

A horizontal, irregular purple brushstroke with a textured, painterly appearance, serving as a background for the text.

DESIGN TECHNOLOGY

CURRICULUM OVERVIEW

DESIGN TECHNOLOGY

INTENT AND IMPLEMENTATION

INTENT:

At Corporation Road, through Design and Technology, children use 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. At Corporation Road, we would like children to draw on skills from a range of subjects such as Mathematics, Science, Computing and Art. Pupils learn how to take risks, become resourceful, innovative, enterprising and capable citizens. Pupils' Design and Technology education begins before children begin their formal schooling, as children constantly explore their world through a variety of activities, and it is vital for us to continue to extend this.

IMPLEMENTATION:

We have chosen five key concepts which are colour-coded to give an 'at a glance guide' to demonstrate how a spiral curriculum develops throughout Early Years, Key Stage 1 and Key Stage 2.

STRUCTURES	FOOD TECHNOLOGY	MECHANISMS
TEXTILES	ELECTRICAL SYSTEMS	

DESIGN TECHNOLOGY

CONCEPTS

CONCEPTS:

STRUCTURES

Learning how to build strong and stable things like bridges, towers, or buildings using different materials.

Children explore how shapes, joins and materials help make things stand up and stay safe.

FOOD TECHNOLOGY

Learning how to prepare and cook food safely and hygienically.

Children explore ingredients, healthy eating and simple cooking techniques to make tasty and nutritious dishes.

MECHANISMS

Understanding how things move using parts like levers, sliders, wheels, and axles.

Children learn how to make simple moving models and machines that work.

TEXTILES

Working with fabrics to design and make things like puppets, bags, or decorations.

Children learn techniques such as cutting, joining, and how to decorate materials.

ELECTRICAL SYSTEMS

Learning how to use simple electrical components like bulbs, batteries, buzzers, and switches to make working circuits.

Children learn to design and build models that use electricity to work.

DESIGN TECHNOLOGY

WIDGETS



Structures



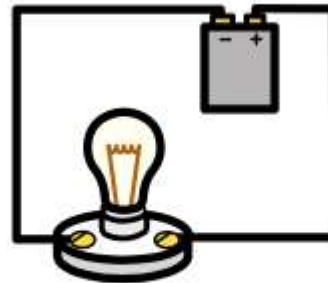
Food Technology



Mechanisms



Textiles



Electrical Systems

DESIGN TECHNOLOGY

IMPACT

IMPACT:

We know we will have achieved our intent when our children use creativity and innovation to design purposeful and appealing products, for themselves and for others, that solve real and relevant problems within a variety of contexts. Children will also be able to use a range of tools safely, confidently, responsibly and skilfully. In addition, they will be able to select which tools to use on a fit for purpose basis. Furthermore, we know we will have achieved our intent when children can articulate their ideas in a variety of formats and they can evaluate their work against a design criteria, considering their own and others' views in how to modify and improve their work. Our children will also have developed a critical understanding of the impact of design on their daily lives through studying inventors, designers, engineers and chefs. Finally, we know we will have achieved our intent when children have fun, are challenged, work collaboratively with others and learn in a practical context.

STRUCTURES	FOOD TECHNOLOGY	MECHANISMS
TEXTILES	ELECTRICAL SYSTEMS	

DESIGN TECHNOLOGY

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.

AIMS:

The national curriculum for design and technology aims to ensure that all pupils:

- Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
- Build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users.
- Critique, evaluate and test their ideas and products and the work of others.
- Understand and apply the principles of nutrition and learn how to cook.

DESIGN TECHNOLOGY

NATIONAL CURRICULUM

COOKING AND NUTRITION:

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

KEY STAGE ONE:

- Use the basic principles of a healthy and varied diet to prepare dishes.
- Understand where food comes from.

KEY STAGE TWO:

- Understand and apply the principles of a healthy and varied diet.
- Prepare and cook a variety of predominantly savory dishes using a range of cooking techniques.
- Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.

DESIGN TECHNOLOGY

NATIONAL CURRICULUM

KEY STAGE ONE:

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.

DESIGN TECHNOLOGY

NATIONAL CURRICULUM

KEY STAGE TWO:

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 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.

DESIGN TECHNOLOGY EYFS IN THE CURRICULUM

EXPRESSIVE ARTS AND DESIGN:

The development of children's artistic and cultural awareness supports their imagination and creativity. It is important that children have regular opportunities to engage with the arts, enabling them to explore and play with a wide range of media and materials. The quality and variety of what children see, hear and participate in is crucial for developing their understanding, self-expression, vocabulary and ability to communicate through the arts. The frequency, repetition and depth of their experiences are fundamental to their progress in interpreting and appreciating what they hear, respond to and observe.

LITTLE ROCKETS, NURSERY & RECEPTION:

STRUCTURES	FOOD TECHNOLOGY	MECHANISMS
TEXTILES	ELECTRICAL SYSTEMS	

LONG TERM PLAN

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Little Rockets	Simple Structure: Construction Set House	Celebrating Culture And Diversity: Celebration Food	Freestanding Structure: Junk Model Houses	Mixing: Bread, Pancakes, Eggs	Wheels And Axels: Mobilo/Stickle Vehicle	Decorating Material: Butterfly Wing Costume
Nursery	Simple Structure: Construction Set House	Celebrating Culture And Diversity: Celebration Food	Freestanding Structure: Junk Model Houses	Mixing: Bread, Pancakes, Eggs	Wheels And Axels: Mobilo/Stickle Vehicle	Decorating Material: Butterfly Wing Costume
Reception	Wheels And Axels: Junk Model Vehicle	Mixing: Baking Cakes And Biscuits	Simple Structure: Boat	Preparing Fruit: Fruit Salad	Freestanding Structure: Castle	Templates And Joining: Puppets
Year 1	Freestanding Structures: Chair		Preparing Fruit And Vegetables: Making Sandwiches		Sliders And Levers: Moving Pictures	
Year 2	Wheels And Axels: Vehicles		Templates And Joining: Hospital Apron		Freestanding Structures: Pier	
Year 3	Shell Structures: Shadow Theatre		Pneumatics: Moving Rainforest Animals		Levers And Linkages: Moving Pictures	
Year 4	Simple Circuit And Switches: Olympic Torch		Celebrating Culture And Seasonality: Brazilian Street Food		Transforming A 2D Shape To A 3D Product: Roman Tunic	
Year 5	CAMS:Viking/ Anglo-Saxon Scene		Pulleys And Gears: Motorised Tudor Carriage		Frame Structures: Bridge	
Year 6	More Complex Switches: Enemy Alarm		Healthy And Varied Diets: Early Islamic Food		Combining Different Fabric Shapes: Bags	

DESIGN TECHNOLOGY

VOCABULARY PROGRESSION

VOCABULARY:

Key vocabulary has been identified for each unit of work. It is explicitly taught by staff and used by children. To ensure progression, the key vocabulary for each topic has been categorised into the five themes that underpin the Design Technology curriculum at Corporation Road.

STRUCTURES	FOOD TECHNOLOGY	MECHANISMS
TEXTILES	ELECTRICAL SYSTEMS	

STRUCTURES	Early Years			Key Stage One		Key Stage Two			
	Little Rockets	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Duplo Build Fall Tower House Bricks Make Model Cut Glue Glue Stick Stick Paper Boxes Scissors	Magnetic Tiles Wooden Plastic Cardboard Castle Shop Metal Wood Push Pull Construction Snip Tape Glue Stick Big Small Features Tube Pot Container Roof Window Door Square Circle Triangle Rectangle Make	Wall Tissue Paper Straws Features Split Pins Hole Punch Roll Masking Tape Design Decorate 2D Shape 3D Shape Evaluate Lego Little Small Large Tall Drawbridge Moat Hill Stone Old Portcullis Arrow Slit Turret Construct Support Strong	Fold Join Fix Structure Tower Framework Weak Strong Base Top Underneath Side Edge Surface Thinner Thicker Corner Straight Curved Cuboid Cube Cylinder Design Evaluate User Purpose Ideas Design Criteria Product Function Hard Soft Fabric String Stiff Stable Shaping Plan	Attach Layer Pier Element Roll Twist Concertina Stiffen Strengthen Components Free-Standing Weight Baring Safety	Shell Structure 3D Shape Net Cube Cuboid Prism Vertex Edge Face Length Width Capacity Marking Out Scoring Shaping Tabs Adhesives Joining Assemble Accuracy Material Reduce Reuse Recycle Corrugating Ribbing Laminating Font Lettering Text Graphics Decision Evaluating Design Brief Design Criteria Prototype		Frame Structure Reinforce Triangulation Stability Shape Temporary Permanent Design Specification Annotated Sketch Innovation Research Functional Suspension Bridge Arch Bridge Cantilever Beam Span Decking Abutments Load Dead Load Live Load Settlement Load	

FOOD TECHNOLOGY	Early Years			Key Stage One		Key Stage Two			
	Little Rockets	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Knife Fork Spoon Bowl Plate Cut Make Eat Wash Dry Roll Rolling Pin Pour Jug Hot Cold	Cooker Oven Microwave Pan Stir Mix Roll Rolling Pin Grater Chop Chopping Board Bowl Spread Ingredient Cutter Heat Cool Bake Tin Whisk Recipe Scales Measure More Less Enough Flat Spicy Plain Sweet Make	Slice Change Of State Melt Time Measurement Cups Of Ingredient	Soft Juicy Crunchy Sticky Smooth Sharp Crisp Sour Hard Flesh Skin Seed Pip Core Peeling Squeezing Healthy Diet Choosing Plan Investigate Tasting Arranging Popular Design Evaluate Criteria Bridge Cut			Utensils Techniques Ingredients Texture Taste Sweet Sour Hot Spicy Appearance Smell Preference Greasy Moist Fresh Savoury Hygienic Edible Grown Reared Caught Frozen Tinned Processed Seasonal Harvested Varied Diet Design Criteria Purpose User Annotated Sketch		Yeast Dough Flour Wholemeal Unleavened Baking Soda Spice Herbs Fat Sugar Carbohydrate Protein Vitamins Nutrients Nutrition Gluten Dairy Allergy Intolerance Source Seasonality Combine Fold Knead Rubbing In Beat Shape Sprinkle Crumble Design Specification Innovative Research Design Brief Improve Review Milk Bread Asian Noodle Soup

MECHANISMS	Early Years			Key Stage One		Key Stage Two				
	Little Rockets	Nursery	Reception	Year 1	Year 2	Year 3		Year 4	Year 5	Year 6
	Car Bus Train Wheel Window Door Spin Move Fast Slow	Mobilo Construction Set Vehicle Va Lorry Minibus Motorbike Bicycle Travel Working Not Working Build Ramp Distance Speed Test Feature Round Circle Square Triangle Rectangle Ideas	Stick Fix Race Dowl Tape Glue Glue Stick Holepunch Push Pull Junk Modelling Join Card Masking Tape Paper	Slider Lever Pivot Slot Bridge Guide Paper Fastner Split Pin Up Down Straight Curve Forwards Backwards Design Make Evaluate User Purpose Ideas Design Criteria Product Function	Axle Axle Holder Chassis Body Cab Assembling Cutting Shaping Finishing Fixed Free Moving Mechanism Saw Vice Safety Wood Functional Attached Steady Perfect Fit Efficient	Components Tubing Syringe Pump Seal Air-Tight Motion Linear Rotary Inflate Deflate Control Compression Syringe Plunger Pneumatic System Input Movement Process Output Movement Pressure Oscillating Reciprocating Innovative	Appealing Design Brief Research Investigate Mechanism Lever Linkage Pivot Slot Bridge Guide System User Purpose Function Prototype Innovative Appealing Design Brief		Pulley Design Brief Mechanical System Electrical System Input Process Output CAM Snail CAM Off Centre CAM Peg CAM Framework Annotated Sketches Design Decisions Functionality Drive Belt Gear Rotation Spindle Driver Follower Ratio Transmit Axle Motor Circuit Circuit Diagram Switch Authentic Pear-Shaped CAM Shaft Crank Handle Innovation User Purpose Annotated Design	

Textiles	Early Years			Key Stage One		Key Stage Two			
	Little Rockets	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Glue Hard Soft Card Paper Cut Stick Colourful Make	Fabric Felt Flap Move Glue Hard Soft Materials Ribbon Foam Card Paper Cut Stick Colourful Make	Fabric Felt Puppet Joining Flap Soft Template Features Decorate		Apron Joining Finishing Techniques Tools Components Template Mark Out Join Decorate Finish Features Pocket Suitable Sample Quality Mock-Up Design Brief Design Criteria Evaluate User Purpose Function Runing Stitch Overstitch Needle Thread		Hessian Coton Nylon Fastening Compartment Zip Button Structure Finishing Technique Strength Weakness Stiffening Templates Stitch Seam Annotated Sketch Functional Investigate Label Drawing Aesthetics Function Pattern Pieces		Seam Seam Allowance Wadding Reinforce Right Side Wrong Side Hem Template Pattern Pieces Fastening Pins Needles Thread Pinking Shears Iron Transfer Paper Annotate Design Decisions Functionality Innovation Authentic

ELECTRICAL SYSTEMS

Early Years			Key Stage One		Key Stage Two			
Little Rockets	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
						Series Circuit Fault Connection Toggle Switch Push-To-Make Switch Push-To-Break Switch Battery Battery Holder Bulb Bulb Holder Wire Insulator Conductor Crocodile Clip Control System Input Device Output Device Purpose Function Prototype Design Criteria Appealing Design Brief		Parallel Circuit Input Device Output Device Monitor Control Program Flowchart Function Innovative Design Specification User

DESIGN TECHNOLOGY

SMSC

SPIRITUAL DEVELOPMENT

Growth in self-confidence and belief in their own abilities is supported and encouraged through celebration of creativity and innovation in a positive working atmosphere. Design and Technology is driven by our creative instincts to invent, innovate, adapt and overcome challenges.

MORAL DEVELOPMENT

While designing and making new products, children are encouraged to consider the impact they are having and the moral dilemmas they will face. Children will explore and build an understanding of how their actions affect the wider world and people in it. Children will practice working sustainably, considering the key issue of climate change and caring for our world

SOCIAL DEVELOPMENT

Through this curriculum, children will explore self-regulation and independence as well as building the ability to work collaboratively with others respecting their views and beliefs. Children are encouraged to support others in their processes, prompting and challenging in a constructive manner. Children will formulate and expand their ideas through discussions with peers and adults.

CULTURAL DEVELOPMENT

Children will explore how industry has impacted the world we live in today, changing how we live and work as a society and how this can be seen differently across the world. They will explore the process of introducing new, innovative ideas into the world we live in today and the key sources of this across the world. Children will be encouraged to consider the views and beliefs of other cultures when considering the features their products may have in order to meet the interests of their audience. We aim to build a respect and understanding of cultures across the world and celebrate them

DESIGN TECHNOLOGY

FUNDAMENTAL BRITISH VALUES

DEMOCRACY

During Design Technology, children are encouraged to take the views and opinions of others into account but still have the right to make their own choices. Lessons also encourage children to take turns when speaking and when working practically and collaboratively with others.

RULE OF LAW

In Design Technology, children develop an understanding of the importance of safety rules. During projects and activities, when accessing tools and materials children make sure, they are following their class rules. Children know and understand the consequences of not following these rules.

INDIVIDUAL LIBERTY

Children are given the freedom to express themselves through design and the creation of a wide variety of products in Design Technology. Whilst making their own choices, children also recognise that there are boundaries and respect these. Furthermore, children are encouraged to evaluate products from a range of times and cultures. Children also learn to accept that the ideas of others may not be the same as their own but are equally valid.

MUTUAL RESPECT & TOLERANCE

During Design Technology, pupils are expected to listen to and consider the ideas and opinions of others even if they differ from their own. When giving feedback or evaluating others' work, children are encouraged to be constructive and respectful of others' feelings and viewpoints. Children learn to appreciate the ideas of others that are different to their own and recognise that many great design ideas originate from other cultures. In addition, children are expected to be able to take turns during discussions, resolve difficulties and collaboratively make decisions.

DESIGN TECHNOLOGY VIRTUES

KINDNESS

Kindness is modelled in every classroom during Design Technology lessons, ensuring that children feel safe to ask for support when needed. Children are eager to be kind and support each other when it comes to developing a new skill or producing their final products. Children are encouraged to be kind when evaluating their own and others' work. Furthermore, children are encouraged to create products, considering their own and others' needs, wants and values.

RESPECT

In Design Technology, children are encouraged to demonstrate respect for others' ideas and creativity. In addition, it is important that we promote and demonstrate respect for the equipment and materials we use in lessons.

HONESTY

In Design Technology, it is important that children are honest and follow rules when using different techniques and resources, for example when creating structures; preparing and cooking food; making and using sliders, levers, axels and wheels, to ensure they are kept safe and act responsibly. Furthermore, children are encouraged to be honest when evaluating their final products for example when identifying elements that could be improved.

COURAGE

Children are encouraged to be courageous and express their creativity in Design Technology. They are encouraged to try different techniques and resources they may have not used before. Furthermore, children are encouraged to be innovative with their designs.

RESILIENCE

Children are encouraged to be resilient as trial and error are important aspects of Design Technology and practicing a new skill is a crucial element in our sequence of learning.

INDEPENDENCE

We want our children to become independent, resourceful and innovative. We encourage this by giving children the opportunity to independently create a range of products. Furthermore, within the learning sequence, we provide pupils with multiple opportunities to independently evaluate and adapt their designs before, during and after making their final products.

DESIGN TECHNOLOGY ASSESSMENT

FORMATIVE ASSESSMENT

Every lesson includes formative assessment opportunities for teachers to use. These opportunities are identified in the lesson plan and are included to ensure that misconceptions are recognised and addressed if they occur. They vary from teacher observation to verbal questioning.

All design technology lessons start with retrieval questions which help children to prepare for their lesson. This includes a retrieval question from the previous and current topic as well as a thinking task that allows children to link their past and present learning.

At the end of every lesson, pupils are invited to assess how well they feel they have met the learning objective.

SUMMATIVE ASSESSMENT

At the end of a unit of work, pupils are given an end of unit summative assessment which assesses their knowledge and skills. The end of unit assessments are used to indicate if pupils are working at the expected standard.

CAREERS IN THE CURRICULUM

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception	Mechanic	Chef	Boatbuilder	Farmer	Architect	Puppeteer
Year 1	Upholsterer		Food Technologist		Animator	
Year 2	Automotive Engineer		Product Developer (PPE – Personal Protective Equipment)		Structural Engineer	
Year 3	Performance Space Designer		Mechatronics Engineer		Mechanical Engineer	
Year 4	Electrician		Product Development Scientist		Garment Technologist	
Year 5	Computer Numerical Control Programmer		Automotive Designer		Civil Engineer	
Year 6	Electrical Engineer		Sensory Scientist		Fashion Designer	