

Rockcliffe First School: Design Technology Long-Term Plan

Nursery

Term	Key Themes
Autumn	• Explore different materials freely, develop ideas about how to use them and what to make • Make marks with a wide range of tools and grips • Create collaboratively, sharing ideas, resources and skills. • Recognise health choices – foods (linked to snack time) • Peel fruits by hand e.g. satsumas or bananas • Explore simple movement when exploring the Nursery environment • Handle small manipulatives with increasing control (buttons, dice, beads)
Spring	• Use mark making tools to make a range of enclosed shapes • Use tools such as scissors and equipment safely with increasing control • Build purposefully and explain what they are making • Begin to understand where food comes from by caring for fruit and vegetable plants in the Nursery Garden • Use materials for a purpose and explain their choices • Create own action and reaction games such as water flow structures or simple wheeled vehicles
Summer	• Talk about their own ideas and plan what to use to express them • Use mark making tools with control to add details to shapes and make simple representational drawings • Gather tools and materials needed with minimal support • Carry and control small equipment safely (scissors and tools) • Answer some open ended or speculative questions • Develop work, talk about likes / dislikes and what they could do to improve their work • Actively explore everyday materials through experimentation • Demonstrate a range of actions with remote control toys • Demonstrate how to achieve a particular goal with various toys (pulley systems, ride on toys, digger toys)

Reception

Term	Key Themes
Autumn	• Use language to share ideas • Use drawings to plan a model • Follow 2 step instructions • Cut along dotted lines with increasing control • Hold a pencil in a tripod grip and show increasing control • Use recycled or natural materials to create a picture • Take an interest in existing objects and designs • Understand the difference between healthy food and special treats

	• Mix / stir to combine ingredients, use a rolling pin and spoon ingredients between containers • Join and separate small construction by clicking and twisting • Describe the simple properties of materials
Spring	• Explain the purpose of what they are making (designing a boat, a card) and answer questions about it • Follow 3 step instructions • Carry and control small equipment safely • Develop hand-eye coordination by throwing and rolling • Begin to weave, thread and tie • Use large scale tools safely and with control • Dismantle, examine and talk about objects and structures, whilst explaining how something works e.g. a car rolls on its wheels • Identify healthy snacks and talk about why they are healthy • Use a range of small kitchen equipment with increasing control • Create structures linked to a theme • Use wheels, levers and winding mechanisms in their play (water area or construction area)
Summer	• Make considered choices when creating models • Make detailed drawings and label them • Use fine mark making tools to create textures and patterns with increasing control • Use hand moulding and building techniques to produce various structures • Make considered choices about materials when making or building • Make digital drawings on an iPad

Key Stage 1 – Cycle A

Term	Unit	Lesson Sequence	Vocabulary
Autumn Term	Fire! Fire! DT Focus – Structures	Evaluate – Explore designs of various bridges and explore how the product has been created. Identify likes and dislikes of the designs. Technical Knowledge – Explore what makes a bridge strong and experiment with different techniques. Identify key features that makes the strongest bridge and compare to real life examples. E.g. the concertina shape will form zig zags to see which is the sturdiest. Experimenting with Frames – Explore various frame shapes, such as squares, rectangles, triangles. Compare to real life examples and spot the similarities. Design – Design a strong bridge! Children generate ideas and communicate choices about their bridge design, choosing appropriate materials and shapes which will help hold a toy car. Make – Selecting and using a range of materials, children will produce their bridge using a range of techniques.	Structures Obstacles Purposes Hold Bearing Weight Beams Arches Cables Pillars Forces Push Pull Wood Strone Steel Concrete

		Evaluate – Children to explore other structures, giving what they like and dislikes about the design. Children then evaluate the effectiveness of their bridge. What parts were the strongest? Which parts were the weakest? What could they improve on next time?	Iron Materials Planning Design Construction Design Models Foundations Safe Durable Longlasting
Spring Term	Great Journeys! DT Focus – Mechanisms	Evaluate – Explore a variety of existing vehicles and investigate how they have been designed and made. Identify likes and dislikes about different vehicle designs, considering features such as colour, shape, movement and purpose. Technical Knowledge – Explore what makes a vehicle move successfully and experiment with different techniques using wheels, axles and chassis. Identify the key features that help vehicles move smoothly and stay balanced. Compare findings to real-life vehicles and discuss why different vehicles are designed in different ways. Experimenting with Mechanisms – Explore how wheels and axles work together to help vehicles move. Investigate different ways of attaching wheels and compare which methods work best. Compare models to real-life examples and identify similarities between them. Design – Design a purposeful vehicle! Children generate ideas and communicate choices about their vehicle design, selecting suitable materials, colours and features that will help the vehicle move effectively and appeal to users. Make – Selecting and using a range of materials, children will create their vehicle using a variety of tools, techniques and mechanisms. Children will construct a strong body, attach wheels and axles carefully and test how well their vehicle moves. Evaluate – Children explore and discuss other vehicle designs, identifying what they like and dislike about them. Children then evaluate the effectiveness of their own vehicle. Does it move successfully? Is it strong and stable? Which parts worked best? What could they improve or change next time?	Products Travel Purposes Vehicles Wheels Axles Parts Functional Chassis Doors Windows Steering Moving Parts Materials Metal Plastic Rubber Glass Fabric Designers Engineers Planning Durable Design Constructions Mechanisms
Summer Term	Marvellous Monarchs! DT Focus - Food	Evaluate – Explore a variety of sandwiches and savoury foods fit for a royal feast. Discuss likes and dislikes about different fillings, colours, textures and presentations. Investigate how food products have been prepared and presented to make them appealing.	Food Product Ingredients Healthy diet Varied diet Savoury

		Technical Knowledge – Explore how to prepare food safely and hygienically. Practise skills such as cutting, spreading, grating, mixing and assembling ingredients. Discuss the importance of a healthy and varied diet and identify which foods belong to different food groups. Experimenting with Ingredients – Explore different combinations of breads, fillings and toppings. Compare flavours, textures and appearance to decide which combinations work best. Discuss which ingredients would be suitable for a royal feast and why. Design – Design a savoury dish for the Royal Rockcliffe Feast! Children generate ideas and communicate choices about their food product, selecting suitable ingredients, flavours and decorations that will appeal to users and meet the design criteria. Make – Selecting and using a range of ingredients, children will prepare and assemble their savoury dish using a variety of tools and techniques. Children will practise safe food preparation skills while carefully creating their final product. Evaluate – Children evaluate their savoury dish against the design criteria. Does it look appealing? Does it taste good? Is it suitable for a royal feast? Children discuss what worked well, what they would improve and how their product could be changed next time.	Design criteria Appearance Taste texture Presentation Hygiene Safety Cut Peel Grate Mix Assemble Cook Equipment Design Make Evaluate Research Prepare Filling Flavour
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Key Stage 1 - Cycle B

Term	Unit	Key Learning	Lesson Sequence	Vocabulary
Autumn Term	Creative Christmas! DT Focus – Textiles	Evaluate – Explore a variety of Christmas stockings and textile products. Discuss likes and dislikes about different shapes, colours, decorations and materials. Investigate how stockings have been designed and made for both appearance and function. Technical Knowledge – Explore how textiles can be joined and shaped using different techniques. Practise skills such as cutting fabric, using templates, threading needles and sewing a running stitch. Discuss how stitches help hold fabric together and make products stronger. Experimenting with Textiles – Explore different fabrics, decorations and joining methods. Compare materials such as felt and fabric to identify which are strongest, softest or easiest to decorate. Experiment with techniques such as adding sequins, printing, colouring or fabric shapes. Design – Design a Christmas stocking that can hold gold coins! Children generate ideas and communicate choices about their stocking, selecting suitable materials, colours, shapes and decorations that will meet the design criteria. Make – Selecting and using a range of materials and tools, children will create their stocking using templates, cutting and sewing techniques. Children will join fabric using a running stitch and decorate their final product using a variety of textile techniques. Evaluate – Children evaluate their stocking against the design criteria. Does it hold coins successfully? Is it strong and well joined? Does it look appealing and festive? Children discuss what worked well, what they would improve and how they could adapt their design next time.		Textile product Fabric Felt Thread Needle Running stitch Sewing Joining Cutting Template Decoration Printing Shape Colour Design criteria Pattern Design Make Evaluate Materials Functional Plan Textile techniques
Spring Term	Real Life Heroes! DT Focus – Mechanisms (Sliders, levers and wheels)	Evaluate – Explore a variety of moving pictures, pop-up books and mechanical products. Discuss likes and dislikes about different designs, colours and moving parts. Investigate how mechanisms such as sliders, levers and wheels help pictures move. Technical Knowledge – Explore how simple mechanisms work by making and testing sliders, levers and wheels. Discuss how movement is created and identify which mechanisms are best for different types of movement. Compare products to real-life examples such as books, cards and toys. Experimenting with Mechanisms – Experiment with different ways of joining and strengthening materials. Practise skills such as cutting, folding, gluing and using split pins to create movement. Test how changing the size or position of a mechanism affects the movement of the picture.		Mechanism Slider Lever Wheel Movement Moving picture Split pin Join Glue Fold Cut Assemble Design

		Design – Design a moving picture to inspire younger children to enjoy books! Children generate ideas and communicate choices about their design, selecting suitable mechanisms, materials, colours and backgrounds that will meet the design criteria. Make – Selecting and using a range of materials and tools, children will create their moving picture using sliders, levers or wheels. Children will safely cut, join and assemble materials while creating strong and effective moving parts. Evaluate – Children evaluate their moving picture against the design criteria. Does the mechanism move successfully? Is the picture strong and visually appealing? Which parts worked best? What could they improve or change next time?	Make Evaluate Tools Technique Background Durable Interactive Pop-up Strengthen Plan Create Test Visual appeal
Summer Term	Sea and Shore! DT Focus - Food	Evaluate – Explore a variety of healthy food products and picnic foods. Discuss likes and dislikes about different colours, textures, tastes and presentations. Investigate existing recipes and identify common ingredients used in seasonal dishes. Technical Knowledge – Explore how to prepare food safely and hygienically. Practise skills such as cutting, peeling, grating, mixing and measuring ingredients. Discuss the importance of a healthy and varied diet and learn about seasonal foods and where ingredients come from. Experimenting with Ingredients – Explore different fruits, vegetables and flavour combinations. Compare ingredients based on appearance, taste, texture and crunch. Experiment with combining and mixing ingredients to discover which combinations work best. Design – Design a healthy picnic dish for the Lighthouse Keeper’s picnic! Children generate ideas and communicate choices about their product, selecting suitable ingredients, colours and textures that will meet the design criteria and appeal to the user. Make – Selecting and using a range of ingredients, children will prepare and assemble their food product using a variety of tools and techniques. Children will practise safe food preparation skills while carefully combining ingredients to create their final dish. Evaluate – Children evaluate their food product against the design criteria. Does it taste good? Is it healthy and appealing? Does it include a range of colours and textures? Children discuss what worked well, what they would improve and how they could adapt their recipe next time.	Food product Ingredients Seasonal Food Healthy diet Varied diet Appearance Taste Texture Shape Colour Design criteria Make Evaluate Recipe Mix Combine Measure Grate Peel Cut Hygiene Safety Tools Technique Assemble Vegetables Fruit Crunchy

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Key Stage 2 - Cycle A

Term	Unit	Key Learning	Lesson Sequence	Vocabulary
Autumn Term	Stone Age to Iron Age! DT Focus – Food and Nutrition	Evaluate – Explore a variety of soups and savoury dishes from different time periods. Discuss likes and dislikes about different ingredients, flavours, textures and appearances. Investigate existing recipes and identify common ingredients used in seasonal cooking. Technical Knowledge – Explore how to prepare and cook food safely and hygienically. Practise skills such as cutting, peeling, measuring, mixing and cooking ingredients. Discuss the importance of a healthy and varied diet, seasonality and where ingredients are grown and sourced from. Experimenting with Ingredients – Explore different vegetables, herbs and flavour combinations. Compare ingredients based on taste, texture and appearance. Experiment with combining ingredients and discuss how cooking changes the texture and flavour of foods. Design – Design a Stone Age soup using seasonal ingredients! Children generate ideas and communicate choices about their recipe, selecting suitable ingredients, flavours and textures that will meet the design criteria and reflect the Stone Age theme. Make – Selecting and using a range of ingredients, children will prepare and cook their soup using a variety of tools, equipment and cooking techniques. Children will follow recipes carefully while practising safe food preparation skills. Evaluate – Children evaluate their soup against the design criteria. Does it taste appealing? Is it healthy and nutritious? Does it include seasonal ingredients? Children discuss what worked well, what they would improve and how they could adapt their recipe next time.		Food product Ingredients Seasonal Healthy diet Varied diet Nutrition Recipe Design criteria Design Make Evaluate Plan Prepare Cook Techniques Measure Mix Cut Peel Assemble Hygiene Equipment Herbs Savoury Texture Taste Appearance Gather Grow Source Nutritious
Spring Term	Roman Britain! DT Focus – Mechanical Systems	Evaluate – Explore a variety of catapults and mechanical products from Roman times and the modern world. Discuss likes and dislikes about different designs and investigate how mechanisms help products move and function. Identify how Roman innovation influenced the design of mechanical systems.		Mechanical system Mechanism Level Linkage Pulley

		Technical Knowledge – Explore how levers, linkages, pulleys, gears and winding mechanisms work. Investigate how force and movement are transferred within mechanical systems and compare different types of movement. Experimenting with Mechanisms – Experiment with different materials, structures and mechanisms to discover which designs create the strongest and most effective movement. Practise skills such as cutting, joining, assembling and strengthening materials. Test how changing the length or position of levers affects movement and force. Design – Design a Roman-inspired catapult! Children generate ideas and communicate choices through annotated sketches, diagrams and prototypes, selecting suitable materials and mechanisms that will meet the design criteria. Make – Selecting and using a range of materials, tools and equipment, children will construct their catapult using different mechanical systems and strengthening techniques. Children will carefully assemble and refine their product as work progresses. Evaluate – Children evaluate their catapult against the design criteria. Does the mechanism work effectively? Is the structure strong and stable? How successfully does it transfer force and movement? Children discuss what worked well, what they would improve and how they could adapt their design next time.	Gear Winding Force Movement Motion Strength Stability Structure Function Design Make Evaluate Prototype Annotated sketch Diagram Materials Labels Equipment Tools Join Assemble Strengthen Engineer Innovate Testing Refine Durable Functional
Summer Term	Anglo-Saxons and the Silver Screen! DT Focus – Electrical Systems	Evaluate – Explore a variety of electrical and programmable products, such as robots, moving toys and Lego WeDo models. Discuss likes and dislikes about different designs and investigate how electrical systems and programming help products move and function. Technical Knowledge – Explore how electrical systems work, including series circuits, motors, switches, sensors and buzzers. Investigate how electricity powers products and how coding and programming can control movement and actions. Experimenting with Programming and Circuits – Experiment with building and testing simple circuits and programmable models. Practise skills such as assembling components, connecting circuits, coding, debugging and controlling movement through software. Test how changing instructions or components affects how the model behaves.	Electrical system Electricity Circuit Series circuit Switch Motor Sensor Buzzer Programming Coding Software Computer Mechanism Movement

		Design – Design a programmable moving model inspired by Anglo-Saxons and the Silver Screen! Children generate ideas and communicate choices through annotated sketches, prototypes and computer-aided designs, selecting suitable materials, mechanisms and programming features that will meet the design criteria. Make – Selecting and using a range of materials, components and software, children will construct and program their model using motors, sensors and electrical systems. Children will refine and adapt their work as the project develops. Evaluate – Children evaluate their programmable model against the design criteria. Does the model move successfully? Does the programming control the product effectively? Are the circuits connected correctly? Children discuss what worked well, what they would improve and how they could adapt their design next time.	Function Design criteria Design Make Evaluate Prototype Annotated sketch Components Assemble Construct Debug Monitor Refine Control Model Input Output Engineer Technology Innovation Functional Durable Testing
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Key Stage 2 - Cycle B

Term	Unit	Key Learning	Lesson Sequence	Vocabulary
Autumn Term	Delightful Decorations! DT Focus - Textiles	Textile products are designed and made for decoration, celebration and practical purposes. Decorative products such as baubles, ornaments and hanging decorations are created to make spaces look attractive and festive. Designers think carefully about the shape, colour, pattern, texture and appearance of textile products so that they are visually appealing and suitable for their purpose. Textile products are made using a range of materials and fabrics, such as felt, thread, ribbon and stuffing. Designers use different tools and techniques including cutting, measuring, marking out, joining, stitching and decorating textiles. Understanding seam allowance and using accurate cutting and joining techniques help products stay strong, neat and durable. Textile products are created through careful planning, designing, making and evaluating. Designers first explore existing products and generate ideas through discussion, sketches and annotated designs before selecting suitable materials and decorations. They then use practical skills and techniques to construct and refine their product before evaluating it against the design criteria, considering how successful and appealing the final product is.	Evaluate – Explore a variety of Christmas decorations, baubles and textile products. Discuss likes and dislikes about different shapes, colours, patterns and decorations. Investigate how existing textile products have been designed and constructed. Technical Knowledge – Explore how textiles can be measured, marked out, cut and joined accurately. Practise skills such as measuring, cutting fabric, stitching, joining textiles and understanding seam allowance. Discuss which techniques make textile products stronger and more durable. Experimenting with Textile Techniques – Experiment with different fabrics, decorations and joining methods. Explore techniques such as stitching, layering, adding sequins, glitter, printing or appliqué to discover which methods are most effective and visually appealing. Design – Design a 3D Christmas bauble or decoration! Children generate ideas and communicate choices through discussion, annotated sketches and labelled designs, selecting suitable materials, colours, shapes and decorations that will meet the design criteria. Make – Selecting and using a range of materials, tools and textile techniques, children will construct and decorate their 3D bauble. Children will accurately cut, join	Textile product Fabric Felt Thread Needle Stitch Seam allowance Joining Decorating Appliqué Sequins Glitter Pattern Shape Texture Appearance Design Make Evaluate

			and stitch materials while refining their work as it progresses. Evaluate – Children evaluate their decoration against the design criteria. Is it strong and neatly joined? Is it visually appealing and suitable for hanging? Which techniques worked best? Children discuss what they would improve or change next time.	Annotated sketch Measure Mark out Cut Assemble Refine Tools Techniques Durable Functional Stitching Stuffing Template 3D Decoration
Spring Term	Ancient Greece / Take Action DT Focus – Sculptures	Structures are designed and made to provide strength, protection and support for a particular purpose. A greenhouse is a structure designed to create the best conditions for plants and seeds to grow by trapping warmth and allowing sunlight to enter. Designers and engineers think carefully about the shape, stability, strength and function of structures so that they are durable and effective for their intended use. Structures are made using a range of materials, tools and techniques. Designers use practical skills such as measuring, marking out, cutting, joining and assembling materials accurately. Different methods can be used to strengthen, stiffen and reinforce structures so that they remain stable and secure. Designers also consider how products can support environmental goals, such as growing plants sustainably and reducing environmental impact.	Evaluate – Explore a variety of greenhouses and structures from different environments. Discuss likes and dislikes about different designs, shapes and materials. Investigate how structures are strengthened and why greenhouses are important for growing plants. Technical Knowledge – Explore how structures can be made stronger, stiffer and more stable. Investigate different shapes, frames and reinforcement techniques to discover which designs are the most effective. Practise skills such as measuring,	Structure Greenhouse Stability Strength Reinforce Stiffen Frame

		Structures are created through careful planning, designing, making and evaluating. Designers first investigate existing products and create annotated sketches, prototypes and diagrams before selecting suitable materials and construction techniques. They then build, test and refine their product before evaluating it against the design criteria, considering how well it performs and what improvements could be made.	marking out, cutting and joining materials accurately. Experimenting with Structures – Experiment with different materials and construction methods to test strength and stability. Compare which materials are most suitable for creating a greenhouse structure and investigate how transparent materials help plants grow by allowing sunlight through. Design – Design a mini greenhouse for growing seeds! Children generate ideas and communicate choices through annotated sketches, exploded diagrams and prototypes, selecting suitable materials, shapes and strengthening techniques that will meet the design criteria. Make – Selecting and using a range of materials, tools and construction techniques, children will build their mini greenhouse. Children will carefully measure, cut, join and reinforce materials while refining their structure as work progresses. Evaluate – Children evaluate their greenhouse against the design criteria. Is the structure strong and stable? Does it protect and support the plants effectively? Which materials and techniques worked best? Children discuss what they would improve or change next time.	Design Make Evaluate Prototype Annotated sketch Exploded diagram Measure Mark out Cut Join Assemble Suitability Construct Materials Technique Transparent Support Protection Environemnt Sustainable Growing
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				Seeds Stability Refine Engineer Strengthening
Summer Term	Our Dynamic Earth & Come to Whitley Bay DT Focus – Food and Nutrition	Food products are designed and made to provide people with healthy, nutritious meals using a variety of ingredients and cooking techniques. Designers and cooks think carefully about the taste, texture, appearance, nutrition and presentation of food products so that they are appealing and suitable for the user. Using ingredients grown in an edible garden can help people understand where food comes from and encourage healthy eating. Food products are made using a range of ingredients, tools, equipment and cooking techniques. Designers use practical skills such as preparing, measuring, mixing, assembling and cooking ingredients safely and hygienically. Understanding seasonality and knowing where ingredients are grown, reared, caught or processed helps designers make informed choices about food products and healthy diets. Food products are created through careful planning, designing, making and evaluating. Designers first investigate existing products and gather ideas before selecting suitable ingredients and creating their own recipe or dish. They then prepare and cook their product using practical skills and techniques before evaluating it against the design criteria, considering how successful the final product is and how it could be improved.	Evaluate – Explore a variety of savoury dishes and healthy meals made with fruits and vegetables. Discuss likes and dislikes about different flavours, textures, colours and presentations. Investigate existing recipes and identify ingredients that could be grown in an edible garden. Technical Knowledge – Explore how to prepare and cook food safely and hygienically. Practise skills such as cutting, peeling, measuring, mixing, assembling and cooking ingredients. Discuss the importance of a healthy and varied diet, seasonality and where food is grown and sourced from. Experimenting with Ingredients – Experiment with different fruits, vegetables, herbs and flavour combinations. Compare ingredients based on appearance, taste, texture and nutritional value. Explore how cooking techniques can change the flavour and texture of foods. Design – Design a savoury dish using ingredients from the edible garden! Children generate ideas and communicate choices through labelled sketches and	Food product Ingredients Healthy diet Savoury dish Edible Seasonal food Design Make Evaluate Plan Recipe Prepare Cook Techniques

			recipe plans, selecting suitable ingredients and cooking techniques that will meet the design criteria and appeal to the user. Make – Selecting and using a range of ingredients, tools and cooking techniques, children will prepare and cook their savoury dish. Children will carefully follow recipes, measure ingredients accurately and practise safe food preparation skills throughout the process. Evaluate – Children evaluate their dish against the design criteria. Does it taste appealing? Is it healthy and nutritious? Does it make good use of edible garden ingredients? Children discuss what worked well, what they would improve and how they could adapt their recipe next time.	Measure Mix Assemble Hygiene Taste Texture Appearance Presentation Fruit Vegetables Herbs Nutrition Source Grow Processed Refine Sustainable
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