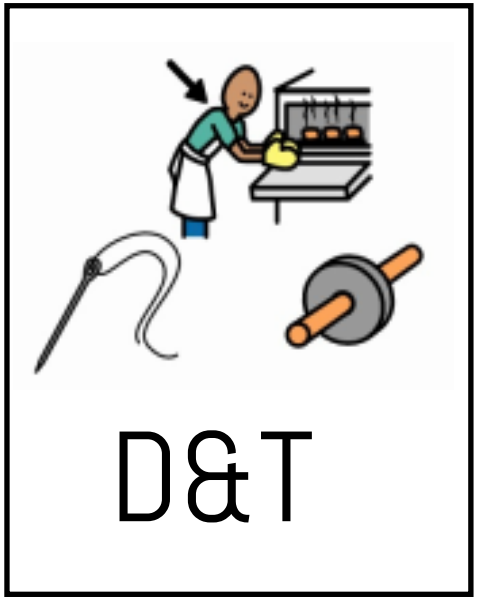
Design and Technology Curriculum Overview

ST MARY QUEEN OF MARTYRS VC ACADEMY



ST Mary Queen of Martyrs VC Academy

Contents:

1. Design and Technology Intent, Implementation and Impact Statement

In Design and Technology, our aim is to develop children's creativity and imagination in our technically evolving world. We will provide real and relevant problems within a range of contexts for children to acquire their design skills. We want our children to be motivated and inspired to produce their own innovative designs. Children will be taught the technical skills required to design and make mechanical, electrical and structurally sound products. Opportunities will be provided for the children to use a range of tools and materials. Links will be made with mathematics, science, engineering, computing and art. Children will be encouraged to become problem solvers through testing their products and making the necessary amendments. We endeavour to plan products which are environmentally friendly. We passionately aspire to foster a love of design amongst girls and boys in all areas of the design and technology curriculum.

Cooking and Nutrition

In Food Technology our aim is to inspire children to prepare and eat a healthy, balanced diet. We will ensure that our pupils understand what a healthy diet entails and the benefits we gain from healthy eating. Opportunities will be provided for all our pupils to taste and enjoy a variety of healthy foods. We will teach children the life skills required to cook a basic healthy meal using fresh ingredients. Throughout the school, food projects will be carefully chosen with the family kitchen in mind so that our children can make and enjoy their dishes at home with their family. We strive to foster positive food experiences and empower the children with the necessary skills to make healthy and ethical food choices.

Impact

Design and Technology lessons create excitement. Teachers have a thorough knowledge of the subject and high expectations for pupils. Throughout the school, children acquire a range of skills using a variety of technical equipment in a safe learning environment. Children feel confident in the design process and possess a repertoire of knowledge and vocabulary. Designers and key events provide inspiration. Children develop resilience through opportunities to evaluate and improve their designs. Finally, children are proud of their work.

2. Design and Technology on a page

Lesson sequence:

Projects follow a research, focus task, design, make and evaluate sequence.

- Research: Evaluate existing products. Discuss design brief and design criteria. In KS2 understand how significant designers and events have changed the world.
- Focus Task: A practical activity to teach new knowledge and skills.
- Design: Pupils to communicate at least 2 designs.
- Make: Pupils to spend a succession of lessons, or, a day making their product. Time will be allocated for testing and finishing.
- Evaluate: Pupils will be given opportunities to evaluate their product throughout the lesson sequence. Pupils evaluate their final product against the design criteria.

Pupil work will be celebrated in the form of an assembly, display or showcase.

Assessment

Retrieval tasks planned to assess prior knowledge
Topic quizzes
Summative assessment at the end of the unit.

Classroom environment:

The classroom will be a safe learning environment with tools and equipment stored safely and handled carefully. Furniture will be arranged appropriately for the tasks with safety in mind. Pupils will have access to a choice of materials and equipment. Inspiration from existing products, key vocabulary and new knowledge/skills will be displayed on a working wall when required.

In each phase, pupils will undertake projects in food technology, structures, textiles, mechanics and in KS2 electronics and computing programming. ICT will be used to enhance the designing and making process when possible. Products will have purpose and cover a range of contexts (home, school, local community, wider environment).

Cycle A

	Autumn	Spring	Summer
EYFS			
Phase 1	Structures	Food Technology	Mechanisms – Levers and sliders
Phase 2	Food Technology	Textiles	Mechanisms – Levers and linkages
Phase 3	Textiles	Food Technology	Structures

	Autumn	Spring	Summer
EYFS			
Phase 1	Food Technology	Mechanisms—Wheels and axles	Textiles
Phase 2	Structures/Electronics	Food Technology	Structures/Mechanisms
Phase 3	Structures/Mechanisms	Computer Programming	Food Technology

Home links

A home-school project will be planned each year (Competition, Topic Link or Invention homework).

Lesson design:

'I can' learning intention displayed. Rapid recap task to be included at the beginning of each lesson. Relevant vocabulary to be used and discussed in lessons. Knowledge mats available for children to refer to in lessons.

3. Non-negotiables

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Planning for D&T

One full D&T project to be undertaken every term.

The D&T projects planned should enable pupils to test the effectiveness of the product e.g. To design and make a house for an Amazon tribe that will upstand flooding [To design and make a Tudor house is a craft making project].

All D&T projects to have a clear design brief stating what the product is, who it is for and the purpose of the product e.g. To design and make a moving pull along vehicle for your favourite toy.

D&T sequence of lessons to include research, focus tasks, design, make, evaluate.

A focus task to be planned for each project to teach the specific knowledge and skills required e.g. a new stitch, a prototype of the mechanism, how to make a circuit.

Risk assessments to be completed prior to each project and shared with your phase, D&T Leader and Head of School.

Additional opportunities to practice skills and develop sticky knowledge can be planned throughout the year – sewing decorations, cards with mechanisms, enterprise projects etc. Please take photos to upload to Staff Shared.

Booklets:

Pupil booklets to be produced and work collated in pupil D&T folders.

Design brief to be displayed on the front of the pupil D&T Booklets and shared with the pupils in lessons.

Design criteria to be included in pupil booklets and referred to in product evaluations.

KS2 to include knowledge of how significant events and individuals have helped to shape the world.

Practical Work:

Pupils to be encouraged to use creativity and imagination i.e. not 30 identical teacher led pieces.

Pupils must be given opportunities to test the effectiveness of their products and refine their ideas.

Time for finishing techniques to be allocated.

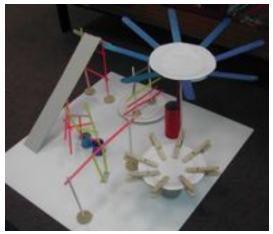
Examples of practical work, focus tasks and final products to be photographed and posted on Seesaw OR Staff Shared in a Design and Technology class/folder. Every pupil to photograph their final product.

Food Technology:

All cooking utensils to be washed and returned to the cooking area.

When the oven is in use, a member of staff is to remain in the room. Food should not be left cooking unattended.

4. Long term plan - Cycle A

	Autumn		Spring		Summer	
EYFS	To design and build structures in the construction area.	To design and make pumpkin soup for my class to enjoy.	To design and make a bird feeder for my garden.		To design and make a castle for our foundation unit.	To design and make a toy boat that will float.
Phase 1	**Structures** To design and make a 3d model of a playground structure for the local area. 		**Food Technology** To design and make a healthy breakfast suitable for the Queen. 		**Mechanisms** To design and make a moving picture for a gallery on explorers.	
Phase 2	**Food Technology** To design and make a healthy vegetarian pasta dish to share with my friends.		**Textiles** To design and make a sampler for a greetings card using binca. Use computer aided to design to plan the sampler. https://www.stitchfiddle.com/en		**Mechanisms** To design and make a mechanical poster to inform our family about environmental issues.	
Phase 3	**Textiles** To design and make an item of clothing or an accessory for a person of your choice by upcycling an old t-shirt.		**Food Technology** To design and make a seasonal one pot dish for my class.		**Structures** To design and build a house for an Amazon tribe that will withstand heavy rainfall and flooding.	

4. Long term plan - Cycle B

	Autumn		Spring		Summer	
EYFS	To design and make a healthy sandwich for ...	To design and make a fruit kebab for ...	To design and make a house with a moving door for the 3 little pigs.	To design and make a hedgehog ornament to remind our family and friends to care for hedgehogs.	To design and make a superhero cape for my teddy.	
Phase 1	**Textiles** To design and make a Christmas puppet suitable for Santa's workshop.		**Food Technology** To design and make a tortilla pizza bite for my snack time. 		**Mechanisms** To design and make a pull along wheeled vehicle for my favourite toy. 	
Phase 2	**Electronics/Structures** To design and make a model light house for Spurn Point.		**Food Technology** To design and make a seasonal fruit crumble that my family would enjoy.		**Mechanisms/Structures** To design and make a castle which includes a pulley system.	
Phase 3	**Mechanisms** To design and make a model hydraulic bridge for pedestrians to cross the River Hull.		**Food Technology** To design and make a bread roll for Phase 3s Great British Bake Off.		**Coding** To design and make a product that incorporates programming a Micro-bit.	

5. Progression of skills - Evaluating

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EYFS	Key Stage 1	Lower KS2	Upper KS2
EAD Reception Explore, use and refine a variety of artistic effects to express their ideas and feelings. Return to a build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills. 3-4 year olds Develop their own ideas and then decide which materials to use to express them. Join different materials and explore different textures.	Explore and evaluate a range of existing Products. Evaluate their ideas and products against design criteria.	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.	
Pupils can explore the materials used in existing products. Pupils can refine and develop their ideas as they work. Pupils can talk about their ideas and the changes they have made. Pupils can identify and solve problems during construction.	Pupils can say what they like/dislike about existing products. Pupils can make simple judgements about their products against the design criteria. Pupils can identify the successes of their product. Pupils suggest how their products could be improved/next steps.	Pupils can investigate and discuss existing products (how they are made, moving parts, materials used, how effective the product is). Pupils can identify the strengths of their product and their areas for development in their ideas and products Pupils consider the views of others, including the intended users to improve their work. Pupils can evaluate their products against their design criteria as they design and make Pupils know about inventors, designers and chefs who have developed ground breaking products.	Pupils should investigate and analyse existing products: How well products have been made Why materials have been chosen What methods of construction have been used How well products work How well products achieve their purposes How well products meets users needs and wants. How innovative products are How sustainable the products are Pupils should critically evaluate the quality of the design, manufacture and fitness for purpose, of their products as they design and make. Pupils should evaluate their ideas and products against their original design specification. Pupils know about inventors, designers, engineers (Brunel), chefs and world events (Victorian cooking, make do and mend, upcycling, sustainability) that have developed ground breaking products.

5. Progression of skills - Designing

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EYFS	Key Stage 1	Lower KS2	Upper KS2
3-4 **Expressive Arts and Design** Develop their own ideas and then decide which materials to use to express them. **Reception** **Expressive Arts and Design** Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and	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.	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.	
Pupils can share ideas, resources and skills through talk. Pupils can represent their ideas through discussion and making. Pupils can refine their ideas as they make.	Pupils can talk about the design criteria. Pupils can communicate their design ideas. Through research, pupils can discuss the key features of existing products. Pupils can generate their own designs which meet most of the design criteria. Pupils can develop their ideas through discussion. Pupils can draw and label 2 designs. Pupils can model their moving vehicles by making mock-ups of the mechanical systems. Pupils can use ICT to select images for their moving pictures. Pupils can use ICT to produce car parts for their moving vehicles i.e. registration plates, signage. Pupils can make a template of their hand for their puppets. Pupils can model joining the components for playground structures through mock-ups.	Pupils can develop design criteria through discussions with their teacher and peers. Pupils can use teacher led research of existing products to inform their designs. Pupils can talk about the needs and desires of the user. Pupils can generate their own functional and appealing designs. Pupils can produce annotated sketches of their design ideas. Pupils can use computer aided design to create the cross stitch pattern for their greetings card. Pupils can use prototypes to explore pulleys. Pupils can produce a prototype of a lever and linkage to show how the mechanism works.	Pupils can develop design criteria for their product. Pupils can research existing products to inform their designs. Pupils can use market research to explore the needs and desires of the user. Pupils can generate functional, appealing and innovative designs. Pupils can produce detailed and annotated sketches of their design ideas. Pupils can demonstrate the movement of their bridge through exploded diagrams. Pupils can produce a cross section of their Amazon home. Pupils can use patterns to inform the design of their upcycled t-shirt product. Pupils can talk about their designs and make any necessary refinements.

5. Progression of skills - Making

EYFS	Key Stage 1	Lower KS2	Upper KS2
	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	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	
	Pupils select from a range of tools and equipment [vice, saw, needle, needle threader, . Pupils select from and use a range of materials and components according to their characteristics. Pupils should follow procedures for safety and hygiene. Pupils use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components. Pupils can measure, mark out, cut and shape materials and components. Pupils assemble, join and combine materials and components. Pupils use finishing techniques including those from art and design.	Pupils should select tools and equipment suitable to the task. Pupils should select materials and components suitable for the task. Pupils should explain their choice of materials and components according to functional properties and aesthetic qualities. Pupils should follow procedure for safety and hygiene. Pupils use a range of materials and components, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components Pupils can measure, mark out, cut and shape materials and components with some accuracy. Pupils assemble, join and combine materials and components, with some accuracy. Pupils use finishing techniques including those from art and design with some accuracy.	Pupils should select tools and equipment suitable to the task. Pupils should select materials and components suitable for the task. Pupils should explain their choice of materials and components according to functional properties and aesthetic qualities. Pupils should follow procedure for safety and hygiene. Pupils can accurately measure, mark out, cut and shape materials and components. Pupils can accurately assemble, join and combine materials and components. Pupils can accurately use finishing techniques including those from art and design. Pupils can demonstrate resourcefulness when tackling practical problems. Pupils can use techniques that involve a number of steps.

5. Progression of skills - Technical Knowledge

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EYFS	Key Stage 1	Lower KS2	Upper KS2
Physical Development **3-4 year olds** Use one handed tools and equipment, for example, making snips in paper with scissors. **Reception** Develop their small motor skills so that they can use a range of tools competently, safely and confidently. **Understanding the World** **3-4 year olds** Talk about the differences between materials and the changes they notice. Explore how things work.	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.	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, l evers 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	
Pupils can explore materials which float for their boats. Pupils can explore how doors open and shut for their house/castle. Pupils can explore how to hang a bird feeder. Pupils know which tool to select (i.e. scrissors for cutting) and can use them safely and confidently.	Pupils can explore how to make their playground structures stronger (i.e. A-frames) Pupils can explore how to make their playground structures stiffer and stable (i.e. rigid materials, plasticine, secure materials for joining). Pupils can explore how to securely attach the axels to the body of their car. Pupils can explain how their vehicle moves. Pupils can explain how the parts in their moving picture move. Pupils know the vocabulary wheels, axels, body, levers, sliders, spinning wheel.	Pupils can use their understanding from Science and Maths to make products that work. Pupils know how to strengthen, stiffen and reinforce their light house structures (i.e. through strengthening joins, reinforcing attachments). Pupils know how to strengthen, stiffen and reinforce their castle structures (i.e. techniques for making paper stronger – triangular support, rolling paper) Pupils can make a pulley to operate their castle door. Pupils can explain how the pulley system on their castle door works. Pupils can use levers and linkages to make the moving parts on their poster. Pupils can use a simple circuit for a light in their light house. Pupils can explain how the circuit works.	Pupils can use a pneumatic system in their model bridges. Pupils can explore shell and frame structures. Pupils know how to reinforce, stiffen and strengthen the 3d framework of their Amazon home. Pupils know that weight makes a structure stronger and stable. Pupils know how to program a computer to monitor and control their products. Pupils can incorporate a Microbit into their product design.

5. Progression of skills - Textiles

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EYFS	Key Stage 1	Lower KS2	Upper KS2
3-4 years Explore different materials freely to develop their ideas about how to use them and what to make. Join different materials and explore different textures. **Reception** Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.	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	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	
Pupils to explore and describe a variety of textured materials extending vocabulary. Pupils to group and name materials. Pupils to be shown how to weave with increased control over time.	Pupils are taught how to perform simple stitches including running stitch and over stitch. Pupils can join fabrics by sewing, sticking or stapling. Pupils use a range of textiles throughout key stage 1 (felt, hessian, thread, wool)	Pupils are taught how to thread a needle, using a needle threader if required. Pupils are shown how to join the thread to the fabric and how to finish the thread. Pupils gain increasing fluency and accuracy with running stitch and over stitch. Pupils can join materials together by sewing. Pupils can add decoration to their work by sewing on beads, sequins and buttons. Pupils use a wider range of materials (felt, binca, plastic canvas, thread, wool, buttons, sequins)	Pupils are taught a new stitch - back stitch, cross stitch or blanket stitch. Pupils can use stranded cotton and finer needles. Pupils can cut fabric using templates and pattern pieces including those printed from the computer (e.g. outline of a Christmas tree). Pupils can join materials by using different sewing techniques. Pupils gain independence and fluency in sewing skills – threading a needle, joining thread to fabric, stitching. Pupils are able to use a range of stitches with increasing accuracy (running stitch, over stitch, back stitch, cross stitch, blanket stitch). Pupils use a wider range of materials (felt, binca, cotton, thread, wool, buttons, sequins, ribbon)

5. Progression of skills - Food Technology

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EYFS	Key Stage 1	Lower KS2	Upper KS2
<u>PSED</u> **Managing Self** <u>Reception:</u> Manage their own basic hygiene and needs, understanding the importance of healthy food choices. <u>3-4 year olds</u> Make healthy choices about food and drink. Increasingly independent in meeting their own care needs e.g. washing hands thoroughly. **Physical Development** <u>Reception:</u> Use a range of small tools including cutlery. <u>3-4 year olds</u> Use on handed tools and equipment. Showing a preference for a dominant hand with good control. Pupils can identify healthy and unhealthy foods. Pupils can use kitchen tools safely. Pupils can use kitchen tools with increasing control to spread, slice, mix and stir.	use the basic principles of a healthy and varied diet to prepare dishes understand where food comes from. Pupils recognise the need for a healthy and varied diet. Pupils know that we must eat 5 portions of fruit and vegetables every day. Pupils know that fruit and vegetables can be fresh, canned, frozen, dried or juice. Pupils are able to use the Eat Well Plate to sort a variety of food. Pupils understand that all food comes from plants or animals. Pupils are introduced to the Red Tractor symbol. Pupils can use healthy and varied ingredients in their product. Pupils can use cooking techniques: slicing, snipping, peeling fruit (with hands) and grating. Pupils can use the following kitchen tools: knives, chopping board, grater, pastry cutter, scissors (herbs).	understand and apply the principles of a healthy and varied diet prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. Pupils can identify the right types and amounts of nutrition we need to keep healthy (Y3 science links). Pupils understand the importance of a rainbow diet. Pupils can research different food groups from the EatWell Plate and find out why they keep us healthy (Y3 science links). Pupils understand that food comes from different parts of plants – roots, stem, fruit [Link to Fruit crumble]. Pupils know what the Red Tractor symbol represents. Pupils can make a Spring seasonal dish. Pupils understand where and how [pasta] is processed. Pupils can use the cooking techniques: peeling, chopping, slicing, grating, mixing, rubbing (crumble), measuring, simmering, frying and baking. Pupils can use the following kitchen tools: knives, chopping board, grater, garlic press, scales, oven, hob, pan.	Pupils understand the reasons why we need a healthy and varied diet. Pupils know that food can be processed to use in ingredients that can be eaten or used in cooking. Pupils understand where and how [bread] is processed. Pupils know that the seasons may affect the food available. Pupils can make a summer seasonal dish. Pupils know where and how a variety of ingredients are grown, reared and caught. Pupils can use the cooking techniques: peeling, chopping, slicing, grating, mixing, kneading, simmering, weighing, measuring, frying and baking. Pupils can use the following kitchen tools: knives, chopping board, grater, garlic press, vegetable peeler, scales, oven, hob, pan.

6.Progression of Vocabulary

DT Vocabulary progression document					
Vocabulary: Textiles					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Puppet, sew, stitch, join, decorate, needle, fabric, thread, knot, tie	Template, quality, suitable, features, overstitch/running stitch, design, mock-up	Textile, binca, plastic canvas, embroidery, running stitch, cross stitch, diagonal	Pattern, finishing technique, program,	Upcycle, make do and mend. pattern pieces, alter, fastening, button, press stud, measure	Repurpose, reinforce, embellish, survey
Vocabulary: Electrical Systems					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		User, fault, toggle switch, insulator, conductor, battery holder, crocodile clip = control, micro switch, latching switch	Series circuit, connection, push-to-make switch, pushto-break switch, innovative, appealing, control box, input device, output device, system	Parallel circuit, light emitting diode, monitor, flowchart, design specification, reed switch, tilt switch	Light dependent resistor, interface control, micro switch, latching switch

6.Progression of Vocabulary

DT Vocabulary progression document					
Vocabulary: Mechanisms					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Wheel, axel, fixed, free, design, make, cutting, joining, dowel, body, cab, shaping	Slider & Leavers: Mechanism, lever, slider, spinning wheel, slot, pivot, guide/bridge, masking tape, fastener, pull/push, down, straight, work, design, evaluate, purpose, smoothly	Leavers & linkages: Loose/fixed pivot, system, input, output, process, linkage, prototype, mechanical syste,		Pulleys or Gears: Pulley, gear, driver, follower, rotation, motor, belt, spindle, motor, circuit, switch, ratio, transmit, annotated drawings, exploded diagrams, functionality	Pulleys or Gears: Transmit, annotated drawings, exploded diagrams, functionality
Vocabulary: Structures					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Freestanding Structures: Cut, fold, join, fix, weak, strong, glue, scissors, cellotape, masking tape, staples	Freestanding Structures: Structure, base, underneath, thicker, thinner, corner, point, straight, curved, a frame	Shell Structures: Shell, structure, net, marking out, material, joining, three dimensional, stiff, rectangle, cube, cuboid, cylinder	Shell Structures: Assemble, prism, vertex, breadth, capacity, scoring, adhesives, reduce, reuse, recycle, corrugating, ribbing, laminating	Frame Structures: Reinforce, triangulation, stability, temporary, permanent, prototype, innovation, functional, design brief	Frame Structures: Reinforce, triangulation, stability, temporary, permanent, prototype, innovation, functional, design brief

6.Progression of Vocabulary

DT Vocabulary progression document					
Vocabulary: Nutrition					
Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Preparing Fruit & Vegetables: Fruit, vegetables, soft, juicy, crunchy, sticky, smooth, sharp, crisp, sour hard, flesh, skin, seed pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, tasting, arranging	Preparing Fruit & Vegetables: Fruit, vegetables, soft, juicy, crunchy, sticky, smooth, sharp, crisp, sour hard, flesh, skin, seed pip, core, slicing, peeling, cutting, chopping, spooning, scooping, squeezing, healthy diet, choosing, ingredients, planning, tasting, arranging, Appealing Bridge hold Claw method	Healthy & Varied Diet: Texture, taste, appearance, preference, greasy, moist, fresh, savoury, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested, stewing, peeling, dicing, measuring, simmering, frying, balanced, rubbing	Healthy & Varied Diet: Texture, taste, appearance, preference, greasy, moist, fresh, savoury, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested	Celebrating Culture & Seasonality: Ingredients, yeast, dough, wholemeal, unleavened, baking soda, spice, herbs, carbohydrate, sugar, fat, protein, vitamins, nutrients, gluten, allergy, intolerance, savoury, seasonality, pour, mix, knead, whisk, beat, combine, fold, rubbing in, paring	Celebrating Culture & Seasonality: Ingredients, yeast, dough, wholemeal, unleavened, baking soda, spice, herbs, carbohydrate, sugar, fat, protein, vitamins, nutrients, gluten, allergy, intolerance, savoury, seasonality, pour, mix, knead, whisk, beat, combine, fold, rubbing in

7. S Plans - Cycle A Phase 1: Autumn

Subject: Design and Technology
Year: 1/2
Term: Autumn - Cycle A

Lesson 1: Research
Q:What makes a good playground structure?
K: Different types of playground structures and their features.
S: To explore and evaluate a range of existing products.

Lesson 2: Focus Task
Q: How can structures be made stronger?
K: Techniques for making a structure stable.
S: Select appropriate tools and

Lesson 3: Focus Task
Q: How can we join components within a structure?
K: Joining techniques
S: Select appropriate tools and equipment for joining.

Lesson 4: Focus Task
Q: How can we use these materials effectively?
K: Characteristics of materials
S: Select from and use a wide range of materials and components.

Lesson 5 and 6: Designing
Q: Why have you chosen those materials?
S: Design purposeful and functional and appealing structures based a design criteria.
Generate, develop and communicate ideas through talking and drawing.

Lesson 7 and 8: Designing
Q: Which structure is the best at meeting the design criteria?
S: Design purposeful, functional and appealing structures based on design criteria.
Evaluate ideas against the design criteria

What the children should already know:
Join with glue, staples, cello-tape, masking tape.

The Big Question:
The local council have decided to build a new park for the local area. They have
What is the best playground structure for a park?

Lesson 9: Making
Q: How can your final product be finished to a high standard?
S: Select from and use a range of tools and equipment to perform practical tasks.
Select from and use a wide range of materials and components according to their characteristics.

Lesson 10: Evaluating
Q: Does your playground structure meet the design criteria?
S: Evaluate the final product against the design criteria

Tier 2 vocabulary:

Structure, design criteria, research, evaluate, product, stable, appealing

Tier 3 Vocabulary:

Playground structure, join, wobble board, net swing, a-frame

Enrichment opportunities:
Collate the playground structures to make model playgrounds. Vote on the best playground.
Send model playgrounds to the local council for feedback.
Showcase final playgrounds models.

7. S Plans - Cycle A Phase 1: Spring

Subject: Design and Technology
Year: 1/2
Term: Spring - Cycle A

Lesson 1: Healthy Diet
Q:
K: Understand the basic principles of a healthy and varied diet.

Lesson 2: Where food comes from.
Q: Where does our breakfast come from?
K: Understand where food comes from.

Lesson 3: Taste Test
Q: How can we prepare food safely?
K: Joining techniques
S: Select appropriate tools and equipment for joining.

Lesson 4: Focus Task
Q: How can we use these materials effectively?
K: Characteristics of materials
S: Select from and use a wide range of materials and components.

The Big Question:
The Queen enjoys a healthy breakfast of cereal, fruit and yoghurt. Design and make a healthy breakfast fit for The Queen.

Lesson 5 and 6: Designing
Q: Why have you chosen those ingredients?
S: Design purposeful and functional and appealing structures based a design criteria.
Generate, develop and communicate ideas through talking and drawing.

Lesson 7: Designing
Q: Which design is the best at meeting the design criteria?
S: Design purposeful, functional and appealing structures based on design criteria.
Evaluate ideas against the design criteria

Enrichment opportunities:
Go shopping for ingredients

Lesson 8&9: Making
Q: How can your final product be finished to a high standard?
S: Select from and use a range of tools and equipment to perform practical tasks.
Select from and use a wide range of materials and components according to their characteristics.

Lesson 10: Evaluating
Q: Does your healthy breakfast meet the design criteria?
S: Evaluate the final product against the design criteria.

What the children should already know:
Pupils should know to make healthy choices about food and drink. Pupils should be able to identify healthy and unhealthy foods. Pupils should use kitchen tools safely.

Tier 2 vocabulary:

Design criteria, research, healthy, unhealthy, bridge hold, claw method

Tier 3 Vocabulary:

appealing, slice, chop, spoon, scoop

ST MARY QUEEN OF MARTYRS VC ACADEMY

7.. S Plans - Cycle A Phase 1: Summer

ST MARY QUEEN OF MARTYRS VC ACADEMY

Subject: Design and Technology
Year: 1/2
Term: Summer - Cycle A

The Big Question:
Design and make a moving picture depicting an explorer suitable for the children in FS2.

Enrichment opportunities:
Visit FS2 with our moving pictures and share.

Lesson 1: Research
Q: Which part of the picture is moving? How do the parts move?
K: Knowledge of different mechanisms – sliders, levers and wheels.
S: Explore and use mechanisms. Explore and evaluate existing products.

Lesson 2: Focus Task - Sliders
Q: How can I make the slider move smoothly?
K&S: Explore and use mechanisms in their products.

Lesson 3: Focus Task - Levers
Q: How can we make the hole safely?
K&S: Explore and use mechanisms in their products.

Lesson 4: Focus Task - Wheels
Q: How can we make the wheel spin freely?
K&S: Explore and use mechanisms in their products.

Lesson 5: Designing
Q: What mechanism(s) would be most suitable for that moving part? Why?
K: Understanding of the 3 mechanisms and how they work.
S: Design purposeful, functional, appealing products for other users based on design criteria.
Generate, develop, model and communicate their ideas through talking and drawing.

Lesson 6: Information and Communication Technology – Creating/Finding Images
Q: Which picture have you chosen? Why?
S:Generate, develop, model and communicate their ideas through information and communication technology.

Lesson 7: Background
Q: What colours/effect are you going to paint your background?
S: Select from and use a range of tools and equipment to perform practical tasks.
Select from and use a wide range of materials and components according to their characteristics.

Lesson 8: Making
Q: How can you improve the moving parts?
S:

Lesson 9: Evaluating
Q: Does your moving picture meet the design criteria?
S: Evaluate the final product against the design criteria.

What the children should already know:
Spinning wheels – science
Easter Card – levers.

Tier 2 vocabulary:

Mechanism, design criteria, research, evaluate, product, appealing

Tier 3 Vocabulary:
Slider, lever, spinning wheel, smoothy, assemble, pivot

7.. S Plans - Cycle A Phase 2: Autumn

Subject: Design and Technology
Year: 3/4
Term: Autumn - Cycle A

The Big Question:
To design and make a healthy vegetarian pasta dish to share with my friends.

Lesson 3:
Q: What makes a healthy vegetable soup?
K: To understand what constitutes as a healthy meal.
S: To be able to plan a healthy dish using given a choice of ingredients.

Lesson 2: Healthy Diet
Q: What is a healthy diet?
K: To know what a healthy diet is.
S: Make a list of their favourite healthy foods, including all food groups.

Lesson: Retrieval
K: Healthy Eating Quiz

Lesson 4:
Q: How to make a healthy vegetable soup?
K: How to be safe in the kitchen.
S: Pupils can use the cooking techniques: peeling, chopping, slicing, cutting, grating, mixing, rubbing, measuring, simmering, frying.

Lesson 5:
Q: Where do our cooking ingredients come from?
K: Know where the food in the supermarket comes from.
S: To explain where, when and how an ingredient reared, caught and processed.

Lesson 6:
Q: What makes a healthy pasta sauce?
K: To understand what constitutes as a healthy meal.
S: To be able to plan a healthy dish using given a choice of ingredients.

Lesson: Evaluation
S: What would you change if you were to make the pasta sauce for my family?

Lesson 7:
Q: How to make a healthy vegetable sauce?
K: The children will learn to make a vegetable pasta sauce.
S: Pupils can use the cooking techniques: peeling, chopping, slicing, grating, measuring, simmering, frying.

Enrichment opportunities:
Phase/Class meal

What the children should already know:
Pupils know that fruit and veg is healthy. They understand the principles of the 5-a-day rule and a rainbow diet. Pupils have used the Eatwell Plate to sort food. Pupils have covered cooking techniques – cutting, grating, mixing

Tier 2 vocabulary:
Varied, healthy, balanced, design criteria, cooking techniques, peeling, chopping, slicing, grating, mixing, rubbing, measuring, simmering, frying.

Tier 3 Vocabulary:
Seasonality, bridge method, claw method, stew, paring, peeling, dicing.

7. S Plans - Cycle A Phase 2: Spring

ST MARY QUEEN OF MARTYRS VC ACADEMY

Subject: Design and Technology
Year: 3/4
Term: Spring - Cycle A

Lesson 1: Research existing products – Link to designer
Q: How has [designer] helped to shape the world of textiles?
K: Knowledge of the key event/individual and impact on the world.

Lesson 2: Research intended user
Q: Who are your making your product for and how will you make it appealing for them?
S: Research interests and ask questions about the intended users interests.

Lesson 3: Focus Task – Threading a needle, running stitch, finishing the thread.
Q: How do we ensure the thread is attached securely to the material?
K&S: Select tools and equipment to join accurately. Develop a method

Lesson 4: Focus Task – Cross stitch
Q: What makes a neat cross stitch?
K&S:

Lesson 5: 2 designs
Q: Why have you chosen your designs?
S: Design purposeful and functional and appealing patterns based on the design criteria and interests of the particular individual.
Generate, develop and communicate ideas through discussion, and annotated sketches.

Lesson 6: Design in detail using computer software.
Q: How will you use your knowledge and skills of sewing in your final design?
S: Use computer aided design to create a detailed pattern of your design.

Lesson 7,8,9: Making
Q: How can your final product be finished to a high standard?
S: Select from and use a range of tools and equipment to perform practical tasks.
Select from and use a wide range of materials and components according to their characteristics.

Lesson 10: Evaluating
Q: Does your final product meet the design criteria?
S: Evaluate the final product against the design criteria.

The Big Question:
Design and make a Greetings Card which your [intended user] will love.

Enrichment opportunities:
Enterprise project

What the children should already know:
How to thread a needle
How to perform a running stitch
How to perform an overstitch

Tier 2 vocabulary:

textiles, design criteria, research, evaluate, product, appealing, join

Tier 3 Vocabulary:

Binca, plastic canvas, running stitch, cross stitch,

7. S Plans - Cycle A Phase 2: Summer

Subject: Design and Technology
Year: 3/4
Term: Summer - Cycle A

Lesson 1: Explore and research existing products (make own).
Q:What are linkages and levers? How do the mechanisms work?
K: To understand mechanical systems.
S: To investigate existing products.

Lesson 2: Focus Task – Explore levers and linkages
Q: How do the parts move?
K&S: To understand mechanical systems.

Lesson 3: Focus Task – Explore more levers and linkages
Q: How do the parts move?
K&S: To understand mechanical systems.

Lesson 4: Design Criteria and Designing
Q: What makes your design innovative, appealing and functional?
K: To understand mechanical systems.
S: To design innovative, functional and appealing structures based on the design criteria.
To generate, develop and communicate ideas through discussion and annotated sketches.

Lesson 5: Protype
Q: Does your prototype work? Have you had to make any changes?
K: To understand mechanical systems.
S: To generate, develop and communicate ideas through discussion and protypes.
To evaluate design ideas.

Lesson 6: Making
Q: How are you going to finish your product to a high standard?
K&S: To select from and use a wider range of tools and equipment accurately to cut, shape, finish and join materials accurately.

Lesson 7: Evaluating
Q: Does your final product ?
S: To evaluate their ideas and products against their design criteria and consider the views of others to improve their work.

What the children should already know:
What a lever is.
How to make a spinning wheel and a moving arm using a split pin.

Tier 2 vocabulary:
Mechanical system, prototype, lever,

Tier 3 Vocabulary:
Llinkage, fixed pivet, loose pivot, input, output

The Big Question:
To design and make a mechanical poster to inform our school family about environmental issues.

Enrichment opportunities:
Display posters in the hall. Invite parents and school family to see the posters. Ask the Global links team to judge the posters.

7.. S Plans - Cycle A Phase 3:Autumn

Subject: Design and Technology
Year: 5/6
Term: Autumn - Cycle A

Lesson 1: Key Events – Make do and mend
Q: How have key events such as 'Make do and mend' and upcycling shaped the world.
K&S: Knowledge of the key events and impact on the world.

Lesson 2: Research
Q: What products can bags be made from?
K&S: To research different designs, materials and methods needed.
To conduct a survey to find out which bags are more popular amongst their classmates and find out what people look for in a bag.

Lesson 2: Focus Task
Q: How can materials be joined neatly and securely?
K&S: To use stranded cotton and finer needles.
To gain independence and fluency in sewing skills.

Lesson 3: Design
Q: How does your design meet the design criteria?
K&S: To design innovative, functional and appealing products based on the design criteria.
To generate, develop and communicate ideas through discussion and annotated sketches.

Lesson 4&5 and 6: Making
Q: What problems have you encountered and how have you overcome them?
K&S: To select from and use a wider range of tools and equipment accurately to cut, shape, finish and join materials accurately.
To evaluate their products.

Lesson 7: Evaluating
Q: How effective is your final product?
S: To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.

What the children should already know:
Children should know how to perform a basic running stitch.
Pupils join materials by sewing.
Pupils should be able to add decoration to the work by sewing on beads, sequins and buttons.

The Big Question:
To design and make an item of clothing or an accessory for a person of your choice by upcycling an old t-shirt.

Tier 2 vocabulary:
cut, sew, alter, embellish, design, survey

Tier 3 Vocabulary:
upcycle, make do and mend, pattern, running stitch

Enrichment opportunities:
Fashion show

7. S Plans - Cycle A Phase 3:Spring

ST MARY QUEEN OF MARTYRS VC ACADEMY

Subject: Design and Technology
Year: 3/4
Term: Spring - Cycle A

Lesson 1&2: Research Victorian food and seasonality
Q: How did the Victorians source their food and what affects did seasonality have on their diet?
K: Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

Lesson 3: Healthy Diet
Q: Did the Victorians have a healthy diet?
K: Understand and apply the principles of a healthy and varied diet

Lesson 4a: Focus Tasks linked to research of existing products.
Q: What techniques do you use to prepare and cook a stew and how do you ensure health and safety?
K: Use the bridge and claw method to cut food. Food hygiene and safety.
S: Follow a recipe to prepare and cook a savoury dish using a range of cooking techniques.

Lesson 4b: Evaluating existing products and developing design criteria.
Q: What makes a good stew?
S: Use research of to develop design criteria to inform the design of appealing products that are fit for purpose.

The Big Question:
To design and make a healthy stew.

Lesson 5: Designing
Q: Why have you chosen your designs? Does your final design meet the design criteria?
S: Generate, develop and communicate ideas through discussion and annotated sketches. Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.

Enrichment opportunities:
Discuss

Lesson 6: Making
Q: What ingredients and techniques have you used to ensure that your dish tastes good and that you are safe in the kitchen?
S: Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.

Lesson 7: Evaluating
Q: Does your final product meet the design criteria?
S: Evaluate their product against their own design criteria and consider the views of others to improve their work.

Lesson 8: Research
Q:How did Victorians influence how and what we cook?
S: Understand how key events and individuals in design and technology have helped shape the world.

What the children should already know:
Pupils know that fruit and veg is healthy. They understand the principles of the 5-a-day rule and a rainbow diet. Pupils have used the Eatwell Plate to sort food.
Pupils have covered cooking techniques – cutting, grating, mixing, stirring, boiling.

Tier 2 vocabulary:
Varied, healthy, balanced, design criteria,

Tier 3 Vocabulary:
Seasonality, bridge method, claw method, stew, paring, peeling, dicing.

7.. S Plans - Cycle A Phase 3:Summer

ST MARY QUEEN OF MARTYRS VC ACADEMY

Subject: Design and Technology
Year: 5/6
Term: Summer - Cycle A

The Big Question:
The Amazon tribe face frequent houses problems due to extreme weather conditions. Design and build a house that will withstand heavy rainfall and flooding.

Enrichment opportunities:
Ch to test the effectiveness of their house by pouring water from a watering can to simulate heavy rainfall.
Tweet final designs. Beat The Flood. STEM

Lesson 1: Design Criteria. Key Events.
Q:What housing problems do the Amazon tribe face?
K&S: Develop design criteria to inform the design of innovative, functional and appealing products.
Understand how key events have helped shape the world.

Lesson 2: Focus Task
Q: What type of structure is most suitable for a home in a flood prone area?
K: To know that weight makes a structure stronger and stable. To know that a frame reinforced with a shell makes a structure stronger and stable.
S: To explore and evaluate shell and frame structures.

Lesson 3: Focus Task
Q: Which material is the most waterproof?
K: To select materials and components according to their properties.
S: To use research to inform the design of functional products.

Lesson 4: Focus Task
Q: Which material is the strongest?
K: To select material and components according to their properties.
S: To use research to inform the design of functional products.

Lesson 5: Designing
Q: What makes your design innovative, appealing and functional?
K: To select materials according to their properties.
S: To design innovative, functional and appealing structures based on the design criteria.
To generate, develop and communicate ideas through discussion and annotated sketches.

Lesson 6: Making
Q: What problems have you encountered and how have you overcome them?
K&S: To select from and use a wider range of tools and equipment accurately to cut, shape, finish and join materials accurately.
To evaluate their products.

Lesson 7: Evaluating
Q: How effective is your final product?
S: To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.

What the children should already know:
Children should know about nets through Maths lessons. They should know about the properties of materials through Science.
Pupils will have experienced different methods of joining – glue, tape, split pins, elastic bands, pipe cleaners.

Tier 2 vocabulary:
Structure, stronger, stable, reinforce, innovative, functional

Tier 3 Vocabulary:
Frame structure, shell structure, absorbent, resistance, reinforce

7. S Plans - Cycle B Phase 1:Autumn

Subject: Design and Technology
Year: 1/2
Term: Autumn - Cycle B

Lesson 1: Research
Q: **Which puppet would you like to play with and why?**
K: Features of puppets
S:Explore and evaluate a range of existing puppets.

Lesson 2: Focus Task – Sewing – Threading and lacing boards with shoe laces
Q: **What is sewing?**
K: Method for sewing
S: Develop running stitch/over stitch

Lesson 3: Practical: Exploring materials (link to Science)
Q: **How can you use these materials to make a puppet?**
K: Characteristics of materials
S: Develop and communicate ideas through talking.
Select from a range of materials according to their characteristics.

The Big Question:
Design and make a Christmas puppet suitable for Santa's workshop.

Enrichment opportunities:
Create a puppet show

Lesson 4: Designing
Q: **Which materials have you chosen for your puppet and why?**
K: Names and characteristics of materials.
S: Design purposeful, functional and appealing products for other users based on design criteria

Lesson 5: Paper Prototypes
Ch to be given paper puppet templates. Ch to staple the sides to create a puppet. Using coloured paper, ch to follow their design plan to make a prototype.
Q: **How have you made sure that all the features/parts are the right size?**
K: How to hold and use scissors. Use judgement to check size of features against the template.
S: Generate, develop, model and communicate ideas through templates and mock ups.
Use scissors to shape materials

Lesson 6:Making - Sewing
Q: How will you make your stitches neat?
K: How to perform stitches
S: Use a sewing needle to stitch.

Lesson 7: Making - Decoration
Q: How will you attach the decoration to your puppet?
K: How to staple, glue, stitch different materials to the puppet.
S: Select from and use a wide range of textiles and embellishments according to their characteristics.

Lesson 8: Evaluating
Q: Will your puppet make a good present? Why?
K: Understand the design criteria
S: Evaluate the product against the design criteria.

Vocabulary:
puppet, sew, stitch, over stitch/running stitch, needle, knot, tie, attach, join, template

7. S Plans - Cycle B Phase 1:Spring

ST MARY QUEEN OF MARTYRS VC ACADEMY

Subject: Design and Technology
Year: 1/2
Term: Spring - Cycle B

Lesson 1: Nutrition
Q: **Where does food come from?**
K: Understand that all food comes from plants or animals. Recognise the Red Tractor symbol.
S: Sort food into foods that comes from plants and foods that comes from animals.

Lesson 2: Nutrition
Q: **What is a healthy and varied diet?**
K: Recognise the need for a healthy and varied diet.
S: Use the Eat Well Plate to sort a variety of food.

Lesson 3: Focus Task – Cutting techniques and taste test
Q: **Which is your favourite ingredient and why?**
K: Know when to use the claw method and when to use the bridge hold. Know how to position hand.
Know that fruit and vegetables can be fresh, canned, frozen, dried or juice.
S: Explore and evaluate different foods including fruit and vegetables that are fresh i.e. pepper, frozen i.e. sweetcorn, canned i.e. pineapple.
Select from ingredients according to their characteristics – texture, flavour.

Lesson 4: Designing
Q: **Do your designs meet the design criteria?**
S: Design a purposeful, functional and appealing dish for myself based on design criteria.
Generate, develop and communicate ideas through talking and drawing.
Select from a wide range of ingredients according to their characteristics.

The Big Question:
To design and make a tortilla pizza for my snack time.

Enrichment opportunities:
Pizza Express/Farm to Fork
School Trip?

Lesson 5: Making
Q:**How will you prepare your meal safely?**
S: Select from and use a range of tools (pastry cutter, grater, knife, scissors) and equipment to perform practical tasks.
Use a wide range of ingredients according to their characteristics.

Vocabulary:
Plants, animals, red tractor symbol, varied, healthy, unhealthy, diet, bridge hold, claw method, ingredients, cut, slice, grate

Lesson 10: Evaluating
Q: **Will you make a tortilla pizza at home?**
S: Evaluate the final product against the design criteria.

7. S Plans - Cycle B Phase 1:Summer

Subject: Design and Technology
Year: 1/2
Term: Summer - Cycle B

The Big Question:
To design and make a pull along vehicle for my favourite toy.

Enrichment opportunities:
Set up an assault course on the playground using ramps, cones etc. Ch to pull their vehicles along the assault course.
Set up a workshop area with spare tape for ch to make adjustments to their vehicles.

Lesson 1: Research
Q: **What is a vehicle?**
K: Identify the features of a vehicle i.e. windows, wing mirrors, registration late etc.
S: Explore and evaluate a range of existing vehicles.

Lesson 2: Focus Task – Prototype of a wheel and axel mechanism.
Q: **How do wheels move?**
K: Identify the wheel, axle and chasis.
S: Explore and use a wheel and axle mechanism. Use a range of materials to make a mock-up.

Lesson 3: Discussion - Exploring junk materials from Scrapstore
Q: **What materials could you use for the different vehicle features?**
K: Characteristics of materials
S:Select from a wide range of materials and components according to their characteristics.
Generate, develop and communicate ideas through talking

Lesson 4: Designing
Q: **How have you made your vehicle suitable for your favourite toy?**
K&S: Design purposeful, functional, appealing products for a favourite toy based on the design criteria.
Generate, develop, model and communicate ideas through talking and drawing.
Select from a wide range of materials and components according to their characteristics.

Lesson 5: Information and Communication Technology – Creating/Finding images for the vehicle i.e. create a registration plate, print graphics for vehicle.
Q: **Which image have you chosen/created? Why?**
S:Generate, develop, and communicate their ideas through information and communication technology.

Vocabulary:
vehicle, features, wheels, axle, chasis, body, mechanism, prototype

Lesson 6: Constructing vehicle body and paint work.
Q: **Which box(es) will you use to make the shape of your vehicle? What colours/effect are you going to paint your vehicle?**
K&S: Select from and use a range of tools and equipment to perform practical tasks.

Lesson 7: Making Day
Q: **How have you made your vehicle strong and secure?**
K&S: Select from and use a range of tools and equipment.
Select from and use a wide range of materials and components according to their characteristics.

Lesson 8: Assault course and adjustments.
Q: **Have you had any problems? How did you fix the problem?**
K&S: Evaluate the final product against the design criteria.

7. S Plans - Cycle B Phase 2:Autumn

ST MARY QUEEN OF MARTYRS VC ACADEMY

Subject: Design and Technology
Year: 3/4
Term: Autumn - Cycle B

Lesson 1:
Q: **Why were lighthouses built and are they still used today?**
K: Features of a lighthouse
S: Investigate and analyse a range of lighthouses.

Lesson 2: Focus Task - Electrical Systems
Q: **What electrical components do you need to make a light work?**
K: Name the components in a simple circuit with a light.
S: Understand electrical systems with a bulb.

Lesson 3: Focus Task - Exploring nets
Q: **What shapes do these nets make?**
K: Identify different nets.
S: Make 3d shapes using nets

Lesson 4: Designing
Q: **How have you made your lighthouse design appealing for modern day?**
K: Features of a lighthouse
S: Generate, develop and communicate ideas through talking and drawing.

Lesson 5: ICT – Nets
Q: **How do you know if your net is the correct size?**
K: Identify different nets
S: Generate and develop ideas through the use of computer aided design.

The Big Question:
Design and make a lighthouse for a [trail along the Humber?]

Enrichment opportunities:
Display lighthouses in the hall.

Lesson 6: Making
Q: **How will you ensure that your product is finished to a high standard?**
K: Finishing techniques – decoration, detail
S: Select from and use a wider range of tools and equipment to cut, join and finish accurately.
Use a range of materials and components according to their functional properties and aesthetic qualities

Vocabulary:
lighthouse, components, circuit, light, bulb, battery, wire, nets, 3d shapes, prism, reinforce

Lesson 7: Evaluating
Q: **Is your lighthouse effective?**
K: Understand the design criteria.
S: Evaluate the product against the design criteria and consider the views of others to improve their work.

7. S Plans - Cycle B Phase 2:Spring

ST MARY QUEEN OF MARTYRS VC ACADEMY

Subject: Design and Technology
Year: 3/4
Term: Spring - Cycle B

The Big Question:
To design and make a seasonal fruit crumble that my family would enjoy.

Enrichment opportunities:
Grow ingredients – rhubarb, fruit trees.

Lesson 3: Nutrition (Links to Y3 Science) I can understand the principles of a healthy and varied diet.
Q: Is crumble healthy?
K: Name the food groups for each crumble ingredient.
S: Research different food groups from the Eatwell plate and find out why they keep us healthy.

Lesson 2: Nutrition
Q: Where do the ingredients for crumble come from?
K&S: Understand that food can come from different parts of plant i.e. roots, fruit, stem, seeds
Know that different fruits and vegetables grow in different seasons.
Know that flour comes from wheat.
S: List/sort foods that come from different parts of a plant.

Lesson 1: Research and Taste Test
Q: **What is a crumble?**
K: Describe the taste/texture/flavour of crumble
S: Investigate and analyse a range of existing products and recipes.

Lesson 4: Focus Task – Stewed fruit
Retrieval: Bridge hold and claw method for safe cutting
Q: How do you make stewed fruit safely?
K: Know health and safety rules and hygiene rules.
S: Use the cooking techniques: peeling, chopping, slicing, simmering
Use the hob or microwave to stew the fruit

Vocabulary:
crumble, fruit, stem, seeds, eat well plate, carbohydrates, protein, dairy, sugar, topping, stewed

Lesson 6: Design criteria and designing
Q: How will you ensure that your crumble recipe is innovative and appealing?
K: List the ingredients needed to make a crumble.
S: Use research and develop design criteria to inform the design of innovative, functional and appealing products. Generate, develop and communicate ideas through discussion and annotated sketches.
Select from a wider range of ingredients according to their taste/texture/flavour/appearance.

Lesson 5: Focus Task – Measuring ingredients for a basic crumble topping. Link to Maths – Ratio (Double flour to butter)
Q: How do you make a basic crumble topping? How can you adapt the recipe for the topping?
K: Know healthy and safety rules and hygiene rules.
Know that oats, seeds, chocolate cinnamon and other ingredients can be added to the topping.
Measure double the amount of flour to butter.
S:Use the cooking techniques: rubbing, mixing, combining, measuring.

Lesson: Evaluating
Q: **What would you change if you were to make the crumble again?**
K&S: Evaluate the crumble against the design criteria.

Lesson 7: Making
Q: How will you ensure that your crumble meets the design criteria?
K: Know healthy and safety rules and hygiene rules.
S: Pupils can use the cooking techniques: peeling, chopping, slicing, measuring, simmering, rubbing, mixing to prepare and cook a crumble.

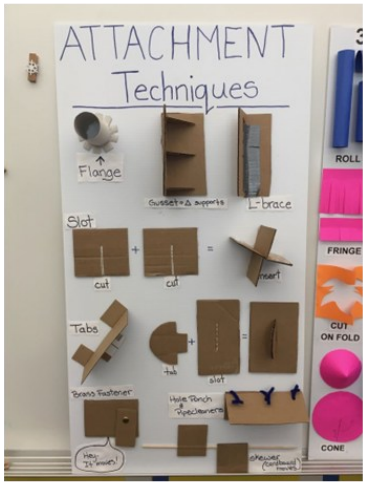
7. S Plans - Cycle B Phase 2:Summer

ST MARY QUEEN OF MARTYRS VC ACADEMY

Subject: Design and Technology
Year: 3/4
Term: Summer - Cycle B

The Big Question:
To design and make a castle that will withstand an attack and includes a working pulley for the drawbridge.

Enrichment opportunities:
Ch to use toy missiles to attack the castle. Will the castle walls stand?



Lesson 3: Focus Task 3 - Pulley
Q: What is a pulley?
K: Understand the pulley mechanism
S: Make a pulley using the equipment provided

Lesson 4: Design
Q: What features have you included in your design to ensure that your castle is strong?
K: Attachment techniques
S: Draw an exploded diagram to show the attachment techniques.
Generate, develop, model and communicate their ideas through discussion and annotated sketches.

Lesson 6: Making – Joining, strengthening and securing walls
Q: Have you had to make any changes to your design?
K: Attachment techniques
S: Use tools and equipment to join the walls of the structure.

Lesson: Attack and evaluation
Q: Did you encounter any problems? How did you overcome the problem?
K: Design criteria
S: Evaluate the castle against the design criteria and consider the views of others to improve work.

Lesson 2: Focus Task – Attachment techniques for strong and stable walls (flange, gusset, slot, tabs)
Q: **What techniques can be used to strengthen and secure structures?**
K: Understand the vocabulary – flange, gusset, slot, tabs
S: Apply understanding of how to strengthen, stiffen and reinforce more complex structures.

Lesson 1: Research
Q: **How did castles protect the people living inside?**
K: The features of castles
S: Investigate and analyse a range of existing products.
Understand how individuals [architect] have helped shape the structure and architecture of buildings.

Lesson 5: Making – Cutting, shaping and decorating walls
Q: How have you made the castle look realistic?
K: Castle features
S: Use a ruler and scissors to shape and cut accurately. Use paint/printing to decorate and finish the walls.

Lesson 7: Adding pulley for drawbridge
Q: How will you attach the pulley?
K: How a pulley works and materials required.
S: Use materials and components to according to their functional properties and aesthetic qualities

Vocabulary:
Castle, tower, drawbridge, attachment techniques, flange, gusset, slot, tabs, pulley,

7. S Plans - Cycle B Phase 3:Autumn

Subject: Design and Technology
Year: 5/6
Term: Autumn - Cycle B

Lesson 1: Research (Humber, Murdoch Connection, Scale Lane Swing Bridge) and Key Events/Designers.
Q: **What is significant about the bridges in Hull and how have they made a difference to the City?**
K&S: Understand how key events and designers have helped shape the world.
Investigate and analyse a range of existing products.

Lesson 2: Focus Task - Hinges
Q: **How have you made your hinge?**
K: To identify the hinge and axel.
S: To select from and use a wider range of materials and components.

Lesson 3: Focus Task - Hydraulics
Q: **How does a hydraulic system work?**
K: To use technical vocabulary to explain how a hydraulic system works.
S: To use materials and components according to their functional properties.

Lesson 4: Produce Design Criteria and collate design ideas.
Q: **What makes a bridge design innovative, appealing and functional?**
K: To understand the key vocabulary – innovative, appealing and functional.
S: To develop design criteria
To use research to inform the design of functional products.
To generate and develop ideas through discussion.

The Big Question:
Hull has many bridges for pedestrians and cars to cross the River Hull and the River Humber. Design and make a model of a new bridge for the City of Hull with a hydraulic mechanism.

Enrichment opportunities:
To showcase the working bridges to another class and demonstrate how the hydraulic system works.

Lesson 5: Designing
Q: **How do your designs meet the design criteria?**
K: To know how to draw a cross sectional diagram or an exploded diagram.
S: To generate, develop and communicate ideas through discussion and annotated sketches, cross sectional and exploded diagrams.
To design innovative, functional and appealing structures based on the design criteria.

Lesson 6: Making
Q: **What problems have you encountered and how have you overcome them?**
K&S: To select from and use a wider range of tools and equipment accurately to cut, shape, finish and join materials accurately.
To evaluate their products as they work and consider the views of others to improve their work.

Lesson 7: Evaluating
Q: **How effective is your final product?**
S: To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.

Vocabulary:
Bridge, hinge, axel hydraulic system, syringe, pressure, innovative, appealing, functional, attach,

7. S Plans - Cycle B Phase 3:Spring

Subject: Design and Technology
Year: 5/6
Term: Spring - Cycle B

Lesson 1: The history of bread around the world.
Q: **Bread is considered to be the 'World's most ancient food'. What makes bread special?**
K&S: Understand how bread is used around the world and how it has impacted our daily lives..

Lesson 2: Processed Food - Bread
Q: **How is bread processed?**
K&S: Understand where and how bread is processed.

Lesson 3: Focus Task – Following a recipe and kneading. In groups, ch to follow a basic bread. Ch to share (with accompanying soup?)
Q: **Why is it important to follow a bread recipe precisely?**
S: Prepare and cook using a range of cooking techniques – measuring, kneading, proofing, dividing, shaping.

Lesson 4: Market Research and Taste Testing
Q: **How can we change the shape and taste of bread?**
K: Different ingredients which can be used to flavour bread.
S: Investigate and analyse existing products.

Lesson 5: Focus Task – Explore Bread Shape - Playdough Bread Rolls
K&S: Developing ideas through prototypes.

Lesson 6: Design Criteria and Designing
Q: **What makes your bread roll innovative and appealing?**
K: Know different flavours and shapes of bread.
S: Use their research and develop design criteria to inform the design of innovative, functional, appealing products. Genrate and develop ideas through drawings and cross-sectional diagrams.

Lesson 7: Making – Make dough in groups then split into rolls.
Q: **What ingredients and techniques have you used to ensure that your dish tastes good?**
K&S: Prepare and cook using a range of cooking techniques – measuring, kneading, proofing, dividing, mixing, shaping.

Lesson 8: Judging and Evaluating
Q: **Does your final product meet the design criteria?**
K: Design criteria
S: Evaluate their product against their own design criteria and consider the views of others to improve their work.

The Big Question:
To design and make a bread roll for Phase 3s Great British Bake Off.

Enrichment opportunities:
Bread rolls to be judged.
Warburtons Bake the Most of Life

Tier 2 vocabulary:
Bread, processed, measuring, kneading, proofing, flavour, prototype

7. S Plans - Cycle B Phase 3:Summer

Subject: Design and Technology
Year: 5/6
Term: Summer - Cycle B

Lesson 1:
Q: **What is a microbit?**
K: Identify the different parts of a Microbit.
S: Understand that a Microbit is a small computer that uses code.

Lesson 2: Introduce Project – Night Safety for children.
Q: **How can technology help to keep us safe in the dark?**
K: How Micro-bits can be used at night.
S: Understand how technology has helped shape the world.

Lesson 3: Algorithm for a night sensor
Q: **What is an algorithm?**
K: How to programme a Micro-bit.
S: Follow the steps to programme and control a night sensor.

Lesson 4: Design the device/container for the Microbit.
Q: **How can the night sensor be used/worn?**
K&S: Design an innovative, functional and appealing product.

Lesson 5:Make the container for the Microbit.
Q: **What materials have you chosen to make your night sensor container? Why?**
K&S: Select and use a wider range of materials and components.

The Big Question:
To design and make a night sensor for children to 'be safe and be seen' in the dark.

Lesson 6: Programme the Microbit, test it and begin to attach it inside the container.
Q: Have you had to make any changes to the code?
K&S: Apply their understanding of computing to program, monitor and control their products.

Enrichment opportunities:
Test the night sensors in the dark. Which works best and why?

Lesson 7: Testing and controlling the night sensor.
Q: How do you control your Micro-bit?
K&S: Apply their understanding of computing to program, monitor and control their products.

Lesson 8: Evaluation
Q: **Does your final product meet the design criteria?**
S: Evaluate their product against their own design criteria and consider the views of others to improve their work.

Vocabulary:
Micro-bit, control, program, algorithm, melody, string, pressed, repeating,

8. Key Progress Indicators - Phase 1

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DESIGN TECHNOLOGY – Phase 1

Design	Making	Evaluate
Year 1: Can they identify the key features of an existing product? Can they think of some ideas of their own? Can they explain their ideas orally? Can they use drawings and labels to plan? Can they make templates and mock ups? Can they use ICT to develop ideas? **Year 2:** Can they choose the most appropriate tools and materials? Can they use the design criteria to plan? Can they design a product for someone else?	**Year 1:** Can they explain what they are making? Can they select appropriate resources and tools? Can they use tools safely? Can they hold scissors correctly and cut shapes neatly? **Year 2:** Can they explain why they have chosen certain materials? Can they explain which tools they are using? Can they join materials/components in different ways? Can they add detail and decoration to finish their product?	**Year 1:** Can they say what they like/dislike about existing products? Can they say what they like/dislike about their own product? **Year 2:** Can they identify success and next steps for their own product? Can they assess whether the product meets the design criteria? Can they talk about how they could fix a problem?

Breadth of Technical Knowledge

Cooking and nutrition	Textiles	Mechanisms	Construction
Can they use the bridge hold and the claw method to cut soft food safely? Can they explain how to be safe and hygienic in the kitchen? Can they explain where food comes from (plants or animals)? Can they explain the 5 a day principle? Do they know it is important to eat a healthy and varied diet? Can they use the Eatwell Plate to sort a variety of food?	Can they use different textiles to make products? Can they join textiles by gluing, stitching or stapling? Can they explain why they chose a certain textile? Can they thread? Can they perform a simple stitch (overstitch or running stitch)?	Can they make a product that moves? Can they identify the wheel, axel and chasis? Can they identify sliders, levers and wheels in a moving picture? Can they explain the movement of a slider, lever and spinning wheel?	Can they build a structure using different materials? Can they join materials in different ways (glue, stable, tape, pipe cleaners)? Can they make their model stronger, stiffer or more stable?

8.. Key Progress Indicators - Phase 2

DESIGN TECHNOLOGY – Phase 2		
Design	**Making**	**Evaluate**
Year 3: Can they plan their design, using accurate diagrams and labels? Can they identify a design criterion and establish a purpose/ audience for their product? How realistic are their plans? e.g. tools, equipment, materials, components. **Year 4:** Can they draw exploded diagrams? Can they use ICT to assist their design process?	**Year 3:** Can they select the most appropriate materials, tools and techniques to use? Can they use equipment and tools accurately and safely? Can they follow procedure for safety and hygiene? **Year 4:** Can they measure, cut and assemble with increasing accuracy? Can they explain their choice of materials and components according to functional properties and aesthetic qualities? Can they manipulate materials using a range of tools and equipment?	**Year 3:** Can they investigate and discuss existing products (how they are made, moving parts, materials used, how effective the product is)? Can they start to think about their ideas as they make progress and be willing to make changes if this helps them to improve their work? **Year 4:** Can they explain what they changed which made their design even better? Can they assess how well their product works in relation to the purpose? Can they consider the views of others to improve their work? Can they discuss inventors/designers/chefs who have

Breadth of Technical Knowledge			
Cooking and nutrition	**Textiles**	**Mechanisms**	**Construction**
Can they decide which hold they need to use for cutting different food? Can they describe how to be safe and hygienic when preparing and cooking food? Can they make sure that their product looks attractive? Can they explain the rainbow diet principle? Can they explain which parts of a plant different foods come from? Can research different food groups from the Eat-Well Plate and find out why they keep us healthy?	Can they thread a needle, using a needle threader if required? Can they join the thread to the fabric and finish the thread? Can they perform cross stitch? Are they gaining fluency and accuracy with running stitch/over stitch? Can they add decoration to their work by sewing on beads, sequins and buttons?	Can they make a product which uses a pulley? Can they make a product using levers and linkages? Can they use technical vocabulary to explain how their product moves? Can they name the components in a circuit? Can they make a product which contains a simple circuit?	Can they use attachment techniques to join and strengthen their structure? Can they use nets to build a structure? Can they incorporate a mechanical system into their structure?

8. Key Progress Indicators - Phase 3

DESIGN TECHNOLOGY – Phase 3		
Design	**Make**	**Evaluate**
Year 5: Can they use market research to inform plans? Do they take a user's view into account when designing? Can they suggest some alternative designs and compare the benefits and drawbacks to inform the design process and outcome? **Year 6:** Can they develop ideas through cross sectional diagrams? Can they develop design criteria?	**Year 5:** Can they choose appropriate tools and materials to ensure that the final product will appeal to the audience? Can they use a range of tools and equipment with good accuracy and effectiveness, within established safety parameters? **Year 6:** Can they finish their product to a high standard that meets the needs of the user? Can they make an innovative product?	**Year 5:** Can they continuously check that their design is effective and fit for purpose? Can they assess how well their product works in relation to the design criteria and the intended purpose and suggest improvements? Can they evaluate appearance and function against the original design criteria? **Year 6:** Can they describe how inventors, designers, engineers (bridges), chefs and world events (Victorian cooking, make do and mend, upcycling, sustainability) have developed

Breadth of Technical Knowledge			
Cooking and nutrition	**Textiles**	**Electrical and Mechanical Components**	**Construction**
Can they explain why we need a healthy and varied diet? Can they explain where and how bread is processed? Can they understand that the seasons may affect the food available? Can they use a range of cooking techniques: peeling, chopping, slicing, grating, mixing, kneading, simmering, weighing, measuring, frying and baking? Can they use a range of kitchen tools: knives, chopping board, grater, garlic press, vegetable peeler, scales, oven, hob, pan?	Can they transform a t-shirt using cutting and sewing skills? Can they gain independence and fluency in sewing skills – threading a needle, joining thread to fabric, stitching. Can they perform a range of stitches with accuracy and fluency (running stitch, over stitch, back stitch, cross stitch, blanket stitch)? Can they cut fabric using templates and pattern pieces including those printed from the computer (e.g. outline of a Christmas tree)? Can join materials by using different sewing techniques?	Can they use hydraulics to make a product move? Can they make a circuit containing a motor? Can they use a motor to make their product move effectively? Can they apply their understanding of computing to program, monitor and control a Micro-bit? Can they incorporate their Micro-bit into a product? Can they refine their product after testing it?	Are their measurements accurate enough to ensure precision? Can they demonstrate that their product is strong and fit for purpose? Are they motivated enough to refine and further improve their product using mouldable materials?