the development of the chosen product and/or fabric.

**Technical Knowledge and understanding**

Understand how simple 3-D textile products are made, using a template to create two identical shapes.  
Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling.  
Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons.  
Know and use technical vocabulary relevant to the project.

Know how to strengthen, stiffen and reinforce existing fabrics.  
Understand how to securely join two pieces of fabric together.  
Understand the need for patterns and seam allowances. Know and use technical vocabulary relevant to the project.

# Food

## Preparing Fruit and Vegetables

## Healthy and Varied Diet

**Prior Learning**

Experience of common fruit and vegetables, undertaking sensory activities i.e. appearance taste and smell.  
Experience of cutting soft fruit and vegetables using appropriate utensils.

Know some ways to prepare ingredients safely and hygienically.  
Have some basic knowledge and understanding about healthy eating and The eat well plate.  
Have used some equipment and utensils and prepared and combined ingredients to make a product.

**Designing**

Design appealing products for a particular user based on simple design criteria.  
Generate initial ideas and design criteria through investigating a variety of fruit and vegetables.  
Communicate these ideas through talk and drawings.

Generate and clarify ideas through discussion with peers and adults to develop design criteria including appearance, taste, texture and aroma for an appealing product for a particular user and purpose.  
Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas.

**Making**

Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely.  
Select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product.

Plan the main stages of a recipe, listing ingredients, utensils and equipment.  
Select and use appropriate utensils and equipment to prepare and combine ingredients.  
Select from a range of ingredients to make appropriate food products, thinking about sensory characteristics.

**Evaluating**

Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences.  
Evaluate ideas and finished products against design criteria, including intended user and purpose.

Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs.  
Evaluate the ongoing work and the final product with reference to the design criteria and the views of others.

**Technical Knowledge and understanding**

Understand where a range of fruit and vegetables come from e.g. farmed or grown at home.  
Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of The eat well plate.  
Know and use technical and sensory vocabulary relevant to the project.

Know how to use appropriate equipment and utensils to prepare and combine food.  
Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught.  
Know and use relevant technical and sensory vocabulary appropriately

# Electrical Systems

## Simple Circuits and Switches

<p><b>Prior Learning</b></p>	<p>Constructed a simple series electrical circuit in science, using bulbs, switches and buzzers. Cut and joined a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue.</p>	
<p><b>Designing</b></p>	<p>Gather information about needs and wants, and develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups. Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams.</p>	
<p><b>Making</b></p>	<p>Order the main stages of making. Select from and use tools and equipment to cut, shape, join and finish with some accuracy. Select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities.</p>	
<p><b>Evaluating</b></p>	<p>Investigate and analyse a range of existing battery-powered products. Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.</p>	
<p><b>Technical Knowledge and understanding</b></p>	<p>Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers. Apply their understanding of computing to program and control their products. Know and use technical vocabulary relevant to the project.</p>	