ST CHARLES'

VC ACADEMY

DT Curriculum

Contents

Intent, Implementation and Impact 3
Curriculum Planning 7
Long Term Plan 7
Progression of skills and knowledge 11
Progression of vocabulary for your from EYFS to Y6 16
Learning Sequence 19
Year 1 20
Year 2 26
Year 3 32
Year 4 38
Year 5 45
Year 6 51
Key Performance Indicators for DT 58

Intent, Implementation and Impact

Intent:

The children are encouraged to become innovators and risk-takers. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

The intent of the DT curriculum at St Charles is to provide plenty of opportunities for children to learn, apply and strengthen essential skills required in the designing, making, and evaluating of an effective product for a given purpose.

It is also the intent of the DT curriculum to ensure that the children are well-equipped with useful technical knowledge to support them in the design and making of their product. For example, learning how to strengthen a structure to make it more stable learning how to use mechanism or electrical systems in their designs and learning how to use mechanical systems to control a product.

In addition, the school aims to develop the children's use and understanding of technical vocabulary associated with this subject. This is so that the children can articulate the skills that they have applied, the equipment that they have used and described the materials and features of the products they have made.

For St Charles children we want them to understand and apply the principles of nutrition and learn how to cook.

Implementation:

Design and Technology is planned and delivered in St Charles as a block over a week. This ensures that staff can be supported by the subject leader in the planning of the task, as the priority is to move through the sequence of DT knowledge and skills in a progressive way building upon previous learning, as part of this planning process, teachers need to plan the following:

- A knowledge organiser which outlines knowledge (including vocabulary) all children must master; this will be introduced in Summer 2020
- A cycle of lessons for each subject, which carefully plans for progression and depth.
- Retrieval tasks that are provided every lesson, which is designed to regularly support learners' ability to block learning and increase space in the working memory.
- 'Brain Buzz wall' for pupils to apply and share their learning in a philosophical/open manner throughout the learning sequence.
- Trips and visiting experts who will enhance the learning experience.

- A means to display and celebrate the pupils' DT work in their class, the DT subject leader leads a whole school display for all DT work to ensure quality and high expectations.

In early Years, the children develop essential basic skills in design and technology which prepares them for their transition into Year 1. This is by the teacher creating many opportunities for the children to carry out D and T related activities across all areas of learning.

By the end of the Early Years, it is expected that the children will be able to.

- Construct with a purpose in mind
- Use simple tools and techniques competently and appropriately
- Build and construct with a wide range of objects, selecting appropriate resources and adapting their work when necessary
- Select the tools and techniques they need to shape, assembly and join materials they are using.

From Year 1 upwards, the children will engage in three DT units a year which will involve the children exploring, researching, designing, making, technical knowledge/skills and evaluating. In the Summer term, there is also an additional DT experience for the children. This learning experience has been specifically chosen for each year group to ensure that the children are having enriched learning experiences across the whole DT curriculum in every year, which enables them to continuously revisit, refine and reuse their previous knowledge and skills learnt across the years.

These days will spark and enhance the fun in D&T throughout the school and will be the day the children are able to take risks, enhance skills and consolidate their knowledge. This will result in the children's ability to store this in their long-term memory and utilize these skills in later life experiences.

EXPLORING

The children will explore products linked to their project. They will do this by:

- Taking the product apart and looking at the material/s used to make it.
- Looking at the different features of the product.
- Establishing how the product is constructed.
- Questioning how effective it is in its purpose.
- Discussing what could be done to improve this product.
- Producing a list of key vocabulary linked to this product.

RESEARCHING

The children will carry out research regarding the product that they are going to make so that they can use this research to support the design of their product. The research is a critical aspect in the learning sequence as this is where the children are exposed to the skill of the unit (learning / teaching focus).

DESIGNING

The children will draw/sketch their design and annotate this with information about their design such as, what features they have included in their design.

During this lesson the children will also answer questions such as:

- What materials will I need?
- What tools will I need?
- What technical skills will I need to practise before making the product? (Some of these may have been previously taught skills which need refreshing or be completely new)

TECHNICAL KNOWLEDGE / SKILL

The children engage in a practical activity of practising technical knowledge or skill that they will be required to use when making their product. This may be a new skill or a sill previously practised but that required more practise.

MAKING

The children make their product.

EVALUATING

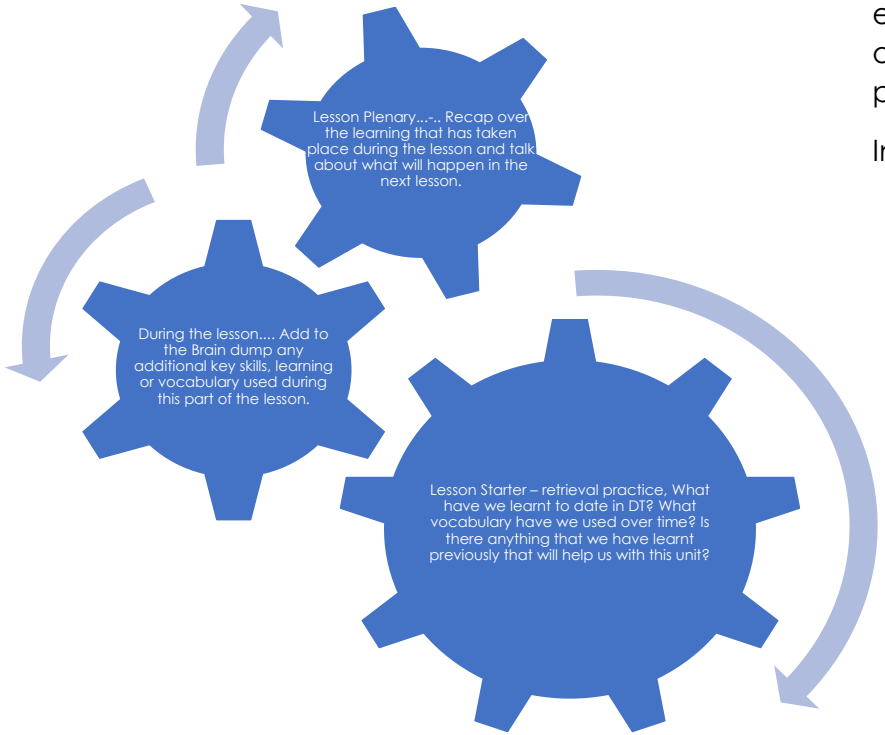
The children will not only evaluate the effectiveness of their product but also the skills that they applied. This will be recorded individually in their DT booklet and stored in their individual folder. Evaluations vary in style amongst the children as some are exposed to writing evaluations and some experience physical and verbal evaluations, such as interview activities.

To ensure that:

- The children remember the long-term content.
- The children understand that they are systematically learning.
- The children can integrate new knowledge into larger concepts.

In line with the rest of the school's curriculum, the children have retrieval practice opportunities at the start of every lesson. This will ensure that the children can recap on prior learning, skills, and use of vocabulary. If, however, it is the first lesson in the unit, time

will be spent looking back at all the DT units completed overtime. This allows the children to identify any previous skills or learning that could be transferred to this new unit. The DT sequence is driven on the children's previous knowledge about the learning focus to ensure that they can make connection and links between old and new learning. These experiences will enable the children to revisit, refine and reuse their DT knowledge and skills continuously and therefore will increase the chance of it begin stored in their long-term memory.



Impact:

The intended impact of the DT Curriculum is that the majority of children in each year group are working at expected level for their age. (At the end of each unit, the teacher will carry out assessment linked to both progression in skills documents)

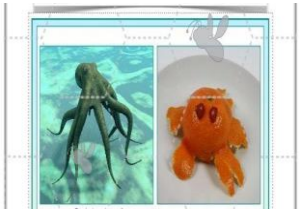
In addition, it is the intended impact that the children:

- are inspired by the DT Curriculum and want to learn more.
- Show passion, pride and enjoyment throughout the sequence.
- show the progression in their skills, knowledge and understanding in the work in their project packs and special learning days.
- can discuss their learning and remember what they have learnt, specifically the key skills.
- A celebration of learning for each term which demonstrates progression across the school.
- Pupil discussions about their learning, which includes discussion of their thoughts, ideas, processing, and evaluations of work.

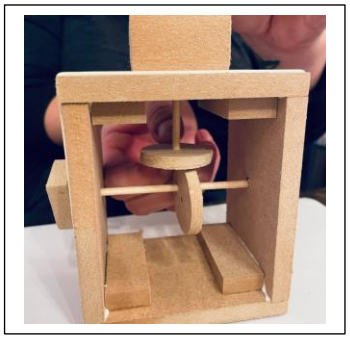
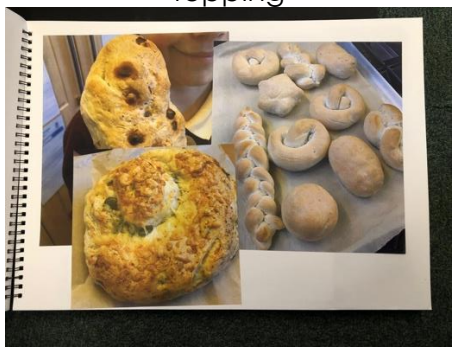
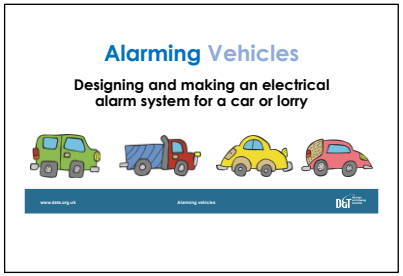
Curriculum Planning

Long Term Plan

	Autumn	Spring	Summer
EYFS	Textiles - paper	Cooking and nutrition	Structures
Year 1	Textiles	Mechanisms	Cooking and Nutrition
Year 2	Mechanism	Structures	Cooking and Nutrition
Year 3	Structures	Cooking and Nutrition	Mechanical Systems
Year 4	Textiles	Electrical systems	Cooking and Nutrition
Year 5	Textiles	Cooking and Nutrition	Mechanical Systems
Year 6	Structures	Cooking and Nutrition	Electrical systems

Year Group	Autumn	Spring	Summer
EYFS	**Textiles - Paper**	**Cooking and nutrition**	**Structures**
Year 1	**Textiles** Card, cutting, recyclable materials Task – Design and make a recyclable card 	**Mechanisms** Wheels and Axels Task – Design and make Cars 	**Cooking and Nutrition** Preparing fruit and vegetables Task – Design and make a healthy seaside picnic 
Year 2	**Mechanism** Sliders and Levers Task -Design and make a picture with a pop up slider 	**Structures** Freestanding Structures Task- Design and make Home with Hinges 	**Cooking and Nutrition** Preparing fruit and vegetables Task – Design and make Healthy Pizza

Year Group	Autumn	Spring	Summer
Year 3	**Structures** Structures – joining and strengthen Task – Design and make a photo frame 	**Cooking and Nutrition** Healthy and varied diet Task – Design and make healthy Sandwiches 	**Mechanical Systems** Levers and Linkages Task – Design and make a monster with a moving part
Year 4	**Textiles** 2D shapes to 3D products Task – Design and make Seasonal Stockings 	**Electrical Systems** Simple Circuits & Switches Task- Design and make a Nightlight torches 	**Cooking and Nutrition** Healthy and varied diet Task – Design and make a stuffed Pepper

Year Group	Autumn	Spring	Summer
Year 5	**Textiles** Combining different fabric shapes Task – Design and make Funky Cushions 	**Cooking and Nutrition** Celebrating culture and seasonality Task – Design and make Plain Bread 	**Mechanical systems** Task – Design and make a toy with a moving CAM part 
Year 6	**Structures** Frame structures Task – Design and make a Bridges 	**Cooking and Nutrition Celebrating** Culture and Seasonality Task – Design and make Bread with topping 	**Electrical Systems** More Complex switches Task – Design and make a Car with an alarm 

Progression of skills and knowledge

EYFS	Characteristics of effective learning	Early Learning Goals
	playing and exploring - children investigate and experience things, and 'have a go' **active learning** - children concentrate and keep on trying if they encounter difficulties, and enjoy achievements **creating and thinking critically** - children have and develop their own ideas, make links between ideas, and develop strategies for doing things	**ELG: Fine Motor Skills:** - Hold a pencil effectively in preparation for fluent writing – using the tripod grip in almost all cases; - Use a range of small tools, including scissors, paint brushes and cutlery; - Begin to show accuracy and care when drawing. **ELG: Creating with Materials** - Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; - Share their creations, explaining the process they have used; - Make use of props and materials when role playing characters in narratives and stories.

Skills	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Generating ideas - - designing	• Design appealing products for a particular user based on simple design criteria. • Generate initial ideas and design criteria through own experiences. • Develop and communicate these ideas through talk and drawings and mock ups where relevant.	• Generate ideas based on simple design criteria and their own experiences, explaining what they could make. • Develop, model and communicate their ideas through talking, mock-ups and drawings.	• Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s. • Use annotated sketches, prototypes, final product sketches and pattern pieces; communication technology, such as web-based recipes, to develop and communicate ideas.	• Generate and clarify ideas through discussion with peers to develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups. • Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas. • Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams.	• Generate innovative ideas through research including surveys, interviews and questionnaires and discussion with peers to develop a design brief and criteria for a design specification. • Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification. • Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. and, where appropriate, computer-aided design	• Use research using surveys, interviews, questionnaires and web-based resources. to develop a design specification for a range of functional products. • Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost. • Generate and develop innovative ideas and share and clarify these through discussion. • Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams.

Skills	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Making	• Select and use simple utensils, tools and equipment to perform a job e.g. peel, cut, slice, squeeze, grate and chop safely; marking out, cutting, joining and finishing; cut, shape and join paper and card. • Select from a range of ingredients and materials according to their characteristics to create a chosen product.	• Plan by suggesting what to do next. • Select and use tools, equipment, skills and techniques to perform practical tasks, explaining their choices. • Select new and materials, components, reclaimed materials and construction kits to build and create their products. • Use simple finishing techniques suitable for the products they are creating.	• Plan the main stages of making. • Select from and use a range of appropriate utensils, tools and equipment with some accuracy related to their product. • Select from and use finishing techniques suitable for the product they are creating.	• Order the main stages of making. • Select and use appropriate tools to measure, mark out, cut, score, shape and combine with some accuracy related to their products. • Explain their choice of materials according to functional properties and aesthetic qualities. • Select from and use materials and components, including ingredients, construction and electrical components according to their function and properties.	• Produce detailed lists of equipment and fabrics relevant to their tasks • Write a step-by-step plan, including a list of resources required. • Select from and use, a range of appropriate utensils, tools and equipment accurately to measure and combine appropriate ingredients, materials and resources.	• Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. • Competently select from and use appropriate tools to accurately measure, mark, cut and assemble materials, and securely connect electrical components to produce reliable, functional products. • Use finishing and decorative techniques suitable for the product they are designing and making.
Evaluating	• Taste, explore and evaluate a range of products to determine the intended user's preferences for the product • Evaluate their ideas throughout and finished products against design criteria, including intended user and purpose.	• Explore a range of existing products related to their design criteria. • Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria.	• Investigate a range of 3-D textile products, ingredients and lever and linkage products relevant to their project. • Test their product against the original design criteria and with the intended user. • Evaluate the ongoing work and the final product with reference to the design criteria and the views of others.	• Investigate and evaluate a range of products including the ingredients, materials, components and techniques that are used. • Test and evaluate their own products against design criteria and the intended user and purpose. • Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.	• Investigate and analyse products linked to their final product. • Compare the final product to the original design specification and record the evaluations. • Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. • Consider the views of others to improve their work	• Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. • Competently select from and use appropriate tools to accurately measure, mark, cut and assemble materials, and securely connect electrical components to produce reliable, functional products. • Use finishing and decorative techniques suitable for the product they are designing and making.

Skills	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Food	• Understand where a range of fruit and vegetables come from e.g. farmed or grown at home. • Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of *The eatwell plate*. • Know and use technical andsensory vocabulary relevant to the project.	• Understand where a range offruit and vegetables come from e.g. farmed or grown at home. • Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of *The eatwell plate*. • Know and use technical andsensory vocabulary relevant to the project.	• Know how to use appropriate equipment andutensils to prepare and combine food. • Know about a range of fresh and processed ingredients appropriate fortheir product, and whether they are grown, reared or caught. • Know and use relevant technical and sensory vocabulary appropriately.	• Know how to use appropriate equipment andutensils to prepare and combine food. • Know about a range of freshand processed ingredients appropriate for their product,and whether they are grown, reared or caught. • Know and use relevant technical and sensory vocabulary appropriately.	• Know how to use utensils and equipment including heatsources to prepare and cook food. • Understand about seasonality in relation to foodproducts and the source of different food products. • Know and use relevant technical and sensory vocabulary.	• Know how to use utensils and equipment including heatsources to prepare and cook food. • Understand about seasonality in relation to foodproducts and the source of different food products. • Know and use relevant technical and sensory vocabulary.
Structures		• Know how to make freestanding structures stronger, stiffer and more stable. • Know and use technical vocabulary relevant to the project.	• Develop and use knowledge of how to construct strong, stiff shell structures. • Develop and use knowledge of nets of cubes and cuboids and, where appropriate,more complex 3D shapes. • Know and use technical vocabulary relevant to the project.			• Understand how to strengthen, stiffen and reinforce 3-D frameworks. • Know and use technical vocabulary relevantto the project.

Skills	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Textiles	• Understand how simple 3-D textile products are made, using a template to create two identical shapes. • Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. • Explore different finishing techniques • Know and use technical vocabulary relevant to the project.			• Know how to strengthen, stiffen, andreinforce existing fabrics. • Understand how to securely join two pieces of fabric together. • Understand the need for patterns and seam allowances. • Know and use technical vocabulary relevant to the project.	• Produce a 3-D textile product from a combination of accurately made pattern pieces, fabric shapes and different fabrics. • Understand how fabrics can be strengthened, stiffened and reinforcedwhere appropriate. • Know and use technical vocabulary • relevant to the project.	
Mechanisms/mechanical systems	• Explore and use sliders and levers. • Understand that different mechanisms produce different types of movement. • Know and use technical vocabulary relevant to theproject.	• Explore and use wheels, axles and axle holders. • Distinguish between fixed and freely moving axles. • Know and use technical vocabulary relevant to theproject.	• Understand and use lever and linkage mechanisms. • Distinguish between fixed and loose pivots. • Know and use technical vocabulary relevant to theproject.		• Understand that mechanical and electrical systems have an input, processand an output. • Understand how gears and pulleys can be used to speed up, slow down or changethe direction of movement. • Know and use technical vocabulary relevant to the project.	

Skills	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Electrical systems				• Understand and use electrical systems in their products linked to science coverage. • Apply their understanding of computing toprogram and control their products. • Know and use technical vocabulary • relevant to the project.	•	• Understand and use electrical systems in their products linked to science coverage. • Apply their understanding of computing toprogram, monitor and control their products. • Know and use technical vocabulary • relevant to the project.

Progression of vocabulary for your from EYFS to Y6

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Designing, Making and Evaluating	planning, investigating design, evaluate, make, user,purpose, ideas, product,	investigating, planning, design, make, evaluate, user, purpose, ideas, design criteria, product, function	user, purpose, design, model, evaluate, prototype,annotated sketch, functional, innovative, investigate, label,drawing, function, planning, design criteria, annotated sketch, appealing	evaluating, design brief design criteria, innovative, prototype, user, purpose, function, prototype, design criteria, innovative, appealing, design brief, planning, annotated sketch,sensory evaluations	design decisions, functionality, authentic, user,purpose, design specification,design brief, innovative, research, evaluate, design criteria, annotate, evaluate, mock-up, prototype	function, innovative, design specification, design brief, user, purpose design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional, mock-up, prototype
Food	fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, runchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients,	fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft,juicy, crunchy, sweet, sticky,smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients	name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell,preference, greasy, moist, cook, fresh, savoury, hygienic,edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet	name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell,preference, greasy, moist, cook, fresh, savoury, hygienic,edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet	ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source,seasonality utensils, combine, fold, knead, stir, pour, mix, rubbingin, whisk, beat, roll out, shape, sprinkle, crumble	ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source,seasonality utensils, combine, fold, knead, stir, pour, mix, rubbingin, whisk, beat, roll out, shape, sprinkle, crumble

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Structures		cut, fold, join, fix structure, wall, tower, framework, weak,strong, base, top, underneath, side, edge,surface, thinner, thicker, corner, point, straight, curved, metal, wood, plastic circle, triangle, square, rectangle, cuboid,cube, cylinder	shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity, marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle,corrugating, ribbing, laminating, font, lettering, text, graphics, decision,			frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent
Textiles	joining and finishing techniques, tools, fabrics and components, template, pattern pieces, mark out, join, decorate, finish			fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance	seam, seam allowance, wadding, reinforce,right side, wrong side, hem, template, pattern pieces, name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings,	

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Mechanisms/mechanical systems	vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining, shaping, finishing, fixed, free,moving, mechanism names oftools, equipment and materials used	slider, lever, pivot, slot, bridge/guide, card, masking tape, paper fastener, join, pull, push, up, down, straight,curve, forwards, backwards	mechanism, lever, linkage, pivot, slot, bridge, guide system, input, process, output linear, rotary, oscillating, reciprocating, Hydraulic		pulley, drive belt, gear, rotation, spindle,driver, follower, ratio, transmit, axle, motor, circuit, switch, circuit diagram, annotated drawings, exploded diagrams,mechanical system, electrical system, input, process, output	
Electrical systems				series circuit, fault, connection, toggle switch, push-to-make switch, push-to-breakswitch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip, control, program, system,input device, output device		reed switch, toggle switch, push-to-makeswitch, push-to-break switch, light dependent resistor (LDR), tilt switch, lightemitting diode (LED), bulb, bulb holder, battery, battery holder, USB cable, wire, insulator, conductor, croco dile clip control, program, system, input device, output device, series circuit, parallel circuit

Learning Sequence

Lessons	Expectations	Evidence
Lesson 1 **Start of unit** **Research main skill**	• Retrieval from previous D&T units. • Share New learning and Knowledge Mat • 'Brain Buzz' sheet to share what they already know about unit. • Share new vocabulary. • Research lesson about the specific learning focus of the D&T unit.	• Brain Buzz Sheet • Evidence work using task sheets.
Lesson 2 **Explore and design**	• Retrieval from previous lesson. • Add to class Brain Buzz sheet • Explore the product, dissemble a WAGOLL (taste the food, explore the materials etc) • Complete the top half of the design and making sheet. • Using this experience create 3 or 4 designs of their final product. • Designs are detailed and are labelled. •	• Design and making sheet sections: • What are you making? • What is it used for? • Materials and equipment needed
Lessons 3 & 4 **Make**	• Retrieval from previous lesson. • Add to class Brain Buzz sheet • Pick final design and draw it on the design and making sheet. • Complete the steps on how you are going to create the final product on the design and making sheet. • Begin to make.	• Design and making sheet sections: • Final design – detailed and labelled • Steps of how you're going to make it
Lesson 5 **End of unit evaluation**	• Retrieval from previous lesson. • Add to class Brain Buzz sheet • End of unit evaluation.	• Design and making sheet sections: • Evaluation

Year 1

Autumn Term – Textiles – Design and Make a recyclable card

Session	Key knowledge	Aspect of DT	Lessons sequence	Outcome	Lesson ideas / suggestions
1	Retrieval from last academic year / Half term (Tick and Fix) Complete Brain Buzz of retrieval Share Knowledge mat Share vocabulary toolkit and explore vocabulary Explore children prior knowledge of the area of D&T and topic 'show me what you already know task'				
2	Know what recycling is, why it is important and the materials which can and cannot be recycled. Explore the recycled materials and their properties. Investigate had to correctly fasten and attach the different materials together using a range of equipment.	**Textiles – recycled cards** **Design brief –** **Design and make a card for card factory to sell at Christmas.**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Research and practice and refine lesson about the specific learning focus of the D&T unit. • Evidence work using work sheets. •	• Children are able to identify the area of D&T they're working in. • Be able to understand what recycling means. • To be able to identify recyclable materials. • Be able to understand how to securely fasten materials together (gluing)	• Explore / class discussion about what textiles is and what it can look like. • Children can select and sort materials into recyclable and non-recyclable materials. • Using the sorted recycling materials, can they then create and image by fastening them together.
3	Stencil and trace a design and cut out of recycled materials to create decorations Explore how cards can be finished (different ways of making them) and use design to create a final product.	**Generating ideas – designing**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • **Explore the product, dissemble a WAGOLL, taste the food, explore the materials.** • Complete the top half of the design and making sheet. • Using this experience create 3 or 4 designs of their final product. • **Designs are detailed and are coloured**	• Gain a deeper understand of a card, why we use them and what they look like. • Children able to effectively trace and cut out using scissors to create decorations. • Children be able to apply knowledge to create a range of designs for a card. • Complete top half of designing and making sheet.	• Children open and examine a range of different cards (birthday, well done, get well soon, happy christening ect) • Explore the designs and identify what they like and don't like about them. • Using recycle materials can the children use traces to create decorating for the ideas they like. • Select a theme and allow the children to create coloured designs of their cards.
4	Explore how cards can be finished (different ways of making them) and use design to create a final product.	**Making**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Pick final design and draw it on the design and making sheet (detailed and labelled). • Complete the steps on how you are going to create the final product on the design and making sheet. • Begin to make.	• Children are able to select their final design. • Re-create this on their design and making sheet. • **BEFORE MAKING** • Complete creation steps on design and making sheet.	• Using a range of their equipment and recycled materials, can the children use their designs to create their final product. • Can they finalise their product and write a message inside for someone and place it in an envelope.

				• To be able to effectively look at plans and step to produce a final product.	
5	-	**Evaluate**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Complete making aspect (if needed) • **Unit evaluation.**	• Children are able to think critically about their final product and the design brief. • Can they use their designs to assess if they've being successful with their final product. • Critically think about how they could make their final product better. • Complete evaluation on design and making sheet.	• Children be able to assess and evaluate their final product. • Can they use their final design. • Can they think about what they could change to make it better.

DT Year 1 Knowledge Mat

Design and make a card using recycled materials

Key knowledge
To know how to use recycled materials to create a card.
Know what recycling is, why it is important and the materials which can and cannot be recycled.
Explore the recycled materials and their properties.
Investigate had to correctly fasten and attach the different materials together using a range of equipment.
Stencil and trace a design and cut out of recycled materials to create decorations
Explore how cards can be finished (different ways of making them) and use design to create a final product.

Vocabulary	
Recycled	Waste converted into reusable material.
Decorations	The process or art of decorating something.
Trace	To copy (a drawing, map, or design) by drawing over its lines
Attach	To join or fasten (something) to something else.
Materials	The items from which a thing is or can be made.
Secure	To be fixed or fastened so as not to give way, become loose, or be lost.

Prior Knowledge–

EYFS – exposure to different materials in construction area, use of fine motor skills to support tracing and cutting.

© St Charles' VC Academy

Spring Term – Mechanisms – Design and make a car

Session	Key knowledge	Area of D&T and Skills	Lessons sequence	Outcome	Lesson ideas / suggestions
1	Retrieval from last academic year / Half term (Tick and Fix) Complete Brain Buzz of retrieval Share Knowledge mat Share vocabulary toolkit and explore vocabulary Explore children prior knowledge of the area of D&T and topic				
2	To know what the features of a vehicle are and their purpose (focusing on wheels). To explore wheels, axles and axles holders.	**Mechanisms – moving cars** **Design brief –** **Design and make a new model of car, for the dealership – car supermarket.**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Research and practice and refine lesson about the specific learning focus of the D&T unit. • Evidence work using work sheets.	• Children are able to identify the area of D&T they're working in. • Be able to understand what mechanisms are. • Children can state vehicles purposes and how they work. • Children able understand how mechanisms work in relation to a car (wheels and axels)	• Children explore what mechanisms means. • Children identify / sort non vehicles and vehicles • Explore the model of a car, able to label and identify the different components (wheel, axle and axel holder). • Challenge : can they explain how it can move.
3	To know the difference between a fixed or free moving axles. To know how to fix and fasten different parts to assemble a final product. To know how to create a design and use this to recreate their product using the appropriate vocabulary.	**Generating ideas – designing**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • **Explore the product, dissemble a WAGOLL, taste the food, explore the materials.** • Complete the top half of the design and making sheet. • Using this experience create 3 or 4 designs of their final product. • **Designs are detailed and are coloured**	• Children able to correctly identify fixed or free moving axles. • Children be able to assemble and dissemble the mechanisms of wheel and axel. • Children gain a clear expectation of the final product. • Children use their understanding of final product to create detailed design of their final product – including diagram of their mechanical aspect. • Complete top half of designing and making sheet.	• Can the children successful draw a free or fixed axle. • Children be able to assemble and dissemble the final product. • Use their knowledge of final product and mechanics to create some designs of their moving car.
4	-	**Making**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Pick final design and draw it on the design and making sheet (detailed and labelled). • Complete the steps on how you are going to create the final product on the design and making sheet. • Begin to make.	• Children are able to select their final design. • Re-create this on their design and making sheet. • **BEFORE MAKING** • Complete creation steps on design and making sheet. • To be able to effectively look at plans and step to produce a final product.	• Using a range of equipment materials, the children use their designs to create their final product. • Finalise their product and assess whether it can move.

5	-	**Evaluate**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Complete making aspect (if needed) • **Unit evaluation.**	• Children are able to think critically about their final product and the design brief. • To be able to use their designs to assess if they've being successful with their final product. • To be able to critically think about how they could make their final product better • Complete evaluation on design and making sheet..	• Children be able to assess and evaluate their final product. • Can they use their final design. • Can they think about what they could change to make it better.

DT Year 1 Knowledge Mat

Design and Make a car

Key Knowledge
To know how to make and create a moving car.
To know what the features of a vehicle are and their purpose (focusing on wheels).
To explore wheels, axles and axles holders.
To know the difference between a fixed or free moving axles.
To know how to fix and fasten different parts to assemble a final product.
To know how to create a design and use this to recreate their product using the appropriate vocabulary.

Vocabulary	
vehicle	A thing used for transporting people or goods, especially on land, such as a car, lorry, or cart.
wheel	A circular object that turns on an to help a vehicle move.
axle	A rod or spindle passing through the centre of a wheel.
assembling	Fit together the separate parts of a machine or object.
chassis	The base frame of a car.
joining	Items become linked or connected.

Prior Knowledge–
EYFS – construction areas to build structures and final products.
EYFS – fasten and attaching a range of materials and parts in building.
EYFS – junk modelling.

© St Charles' VC Academy

Summer Term – Cooking and Nutrition – Design and make a healthy seaside picnic

Session	Key knowledge	Area of D&T and Skills	Lessons sequence	Outcome	Lesson ideas / suggestions
1	Retrieval from last academic year / Half term (Tick and Fix) Complete Brain Buzz of retrieval Share Knowledge mat Share vocabulary toolkit and explore vocabulary Explore children prior knowledge of the area of D&T and topic				
2	Know and understand where a range of fruit come from. Know which fruit are grown at home or farmed.	**Cooking and nutrition – seaside snacks** **Design brief –** **Design and make a snack for a school trip, to the beach.**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Research and practice and refine lesson about the specific learning focus of the D&T unit. • Evidence work using work sheets. •	• To be able to gain a deeper understanding about fruit and able to successfully identify different types. • Understand where and how fruit is grown (farmed and or at home).	• Children able to accurately identify what fruits are – sorting activity fruit or not. • Children be able to display their understanding of where selective fruits are from and how they're grow.
3	Know the basic principles of a healthy and varied diet, knowing fruit and vegetables are part of the eat well plate. To know how to create a design and use this to recreate their product using the appropriate vocabulary.	**Generating ideas – designing**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • **Explore the product, dissemble a WAGOLL, taste the food, explore the materials.** • Complete the top half of the design and making sheet. • Using this experience create 3 or 4 designs of their final product. • **Designs are detailed and are coloured**	• Be able to understand that we should eat less of fats and sugars and more fruit and vegetables to create a healthy lifestyles. • To be able to use their personal experiences (from taste testing) to identify the fruits they would like to use to create their 'sea side' theme snack. • Complete top half of designing and making sheet.	• • Children create a 'eat well plate' and create a meal that has a balance diet. ○ • Children taste a range of selected fruits. Able to identify how the fruits taste, their texture and what they look like. • Children select the fruits they would like to use and then use these to create detailed designs of their 'seaside' theme snack.
4	To know how to create a design and use this to recreate their product using the appropriate vocabulary.	**Making**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Pick final design and draw it on the design and making sheet (detailed and labelled). • Complete the steps on how you are going to create the final product on the design and making sheet. • Begin to make.	• Children are able to select their final design. • Re-create this on their design and making sheet. • **BEFORE MAKING** • Complete creation steps on design and making sheet. • To be able to effectively look at plans and step to produce a final product.	• Using a range of equipment, fruits and their designs to create their final product.

5	To be able to evaluate their product against the design brief and assess their work.	**Evaluate**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Complete making aspect (if needed) • **Unit evaluation.**	• Children are able to think critically about their final product and the design brief. • To be able to use their designs to assess if they've being successful with their final product. • To be able to critically think about how they could make their final product better • Complete evaluation on design and making sheet..	• Can they use their final design, to assess and evaluate their final product. • Can they think about what they could change to make it better.

DT Year 1 Knowledge Mat

Design and Make a healthy sea side snack

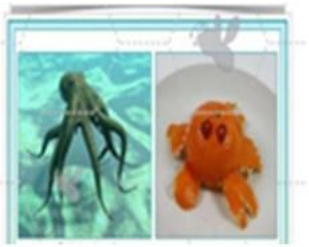
Key knowledge

To design and make a healthy seaside picnic

- Know and understand where a range of fruit come from.
- Know which fruit are grown at home or farmed.
- Know the basic principles of a healthy and varied diet, knowing fruit and vegetables are part of the eat well plate.
- To know how to create a design and use this to recreate their product using the appropriate vocabulary.
- To be able to evaluate their product against the design brief and assess their work.

Vocabulary

Healthy diet	A healthy diet provides the body with essential nutrition
nutrition	Eating the correct food for health and growth.
Utensils	A tool used at home or in a kitchen
Ingredients	Things used and needed to make something
Farmed	Products that have grown commercially.
Sensory	The sensation given from the fruit. The feel, taste and smell.



Prior Knowledge–
Making a fruit salad.
Names of fruit.
How to use a knife to cut fruit.

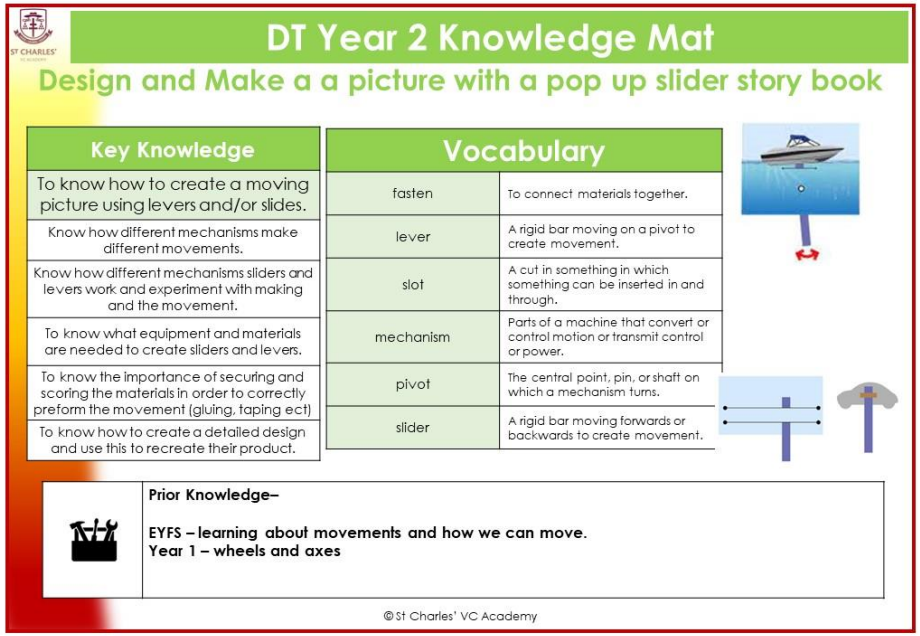
© St Charles' VC Academy

Year 2

Autumn – Mechanisms – Design and make a picture with a pop up or slider.

Session	Key knowledge	Area of D&T and Skills	Subject sequence	Outcome	Lesson ideas / suggestions
1	Retrieval from last academic year / Half term (Tick and Fix) Complete Brain Buzz of retrieval Share Knowledge mat Share vocabulary toolkit and explore vocabulary Explore children prior knowledge of the area of D&T and topic 'show me what you already know task'				
2	Know how different mechanisms make different movements. Know how different mechanisms sliders and levers work and experiment with making and the movement.	**Mechanisms – slider and levers** **Design brief –** **Design and make a bonfire night skyline, with a moving part.**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Research and practice and refine lesson about the specific learning focus of the D&T unit. • Evidence work using work sheets. •	• Children are able to identify the area of D&T they're working in. • Be able to understand what mechanics are. • Children can understand different types of sliders and levers. • To be able to understand how different mechanisms create different movements. • Children able understand how sliders and levers work and where we can find them in the real world.	• Children explore what mechanics means. • Explore different types of mechanisms and discover how they work. • Children identify / sort sliders and levers. • Explore the model of a slider and lever, able to label and identify the different components. • Explore the purpose of a slider and lever (linking to the real world) • Challenge : can they explain how they work.
3	To know what equipment and materials are needed to create sliders and levers. To know the importance of securing and scoring the materials in order to correctly preform the movement (gluing, taping ect To know how to create a detailed design and use this to recreate their product.	**Generating ideas – designing**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • **Explore the product, dissemble a WAGOLL, taste the food, explore the materials.** • Complete the top half of the design and making sheet. • Using this experience create 3 or 4 designs of their final product. • **Designs are detailed and are coloured**	• Gain a deeper understand sliders and levers. • Children able to successfully identify the equipment and materials used in the mechanics of a sliver and a lever. • To be able to highlight the steps to create the mechanism to create correct performance (scoring material) • Children be able to apply knowledge to create a range of designs for their sliders and levers. • Complete top half of designing and making sheet.	• Enhance understanding by disassembling and assembling sliders and levers. • Children can actively select materials and equipment, when presented to them to highlight all the components in this mechanism. • Practice and refine the skill of scoring to ensure effective and successful movement. • Think of a theme / ideas and children create detailed designs.
4	To know how to create a detailed design and use this to recreate their product.	**Making**	• Retrieval from previous lesson. • Retrieval discussion with the children about	• Children are able to select their final design – which is purposefully labelled to show the movement of the mechanism.	• Using their final design and step by step guided, can they create and make their final product.

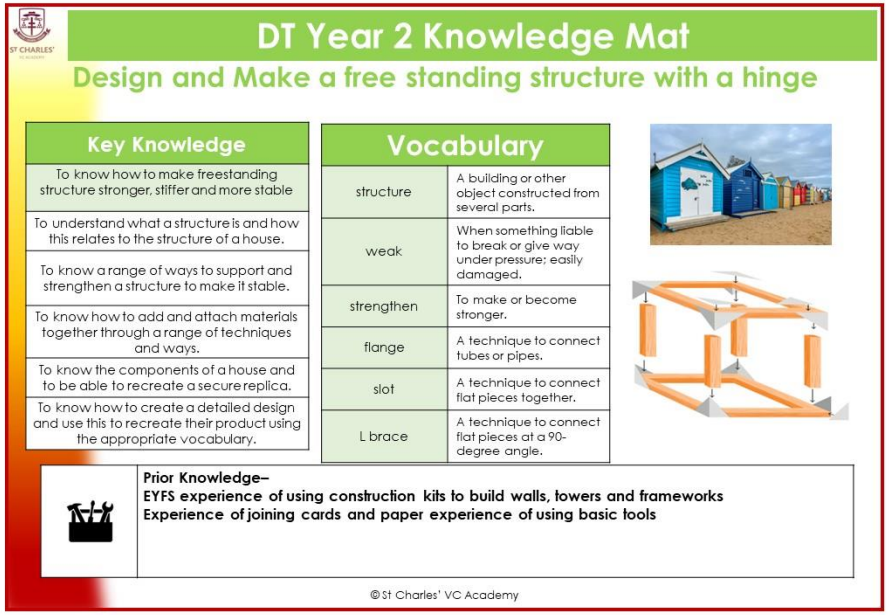
			what they did last lesson. • Pick final design and draw it on the design and making sheet (detailed and labelled). • Complete the steps on how you are going to create the final product on the design and making sheet. • Begin to make.	• Re-create this on their design and making sheet. • **BEFORE MAKING** • Complete creation steps on design and making sheet. • To be able to effectively look at plans and step to produce a final product.	• Can they finalise their product and assess if it moves correctly.
5	-	**Evaluate**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Complete making aspect (if needed) • **Unit evaluation.**	• Children are able to think critically about their final product and the design brief. • Can they use their designs to assess if they've being successful with their final product. • Critically think about how they could make their final product better. • Complete evaluation on design and making sheet.	• Children be able to assess and evaluate their final product. • Can they use their final design to state whether they have being successful. • Can they think about what they could change to make it better.



Spring Term – Structures – Design and make a home with hinges

Session	Key knowledge	Area of D&T and Skills	Subject sequence	Outcome	Lesson ideas / suggestions
1	Retrieval from last academic year / Half term (Tick and Fix) Complete Brain Buzz of retrieval Share Knowledge mat Share vocabulary toolkit and explore vocabulary Explore children prior knowledge of the area of D&T and topic 'show me what you already know task'				
2	To understand what a structure is and how this relates to the structure of a house. To know the components of a house and to be able to recreate a secure replica.	**Structures – Free standing house with hinges and moving parts** **Design brief –** **Design and make a castle for a king or queen**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Research and practice and refine lesson about the specific learning focus of the D&T unit. • Evidence work using work sheets. •	• Children are able to identify the area of D&T they're working in. • Be able to understand what a structure is. • Children can understand different types of structures (free standing and supported). o To be able to understand the structure of a house / castle.	• Children explore what structures are and see them in the real world. • Explore different types of structures and discover how they stand, are strong and sturdy. • Explore the model of a house or castle and able to label and identify the different components. • Identify the moving parts (draw bridge, windows and doors) • Challenge : can they explain how the structure is standing.
3	To know a range of ways to support and strengthen a structure to make it stable. To know how to add and attach materials together through a range of techniques and ways.	**Generating ideas – designing**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • **Explore the product, dissemble a WAGOLL, taste the food, explore the materials.** • Complete the top half of the design and making sheet. • Using this experience create 3 or 4 designs of their final product. • **Designs are detailed and are coloured**	• Gain a deeper understand of structures. • Children able to successfully identify the equipment and materials used in ways to support a structure – flange, L brace ect. • Children be able to apply knowledge to create a range of designs with the mechanics included. • Complete top half of designing and making sheet.	• Enhance understanding by disassembling and assembling a WAGOLL of a made structure. • Children can actively select, test and assess the materials and equipment needed in order to create support for their structure. • Practice and refine the skill of attaching these materials together to ensure effective and successful movement or support. • Think of a theme / ideas and children create detailed, labelled designs.
4	To know how to create a detailed design and use this to recreate their product using the appropriate vocabulary.	**Making**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Pick final design and draw it on the design and making sheet (detailed and labelled).	• Children are able to select their final design – which is purposefully labelled to show the movement of the mechanism. • Re-create this on their design and making sheet.	• Using their final design and step by step guided, can they create and make their final product. • Can they finalise their product and assess if it moves correctly.

			• Complete the steps on how you are going to create the final product on the design and making sheet. • Begin to make.	• **BEFORE MAKING** • Complete creation steps on design and making sheet. • To be able to effectively look at plans and step to produce a final product.	
5	To know how to create a detailed design and use this to recreate their product using the appropriate vocabulary.	**Evaluate**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Complete making aspect (if needed) • **Unit evaluation.**	• Children are able to think critically about their final product and the design brief. • Can they use their designs to assess if they've being successful with their final product. • Critically think about how they could make their final product better. • Complete evaluation on design and making sheet.	• Children be able to assess and evaluate their final product. • Can they use their final design to state whether they have being successful. • Can they think about what they could change to make it better.



Summer Term – Cooking and Nutrition – Design and make a healthy pizza

Session	Key knowledge	Area of D&T and Skills	Subject sequence	Outcome	Lesson ideas / suggestions
1	Retrieval from last academic year / Half term (Tick and Fix) Complete Brain Buzz of retrieval Share Knowledge mat Share vocabulary toolkit and explore vocabulary Explore children prior knowledge of the area of D&T and topic 'show me what you already know task'				
2	To know where a range of fruit and vegetables come from. Know the basic principles of a healthy and varied diet, knowing fruit and vegetables are part of the eat well plate.	**Cooking and nutrition – healthy pizzas** **Design brief –** **Design and make a pizza for Tesco's summer collection.**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Research and practice and refine lesson about the specific learning focus of the D&T unit. • Evidence work using work sheets.	• Children are able to identify the area of D&T they're working in. • Be able to understand what a cooking and nutrition is. • Children can understand where a range of fruit and vegetables come from around the world. • Be able to understand that we should have a healthy lifestyles, by creating a healthy diet.	• Children explore parts of the world and different fruit and vegetables, can they pin them on a world map. • Sort food into healthy and unhealthy. • Explore / create a 'healthy plate' and discuss the importance of having more fruit and vegetables and less sugars and fats.
3	Know how to select the correct ingredients, utensils and tools to create and make a healthy product (pizza). To know how to create a design and use this to recreate their product using the appropriate vocabulary.	**Generating ideas – designing**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • **Explore the product, dissemble a WAGOLL, taste the food, explore the materials.** • Complete the top half of the design and making sheet. • Using this experience create 3 or 4 designs of their final product. • **Designs are detailed and are coloured**	• Gain a deeper understanding of the equipment needed to cook with. • To understand to importance of hygiene while cooking. • To be able to use their personal experiences (from taste testing) to identify the fruits and vegetables they would like to use. • Children be able to apply knowledge to create a range of designs of healthier pizzas. • Complete top half of designing and making sheet.	• Enhance understanding by disassembling and assembling paper pizzas. • Role play the steps of making a pizza (using paper cut outs) – using the real equipment's (tray, knifes, spoons ect), including hygiene tools. • Children taste a range of selected fruits. Able to identify how the fruits taste, their texture and what they look like. • Children select the ingredients they would like to use and then use these to create detailed designs of their pizzas.
4	To know how to create a design and use this to recreate their product using the appropriate vocabulary.	**Making**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Pick final design and draw it on the design and making sheet (detailed and labelled). • Complete the steps on how you are going to create the final product on the design and making sheet. • Begin to make.	• Children are able to select their final design – which is purposefully labelled to show the ingredients and equipment they will use. • Re-create this on their design and making sheet. • **BEFORE MAKING**	• Using their final design and step by step guided, can they create and make their final product. • Can they finalise their product and put it to the taste test.

				• Complete creation steps on design and making sheet. • To be able to effectively look at plans and step to produce a final product.	
5	To be able to evaluate their product against the design brief and assess their work.	**Evaluate**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Complete making aspect (if needed) • **Unit evaluation.**	• Children are able to think critically about their final product and the design brief. • Can they use their designs to assess if they've being successful with their final product. • Critically think about how they could make their final product better. • Complete evaluation on design and making sheet.	• Children be able to assess and evaluate their final product. • Can they use their final design to state whether they have being successful. • Can they think about what they could change to make it better. • Can they evaluate and discuss if their pizza would sell in a shop, due to taste and presentation. Thinking from a customer point of view.

DT Year 2 Knowledge Mat

Design and Make a pizza for my character

Key Knowledge
To design and make a pizza for my character
To know where a range of fruit and vegetables come from.
Know the basic principles of a healthy and varied diet, knowing fruit and vegetables are part of the eat well plate.
Know how to select the correct ingredients, utensils and tools to create and make a healthy product (pizza).
To know how to create a design and use this to recreate their product using the appropriate vocabulary.
To be able to evaluate their product against the design brief and assess their work.

Vocabulary	
Healthy diet	A healthy diet provides the body with essential nutrition
nutrition	Eating the correct food for health and growth.
Utensils	A tool used at home or in a kitchen
Ingredients	Things used and needed to make something
Pizza	An Italian dish consisting of a flat base of dough baked with toppings of sauce and cheese.
Edible	Something fit or suitable to be eaten.

Prior Knowledge–
EYFS – experience of naming fruits and know where they come from
Y1 - seaside sculptures of fruit for seaside picnic experience of cutting, peeling

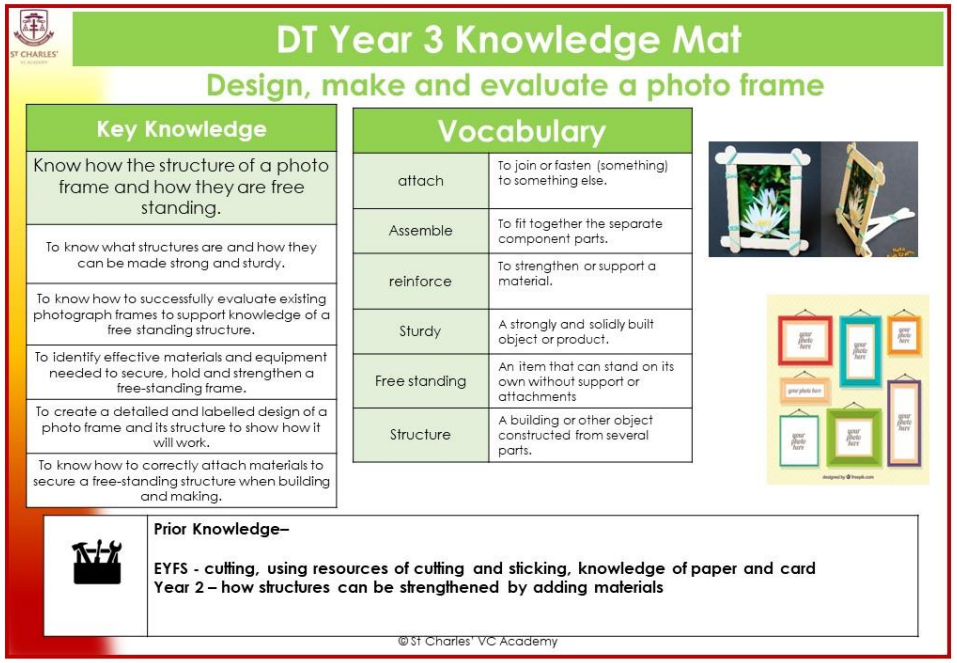
© St Charles' VC Academy

Year 3

Autumn term -Structures – Design and make a photo frame

Session	Key knowledge	Area of D&T and Skills	Subject sequence	Outcome	Lesson ideas / suggestions
1	Retrieval from last academic year / Half term (Tick and Fix) Complete Brain Buzz of retrieval Share Knowledge mat Share vocabulary toolkit and explore vocabulary Explore children prior knowledge of the area of D&T and topic 'show me what you already know task'				
2	To know what structures are and how they can be made strong and sturdy. To know how to successfully evaluate existing photograph frames to support knowledge of a free standing structure.	**Structures – freestanding photo frames** **Design brief –** **Design and make a freestanding photo frame, for the Christmas fair.**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Research and practice and refine lesson about the specific learning focus of the D&T unit. • Evidence work using work sheets.	• Children are able to identify the area of D&T they're working in. • Be able to understand what a structure / freestanding structures are. • Children can understand the purpose of a photo frame. • Begin to understand how structures can be supported to become free standing.	• Children explore and are exposed to different types of structures. • Experiment with paper, different techniques used to strengthen it. Using these bits of paper and the techniques, can they create a freestanding table (in groups) • Explore and analyse photo frames, discuss their purpose and how they can stand on their own. • Evaluate if they will be strong and sturdy.
3	To identify effective materials and equipment needed to secure, hold and strengthen a free-standing frame. To create a detailed and labelled design of a photo frame and its structure to show how it will work.	**Generating ideas – designing**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • **Explore the product, dissemble a WAGOLL, taste the food, explore the materials.** • Complete the top half of the design and making sheet. • Using this experience create 3 or 4 designs of their final product. • **Designs are detailed and are coloured**	• Gain a deeper understanding of the components of a photo frame and how they stand strong and sturdy. • Analyse different styles of photos frames – identifying their likes and dislikes. • To be able to successfully understand and select the correct materials and equipment for their structure – in relation to free standing, sturdiness and strength. • Complete top half of designing and making sheet.	• Enhance understanding by disassembling and assembling photo frames – looking at the different components that are attached and fastened together to create a strong structure. • Using their personal likes and dislikes from looking at the frames, are they able to generate ideas for their structure. • Effectively select the materials and equipment for designs. • Create detailed and labelled designs, explaining how their frame will stand.
4	To know how to correctly attach materials to secure a free-standing structure when building and making.	**Making**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Pick final design and draw it on the design and making sheet (detailed and labelled).	• Children are able to select their final design – which is purposefully labelled to show the ingredients and equipment they will use.	• Using their final design and step by step guided, can they create and make their final product.

			• Complete the steps on how you are going to create the final product on the design and making sheet. • Begin to make.	• Re-create this on their design and making sheet. • **BEFORE MAKING** • Complete creation steps on design and making sheet. • To be able to effectively look at plans and step to produce a final product.	• Can they finalise their product and put it to the test – placing a image or picture inside.
5		**Evaluate**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Complete making aspect (if needed) • **Unit evaluation.**	• Children are able to think critically about their final product and the design brief. • Can they use their designs to assess if they've being successful with their final product. • Critically think about how they could make their final product better. • Complete evaluation on design and making sheet.	• Children be able to assess and evaluate their final product. • Can they use their final design to state whether they have being successful. • Can they think about what they could change to make it better. • Can they evaluate and discuss if their frame would sell at the fair – does it work?



DT Year 3 Knowledge Mat

Design, make and evaluate a photo frame

Key Knowledge
Know how the structure of a photo frame and how they are free standing.
To know what structures are and how they can be made strong and sturdy.
To know how to successfully evaluate existing photograph frames to support knowledge of a free standing structure.
To identify effective materials and equipment needed to secure, hold and strengthen a free-standing frame.
To create a detailed and labelled design of a photo frame and its structure to show how it will work.
To know how to correctly attach materials to secure a free-standing structure when building and making.

Vocabulary	
attach	To join or fasten (something) to something else.
Assemble	To fit together the separate component parts.
reinforce	To strengthen or support a material.
Sturdy	A strongly and solidly built object or product.
Free standing	An item that can stand on its own without support or attachments
Structure	A building or other object constructed from several parts.

Prior Knowledge–

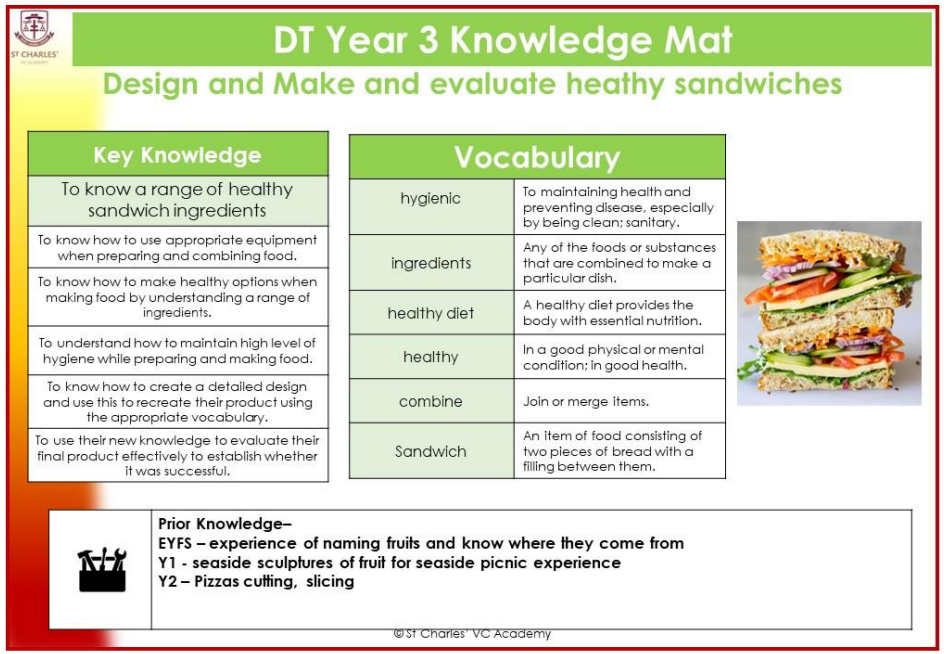
EYFS - cutting, using resources of cutting and sticking, knowledge of paper and card
Year 2 – how structures can be strengthened by adding materials

© St Charles' VC Academy

Spring Term – Cooking and Nutrition – Design and make a healthy sandwich

Session	Key knowledge	Area of D&T and Skills	Subject sequence	Outcome	Lesson ideas / suggestions
1	Retrieval from last academic year / Half term (Tick and Fix) Complete Brain Buzz of retrieval Share Knowledge mat Share vocabulary toolkit and explore vocabulary Explore children prior knowledge of the area of D&T and topic 'show me what you already know task'				
2	To know how to make healthy options when making food by understanding a range of ingredients.	**Cooking and nutrition – healthy sandwiches** **Design brief –** **Design and make a healthy sandwich for the school's lunch menu.**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Research and practice and refine lesson about the specific learning focus of the D&T unit. • Evidence work using work sheets.	• Children are able to identify the area of D&T they're working in. • Be able to understand what a cooking and nutrition is. • Children can understand what a sandwich is and the different varieties. • Be able to understand that we should have a healthy lifestyles, by creating a healthy diet, by begin to develop an in-depth understanding for the specific food groups. • Be able to gain an understanding of what to look at on packed of food to assess the fats, salts, calories ect.	• • Sort food into healthy and unhealthy. Then sort out food into the different food groups. • Explore the food pyramid and discuss the different areas and the importance of having a balanced diet and what that would look like. • We able to successful place different types of food in the correct groups. • Create a menu for a sandwich shop for a healthy range.
3	To understand how to maintain high level of hygiene while preparing and making food. To know how to use appropriate equipment when preparing and combining food. To know how to create a detailed design and use this to recreate their product using the appropriate vocabulary.	**Generating ideas – designing**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • **Explore the product, dissemble a WAGOLL, taste the food, explore the materials.** • Complete the top half of the design and making sheet. • Using this experience create 3 or 4 designs of their final product. • **Designs are detailed and are coloured**	• Gain a deeper understanding of the equipment needed to cook with. • To understand to importance of hygiene while cooking. • To be able to use their personal experiences (from taste testing) to identify the ingredients they would like to use. • Children be able to apply knowledge to create a range of designs of healthy sandwich. • Complete top half of designing and making sheet.	• Enhance understanding by watching a WAGOLL of a sandwich being made. • Role play the steps of how to make a sandwich – could be like a Simon says activity. Can they provide detailed and accurate steps including hygiene steps, equipment and ingredients . • Children taste a range of selected ingredients. Able to identify how they taste, their texture and what is healthier. • Children select the ingredients they would like to use and then use these to create detailed designs of their sandwich. Designs to be labelled – showing the specific food group and categories. •
4	To know how to create a detailed design and use this to recreate their product using the appropriate vocabulary.	**Making**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson.	• Children are able to select their final design – which is purposefully labelled to show the ingredients and equipment they will use.	• Using their final design and step by step guided, can they create and make their final product.

			• Pick final design and draw it on the design and making sheet (detailed and labelled). • Complete the steps on how you are going to create the final product on the design and making sheet. • Begin to make.	• Re-create this on their design and making sheet. • **BEFORE MAKING** • Complete creation steps on design and making sheet. • To be able to effectively look at plans and step to produce a final product.	• Can they finalise their product and put it to the taste test.
5	To use their new knowledge to evaluate their final product effectively to establish whether it was successful.	**Evaluate**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Complete making aspect (if needed) • **Unit evaluation.**	• Children are able to think critically about their final product and the design brief. • Can they use their designs to assess if they've being successful with their final product. • Critically think about how they could make their final product better. • Complete evaluation on design and making sheet.	• Children be able to assess and evaluate their final product. • Can they use their final design to state whether they have being successful. • Can they think about what they could change to make it better. • Can they evaluate and discuss if their sandwich would successful at lunch time, due to taste and presentation. Thinking from a customer point of view.



DT Year 3 Knowledge Mat

Design and Make and evaluate heathy sandwiches

Key Knowledge
To know a range of healthy sandwich ingredients
To know how to use appropriate equipment when preparing and combining food.
To know how to make healthy options when making food by understanding a range of ingredients.
To understand how to maintain high level of hygiene while preparing and making food.
To know how to create a detailed design and use this to recreate their product using the appropriate vocabulary.
To use their new knowledge to evaluate their final product effectively to establish whether it was successful.

Vocabulary	
hygienic	To maintaining health and preventing disease, especially by being clean; sanitary.
ingredients	Any of the foods or substances that are combined to make a particular dish.
healthy diet	A healthy diet provides the body with essential nutrition.
healthy	In a good physical or mental condition; in good health.
combine	Join or merge items.
Sandwich	An item of food consisting of two pieces of bread with a filling between them.

Prior Knowledge–
EYFS – experience of naming fruits and know where they come from
Y1 - seaside sculptures of fruit for seaside picnic experience
Y2 – Pizzas cutting, slicing

©St Charles' VC Academy

Summer Term – Mechanical systems – Design and make a monster with a moving part

Session	Key knowledge	Area of D&T and Skills	Subject sequence	Outcome	Lesson ideas / suggestions
1	Retrieval from last academic year / Half term (Tick and Fix) Complete Brain Buzz of retrieval Share Knowledge mat Share vocabulary toolkit and explore vocabulary Explore children prior knowledge of the area of D&T and topic 'show me what you already know task'				
2	To know a range of mechanical systems. To know and understand the components of a pneumatic system. To understand how the air pressure is causing the mechanical movements.	**Mechanisms – pneumatic systems** **Design brief –** **Design and make a moving monster toy for SMYTHS toy store.**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Research and practice and refine lesson about the specific learning focus of the D&T unit. • Evidence work using work sheets.	• Children are able to identify the area of D&T they're working in. • Be able to understand what mechanics are. • Children can understand different types of mechanisms – pneumatic systems. • To be able to understand how different mechanisms create different movements. • Children able understand how a pneumatic system worksand where we can find them in the real world.	• Children explore what mechanics means. • Explore different types of mechanisms and discover how they work. • Children explore the power of air pressure with syringes and balloons. Using the pressure to inhale the balloon. • Explore the model of a pneumatic system, able to label and identify the different components. • Explore the purpose of a pneumatic system (linking to the real world) • Challenge : can they explain how they work.
3	To know how to create a design and use this to recreate their product using the appropriate vocabulary.	**Generating ideas – designing**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • **Explore the product, dissemble a WAGOLL, taste the food, explore the materials.** • Complete the top half of the design and making sheet. • Using this experience create 3 or 4 designs of their final product. • **Designs are detailed and are coloured**	• Gain a deeper understand oh pneumatic systems in relation to their final product (a moving monster) • Children able to successfully identify the equipment and materials used in the mechanics of a pneumatic system. • To be able to highlight the steps to create the mechanism to create correct performance. • Children be able to apply knowledge to create a range of designs for their moving toys. • Complete top half of designing and making sheet.	• Enhance understanding by disassembling and assembling a WAGOLL of final product. • Children can actively select materials and equipment, when presented to them to highlight all the components in this mechanism. • Practice and refine the skill of assembling and carefully designing to ensure effective and successful movement of the correct part. • Think of a theme / ideas and children create detailed designs – highlighting their pneumatic structure, how it will move and what part will move.
4	To know and understand the components of a pneumatic system.	**Making**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson.	• Children are able to select their final design – which is purposefully labelled to show the movement of the mechanism.	• Using their final design and step by step guided, can they create and make their final product.

	To understand how the air pressure is causing the mechanical movements. To know how to create a design and use this to recreate their product using the appropriate vocabulary.		• Pick final design and draw it on the design and making sheet (detailed and labelled). • Complete the steps on how you are going to create the final product on the design and making sheet. • Begin to make.	• Re-create this on their design and making sheet. • **BEFORE MAKING** • Complete creation steps on design and making sheet. • To be able to effectively look at plans and step to produce a final product.	• Can they finalise their product and assess if it moves correctly.
5	To be able to evaluate their product against the design brief and assess their work.	**Evaluate**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Complete making aspect (if needed) • **Unit evaluation.**	• Children are able to think critically about their final product and the design brief. • Can they use their designs to assess if they've being successful with their final product. • Critically think about how they could make their final product better. • Complete evaluation on design and making sheet.	• Children be able to assess and evaluate their final product. • Can they use their final design to state whether they have being successful. • Can they think about what they could change to make it better. • Can they assess the customers view of the product – would it sell, does it work effectively, who would buy it.

DT Year 3 Knowledge Mat

Design and Make a monster with a moving mouth

Key Knowledge
Examples of pneumatics systems include; air brakes on buses and trains, roller coasters
To know a range of mechanical systems.
To know and understand the components of a pneumatic system.
To understand how the air pressure is causing the mechanical movements.
To know how to create a design and use this to recreate their product using the appropriate vocabulary.
To be able to evaluate their product against the design brief and assess their work.

Vocabulary	
Pneumatic system	Interconnected components using compressed air to do work for automated equipment.
Component	A part or element of a larger whole
Pressure	Continuous physical force exerted on or against an object by something in contact with it.
Assemble	Fit together the separate component parts.
mechanism	A system of parts working together in a machine / system.

Prior Knowledge–
How to join and combine materials
How to cut and shape card and other reclaimed materials
How to make hinges (Y2)
How to use construction kits to make strong and stable strucutres
How wheeled mechanisms work

Year 4

Autumn – Textiles – Design and make a seasonal stocking

Session	Key knowledge	Area of D&T and Skills	Subject sequence	Outcome	Lesson ideas / suggestions
1	Retrieval from last academic year / Half term (Tick and Fix) Complete Brain Buzz of retrieval Share Knowledge mat Share vocabulary toolkit and explore vocabulary Explore children prior knowledge of the area of D&T and topic 'show me what you already know task'				
2	Know what a running stitch is and it's purpose. To understand how to attach a fabric correctly knowing the front and back, being symmetrical, be straight, tight and accurate to make the attachment strong and secure.	**Textiles – Christmas stocking** **Design brief –** **Design and make a Christmas stocking for a present for someone in the festive season.**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Research and practice and refine lesson about the specific learning focus of the D&T unit. • Evidence work using work sheets.	• Children are able to identify the area of D&T they're working in. • Be able to understand what textiles means and what it can look like. • To be able to identify running stitch and understand why it is important. • Be able to understand how to securely fasten and attach materials together.	• Explore / class discussion about what textiles is and what it can look like. • Children can select and sort a range of different stitches – purposefully pointing out the running stitch. • Explore different ways materials can be attached together. • Using the materials provided, can they practice the running stitch and try attach two piece together using this stitch.
3	Know how to draw round the template with marker and cut out accurately. Know how to use attach decertations onto the fabric appropriately using a range of materials. Know how to use ideas to create drawn designs which are detailed – identifying types of stitches, materials, decorative items and front / back attachment.	**Generating ideas – designing**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • **Explore the product, dissemble a WAGOLL, taste the food, explore the materials.** • Complete the top half of the design and making sheet. • Using this experience create 3 or 4 designs of their final product. • **Designs are detailed and are coloured**	• Gain a deeper understand of a card, why we use them and what they look like. • Children able to effectively trace and cut out using scissors to create decorations. • Refine sewing skills by attaching materials. • Children be able to apply knowledge to create a range of designs for their stockings. • Complete top half of designing and making sheet.	• Children explore a WAGOLL of the stitching to examine how it has being made, attached and materials used. • Explore the theme of the stockings and then practice cutting out templates of shapes (tracing) • Explore decorative items and shapes the children would want, again practice cutting them out. • Using the scrap material (traced out stocking and decorative items), can they practice attaching them, using their stitching. • Select a theme and allow the children to create detailed designs of their stockings.
4	Know how to use ideas to create drawn designs which are detailed – identifying types of stitches, materials, decorative items and front / back attachment.	**Making**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Pick final design and draw it on the design and	• Children are able to select their final design. • Re-create this on their design and making sheet. • **BEFORE MAKING**	• Using a range of their equipment and materials, can the children use their designs to create their final product. • Can they finalise their product to see is they would work (placing something inside).

			making sheet (detailed and labelled). • Complete the steps on how you are going to create the final product on the design and making sheet. • Begin to make.	• Complete creation steps on design and making sheet. • To be able to effectively look at plans and step to produce a final product.	
5		**Evaluate**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Complete making aspect (if needed) • **Unit evaluation.**	• Children are able to think critically about their final product and the design brief. • Can they use their designs to assess if they've being successful with their final product. • Critically think about how they could make their final product better. • Complete evaluation on design and making sheet.	• Children be able to assess and evaluate their final product. • Can they use their final design. • Can they think about what they could change to make it better. • Can they assess whether or not the person would like the gift.

DT Year 4 Knowledge Mat

Design and Make seasonal stockings

Key Knowledge
Know how to fasten two pieces of fabric together using the running stitch.
Know what a running stitch is and it's purpose.
To understand how to attach a fabric correctly knowing the front and back, being symmetrical.
Know how to draw round the template with marker and cut out accurately.
Know how to use attach decertations onto the fabric appropriately using a range of materials.
Know how the fastening needs to be straight, tight and accurate to make the attachment strong and secure.

Vocabulary	
Running stitch	A simple needlework stitch consisting of a line of small even stitches which run back and forth
Thread	A long, thin strand of cotton, nylon, or other fabrics used in sewing or weaving.
needle	A (sewing) needle is a small, rounded tool used to carry a thread.
pinning	Attaching two pieces of fabric together with pins.
Felt	A kind of cloth made by rolling and pressing wool or another suitable textile accompanied by the application of moisture or heat.
Seam	The line formed by sewing together pieces of cloth, leather, or the like.

Prior Knowledge –

Year 1 – exploring how to attach different materials together, using a range of equipment.
Year 2 – material properties.

©St Charles' VC Academy

Spring – Electrical systems – Design and make a night light torch

Session	Key knowledge	Area of D&T and Skills	Subject sequence	Outcome	Lesson ideas / suggestions
1	Retrieval from last academic year / Half term (Tick and Fix) Complete Brain Buzz of retrieval Share Knowledge mat Share vocabulary toolkit and explore vocabulary Explore children prior knowledge of the area of D&T and topic 'show me what you already know task'				
2	To know and understand that a circuit is an electrical current and how it works. To be able to select the appropriate equipment to build a circuit. To be able to attach a fasten to the circuit to allow for the switch to be open and closed.	**Electrical systems – make a torch** **Design brief –** **Design and make a torch for a child to take on a camping trip.**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Research and practice and refine lesson about the specific learning focus of the D&T unit. • Evidence work using work sheets.	• Children are able to identify the area of D&T they're working in. • Be able to understand what circuits are and what it can look like. • To be able to identify how to open and close a circuit. • Be able to understand what components are needed in order to build a circuit and the part they play.	• Explore / class discussion about what a circuit is and what it can look like. • Children can select and sort a range of different materials and equipment to be able to create a working circuit. • Draw, label and explain why they need each component. • Explore ways of how the circuit can be open or closed and explain the difference.
3	To know how to create a detailed design and use this to recreate their product using the appropriate vocabulary.	**Generating ideas – designing**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • **Explore the product, dissemble a WAGOLL, taste the food, explore the materials.** • Complete the top half of the design and making sheet. • Using this experience create 3 or 4 designs of their final product. • **Designs are detailed and are coloured**	• Gain a deeper understand of a card, why we use them and what they look like. • Children able to effectively trace and cut out using scissors to create decorations. • Refine sewing skills by attaching materials. • Children be able to apply knowledge to create a range of designs for their stockings. • Complete top half of designing and making sheet.	• Children explore a WAGOLL of the final product (torch) how it has being made, attached and materials used. • Explore the theme of the torch and talk about customer concept (not making it for themselves). • Accurately select / identify the materials they need to be successful. • Select a theme and allow the children to create detailed designs of their torches – drawing both the view of the torch complete and the design of the circuit inside. •
4	To know how to create a detailed design and use this to recreate their product using the appropriate vocabulary.	**Making**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Pick final design and draw it on the design and making sheet (detailed and labelled). • Complete the steps on how you are going to create the final product on the design and making sheet. • Begin to make.	• Children are able to select their final design. • Re-create this on their design and making sheet. • **BEFORE MAKING** • Complete creation steps on design and making sheet.	• Using a range of their equipment and materials, can the children use their designs to create their final product. • Can they finalise their product to see if it works.

				• To be able to effectively look at plans and step to produce a final product.	
5	To use their new knowledge to evaluate their final product effectively to establish whether it was successful.	**Evaluate**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Complete making aspect (if needed) • **Unit evaluation.**	• Children are able to think critically about their final product and the design brief. • Can they use their designs to assess if they've being successful with their final product. • Critically think about how they could make their final product better. • Complete evaluation on design and making sheet.	• Children be able to assess and evaluate their final product. • Can they use their final design. • Can they think about what they could change to make it better. • Can they assess whether or not the torch would be useful to a child on a camping trip and would children like it. • Peer assess each others.

DT Year 4 Knowledge Mat

Design and Make, evaluate a torch

Key Knowledge
To create a switch on the torch to open and close the circuit
To know and understand that a circuit is an electrical current and how it works.
To be able to select the appropriate equipment to build a circuit.
To be able to attach a fasten to the circuit to allow for the switch to be open and closed.
To know how to create a detailed design and use this to recreate their product using the appropriate vocabulary.
To use their new knowledge to evaluate their final product effectively to establish whether it was successful.

Vocabulary	
conductor	A material which allows heat or electricity to pass through easily.
insulator	A material that does not conduct electricity and can therefore be used as a coating to components.
switches	Switch breaks the circuit when the connection breaks the connection.
circuit	A roughly circular line, route, or movement that starts and finishes at the same place.
bulb	A device used to convert electricity into light.
battery	A container consisting of one or more cells, in which chemical energy is converted into electricity and used as a source of power.

Prior Knowledge–
Y2 science, electrical component
Y4 science, circuits

© St Charles' VC Academy

Summer – Cooking and Nutrition – Design and make a stuffed pepper.

Session	Key knowledge	Area of D&T and Skills	Subject sequence	Outcome	Lesson ideas / suggestions
1	Retrieval from last academic year / Half term (Tick and Fix) Complete Brain Buzz of retrieval Share Knowledge mat Share vocabulary toolkit and explore vocabulary Explore children prior knowledge of the area of D&T and topic 'show me what you already know task'				
2	Know about a range of fresh and processed ingredients relating to stuffed peppers. To understand the seasonality of the ingredients and whether they are grown, reared or caught. Know how to select the correct ingredients, utensils and tools to create and make a healthy product (stuffed pepper)	**Cooking and nutrition – healthy sandwiches** **Design brief –** **Design and make a healthy snack option for the school's salad bar.**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Research and practice and refine lesson about the specific learning focus of the D&T unit. • Evidence work using work sheets.	• Children are able to identify the area of D&T they're working in. • Be able to understand what a cooking and nutrition is. • Children can understand where peppers come from and how they're grown. • Be able to understand that food is grown at different times of the year (especially peppers). • To be able to understand that food is grown all over the world and due to factors like climate and seasons, some foods can only be grown in certain countries. • To refine the hygiene and cooking utensil knowledge from previous years.	• Create information cards , fact files or posters about peppers (where, how they're grown, factors needed for them to grow successfully) • Research the seasonality of vegetables – focusing peppers. Sorting / matching activity. • Children create a piece of writing (newspaper report) as if they are reporting about the seasonality. • Explore / observe stuffed peppers and understand the different types of ingredients they can include. • Accurately select the equipment and utensils they will need to use in order to make stuffed peppers. • Create a short poster or sign to remind the class about how we can stay hygienic while cooking and handling food. • Taste testing the ingredients.
3	Know how to select the correct ingredients, utensils and tools to create and make a healthy product (stuffed pepper) To know how to create a design and use this to recreate their product using the appropriate vocabulary.	**Generating ideas – designing**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • **Explore the product, dissemble a WAGOLL, taste the food, explore the materials.** • Complete the top half of the design and making sheet. • Using this experience create 3 or 4 designs of their final product. • **Designs are detailed and are coloured**	• Gain a deeper understanding of the equipment needed to cook with. • To be able to use their personal experiences (from taste testing) to identify the ingredients they would like to use. • Children be able to apply knowledge to create a range of designs for their stuffed peppers. • Complete top half of designing and making sheet.	• Enhance understanding by watching a WAGOLL of a stuffed pepper being made. • Role play the steps of how to make a stuffed pepper – could be like a Simon says activity. Can they provide detailed and accurate steps including hygiene steps, equipment and ingredients . • Children taste a range of selected ingredients. Able to identify how they taste, their texture. • Children select the ingredients they would like to use and then use these to create detailed designs of their peppers. Designs to

					be labelled – showing the specific food used and information about each food (peppers – from core learning form lesson before). •
4	Know how to select the correct ingredients, utensils and tools to create and make a healthy product (stuffed pepper)	**Making**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Pick final design and draw it on the design and making sheet (detailed and labelled). • Complete the steps on how you are going to create the final product on the design and making sheet. • Begin to make.	• Children are able to select their final design – which is purposefully labelled to show the ingredients and equipment they will use. • Re-create this on their design and making sheet. • **BEFORE MAKING** • Complete creation steps on design and making sheet. • To be able to effectively look at plans and step to produce a final product.	• Using their final design and step by step guided, can they create and make their final product. • Can they finalise their product and put it to the taste test.
5	To be able to evaluate their product against the design brief and assess their work.	**Evaluate**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Complete making aspect (if needed) • **Unit evaluation.**	• Children are able to think critically about their final product and the design brief. • Can they use their designs to assess if they've being successful with their final product. • Critically think about how they could make their final product better. • Complete evaluation on design and making sheet.	• Children be able to assess and evaluate their final product. • Can they use their final design to state whether they have being successful. • Can they think about what they could change to make it better. • Can they evaluate and discuss if their stuffed pepper would successful at lunch time, due to taste and presentation. Thinking from a customer point of view. • Taste and rate each other's peppers. •

DT Year 4 Knowledge Mat

Design and Make and evaluate stuffed peppers

Key Knowledge
To understand the seasonality of different vegetables to prepare and make a stuffed pepper.
Know about a range of fresh and processed ingredients relating to stuffed peppers.
To understand the seasonality of the ingredients and whether they are grown, reared or caught.
Know how to select the correct ingredients, utensils and tools to create and make a healthy product (stuffed pepper)
To know how to create a design and use this to recreate their product using the appropriate vocabulary.
To be able to evaluate their product against the design brief and assess their work.

Vocabulary	
Utensils	A tool used at home or in a kitchen
Ingredients	Things used and needed to make something
Edible	Something fit or suitable to be eaten.
seasonality	Vegetables that are ripe and ready to harvest at a particular time of year.
Reared	Vegetables been produced in small amounts with a lot of care, rather than using machines
Combine	Join or merge to form a single unit or substance.

Prior Knowledge–
Y1 – seaside snacks (fruit)
Y2 – healthy pizza
Y3 – healthy sandwich

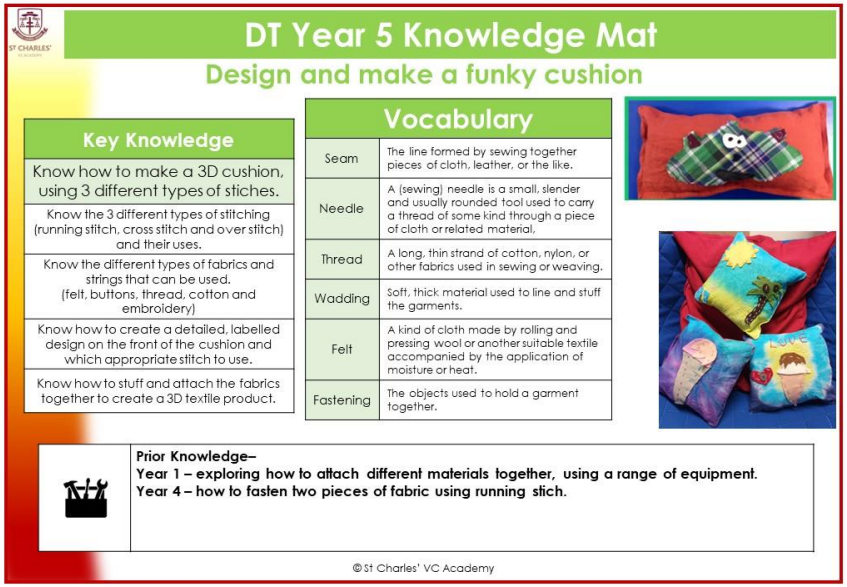
©St Charles' VC Academy

Year 5

Autumn – Textiles – Design and make a funky cushion

Session	Key knowledge	Area of D&T and Skills	Subject sequence	Outcome	Lesson ideas / suggestions
1	Retrieval from last academic year / Half term (Tick and Fix) Complete Brain Buzz of retrieval Share Knowledge mat Share vocabulary toolkit and explore vocabulary Explore children prior knowledge of the area of D&T and topic 'show me what you already know task'				
2	Know the 3 different types of stitching (running stitch, cross stitch and over stitch) and their uses. Know the different types of fabrics and strings that can be used. (felt, buttons, thread, cotton and embroidery)	**Textiles – Christmas stocking** **Design brief –** **Design and make a cushion for Dunelm's new children's bedroom rage.**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Research and practice and refine lesson about the specific learning focus of the D&T unit. • Evidence work using work sheets.	• Children are able to identify the area of D&T they're working in. • Be able to understand what textiles means and what it can look like. • To be able to identify running, cross, over stitch and understand why it is important. • Be able to understand how to securely fasten and attach materials together. • Gain a deeper understanding about the materials and string that can be used in sewing.	• Explore / class discussion about what textiles is and what it can look like – linking back to previous year (1 and 4) • Children can select and sort a range of different stitches. • Explore different ways different materials can be attached together, using different strings and stitches. • Using the materials provided, can they practice the stitches and try attach two different piece of material together.
3	Know how to create a detailed, labelled design on the front of the cushion and which appropriate stitch to use.	**Generating ideas – designing**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • **Explore the product, dissemble a WAGOLL, taste the food, explore the materials.** • Complete the top half of the design and making sheet. • Using this experience create 3 or 4 designs of their final product. • **Designs are detailed and are coloured**	• Gain a deeper understand of a cushion, why we use them and what they look like. • Know that a cushion is stuffed, so the two piece will be attached, with something inside. • Think about the customer target – what will be suitable for a child. • Children able to effectively trace and cut out using scissors to create decorations for their cushions. • Children be able to apply knowledge to create a range of designs for their cushions. • Complete top half of designing and making sheet.	• Children explore a WAGOLL of the stitching to examine how it has being made, attached and materials used. • Explore the theme of the cushion and then practice cutting out templates of shapes (tracing) • Practice trying to attach bits of material with filler inside. • Explore decorative items and shapes the children would want, again practice cutting them out. • Select a theme and allow the children to create detailed designs of their stockings. The designs should include the types of material and stitching. •

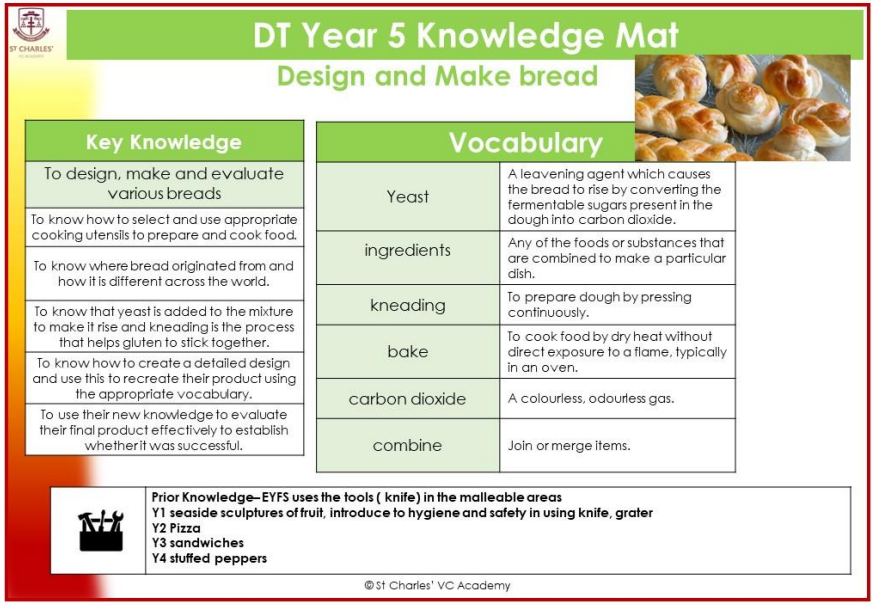
4	Know how to stuff and attach the fabrics together to create a 3D textile product.	**Making**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Pick final design and draw it on the design and making sheet (detailed and labelled). • Complete the steps on how you are going to create the final product on the design and making sheet. • Begin to make.	• Children are able to select their final design. • Re-create this on their design and making sheet. • **BEFORE MAKING** • Complete creation steps on design and making sheet. • To be able to effectively look at plans and step to produce a final product.	• Using a range of their equipment and materials, can the children use their designs to create their final product. • Can they finalise their product to see is they would work (is it secure and finished to a high quality).
5		**Evaluate**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Complete making aspect (if needed) • **Unit evaluation.**	• Children are able to think critically about their final product and the design brief. • Can they use their designs to assess if they've being successful with their final product. • Critically think about how they could make their final product better. • Complete evaluation on design and making sheet.	• Children be able to assess and evaluate their final product. • Can they use their final design. • Can they think about what they could change to make it better. • Can they assess whether or not the cushion would sell.



Spring – Cooking and Nutrition – Design and make plain bread

Session	Key knowledge	Area of D&T and Skills	Subject sequence	Outcome	Lesson ideas / suggestions
1	Retrieval from last academic year / Half term (Tick and Fix) Complete Brain Buzz of retrieval Share Knowledge mat Share vocabulary toolkit and explore vocabulary Explore children prior knowledge of the area of D&T and topic 'show me what you already know task'				
2	To know where bread originated from and how it is different across the world. To know that yeast is added to the mixture to make it rise and kneading is the process that helps gluten to stick together.	**Cooking and nutrition – healthy sandwiches** **Design brief –** **Design and make a patterned bread loaf for Tesco's bakery.**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Research and practice and refine lesson about the specific learning focus of the D&T unit. • Evidence work using work sheets.	• Children are able to identify the area of D&T they're working in. • Be able to understand what a cooking and nutrition is. • Children can understand where bread came from and how it is made. • Be able to understand that food is different all around the world – especially bread. • Be able to identify the ingredients needed to make bread and the factors they play (yeast). • To refine the hygiene and cooking utensil knowledge from previous years.	• Create information cards , fact files or posters about bread (where, how it is made, factors needed for them to grow successfully) • Research the ingredients to make bread – focusing on yeast. Can they create a set of instructions on how to make it and the importance of the ingredients. • Explore / taste a range of breads and understand the different types of ingredients they can include. • Create a short poster or sign to remind the class about how we can stay hygienic while cooking and handling food.
3	To know how to create a detailed design and use this to recreate their product using the appropriate vocabulary.	**Generating ideas – designing**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • **Explore the product, dissemble a WAGOLL, taste the food, explore the materials.** • Complete the top half of the design and making sheet. • Using this experience create 3 or 4 designs of their final product. • **Designs are detailed and are coloured**	• • To be able to use their personal experience from observing different varieties of bread to identify the pattern / shape they would like to create. • Children be able to apply knowledge to create a range of designs for their stuffed peppers. • Complete top half of designing and making sheet.	• Enhance understanding by watching a WAGOLL of a bread pattern being made. • Role play the steps of how to make a stuffed pepper – could be like a Simon says activity. Can they provide detailed and accurate steps including hygiene steps, equipment and ingredients . • Children select the ingredients they would like to use and then use these to create detailed designs of their breads. Designs to be labelled – showing the specific pattern and ingredients used. •
4	To know how to select and use appropriate cooking utensils to prepare and cook food.	**Making**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Pick final design and draw it on the design and making sheet (detailed and labelled).	• Children are able to select their final design – which is purposefully labelled to show the ingredients and equipment they will use. • Gain a deeper understanding of the equipment needed to cook with.	• Using their final design and step by step guided, can they create and make their final product. • Can they finalise their product and put it to the taste test.

			• Complete the steps on how you are going to create the final product on the design and making sheet. • Begin to make.	• Re-create this on their design and making sheet. • **BEFORE MAKING** • Complete creation steps on design and making sheet. • To be able to effectively look at plans and step to produce a final product.	
5	To use their new knowledge to evaluate their final product effectively to establish whether it was successful	**Evaluate**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Complete making aspect (if needed) • **Unit evaluation.**	• Children are able to think critically about their final product and the design brief. • Can they use their designs to assess if they've being successful with their final product. • Critically think about how they could make their final product better. • Complete evaluation on design and making sheet.	• Children be able to assess and evaluate their final product. • Can they use their final design to state whether they have being successful. • Can they think about what they could change to make it better. • Can they evaluate and discuss if their bread loafs would be successful at Tesco bakery, due to taste and presentation. Thinking from a customer point of view. • Taste and rate each other's bread. •



DT Year 5 Knowledge Mat

Design and Make bread

Key Knowledge
To design, make and evaluate various breads
To know how to select and use appropriate cooking utensils to prepare and cook food.
To know where bread originated from and how it is different across the world.
To know that yeast is added to the mixture to make it rise and kneading is the process that helps gluten to stick together.
To know how to create a detailed design and use this to recreate their product using the appropriate vocabulary.
To use their new knowledge to evaluate their final product effectively to establish whether it was successful.

Vocabulary	
Yeast	A leavening agent which causes the bread to rise by converting the fermentable sugars present in the dough into carbon dioxide.
ingredients	Any of the foods or substances that are combined to make a particular dish.
kneading	To prepare dough by pressing continuously.
bake	To cook food by dry heat without direct exposure to a flame, typically in an oven.
carbon dioxide	A colourless, odourless gas.
combine	Join or merge items.

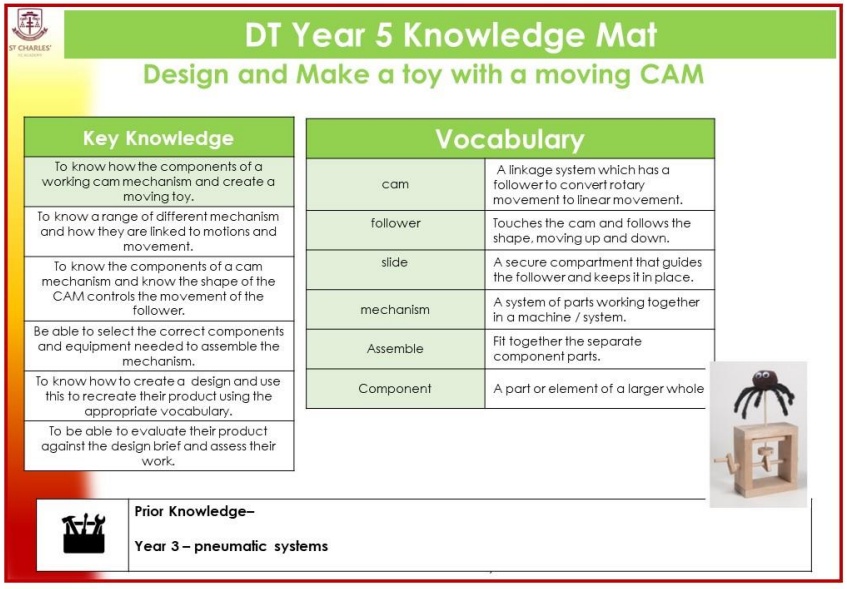
Prior Knowledge– EYFS uses the tools (knife) in the malleable areas
Y1 seaside sculptures of fruit, introduce to hygiene and safety in using knife, grater
Y2 Pizza
Y3 sandwiches
Y4 stuffed peppers

© St Charles' VC Academy

Summer – Mechanical systems – Design and make a toy with a moving CAM part

Session	Key knowledge	Area of D&T and Skills	Subject sequence	Outcome	Lesson ideas / suggestions
1	Retrieval from last academic year / Half term (Tick and Fix) Complete Brain Buzz of retrieval Share Knowledge mat Share vocabulary toolkit and explore vocabulary Explore children prior knowledge of the area of D&T and topic 'show me what you already know task'				
2	To know a range of different mechanism and how they are linked to motions and movement. To know the components of a cam mechanism and know the shape of the CAM controls the movement of the follower. Be able to select the correct components and equipment needed to assemble the mechanism.	**Mechanisms – pneumatic systems** **Design brief –** **Design and make a moving toy to sell at the summer fair.**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Research and practice and refine lesson about the specific learning focus of the D&T unit. • Evidence work using work sheets.	• Children are able to identify the area of D&T they're working in. • Be able to understand what mechanism are, linking back to previous years (1, 2 and 3). • Children can understand different types of mechanisms – Cams. • To be able to understand how different mechanisms create different movements – motions. • Children able understand how a cam works and where we can find them in the real world. • Children be exposed to the different elements and components in relation to a cam mechanism.	• Children explore what mechanics means. • Explore different types of mechanisms and discover how they work, linking back to previous years (1, 2 and 3). • Children explore the components of a cam and investigate how it creates movement and motions. • Explore the model of a cam, able to label and identify the different components. • Explore the purpose of a cams (linking to the real world) • Challenge : can they explain how they work.
3	Be able to select the correct components and equipment needed to assemble the mechanism. To know how to create a design and use this to recreate their product using the appropriate vocabulary.	**Generating ideas – designing**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • **Explore the product, dissemble a WAGOLL, taste the food, explore the materials.** • Complete the top half of the design and making sheet. • Using this experience create 3 or 4 designs of their final product. • **Designs are detailed and are coloured**	• Gain a deeper understand on cams in relation to their final product (a moving toy) • Children able to successfully identify the equipment and materials used in the mechanics of a cam. • To be able to highlight the steps to create the mechanism to create correct performance. • Children be able to apply knowledge to create a range of designs for their moving toys. • Complete top half of designing and making sheet.	• Enhance understanding by disassembling and assembling a WAGOLL of final product. • Children can actively select materials and equipment, when presented to them to highlight all the components in this mechanism. • Practice and refine the skill of assembling and carefully designing to ensure effective and successful movement of the correct part. • Think of a theme / ideas and children create detailed designs – highlighting their cam structure, how it will move and what part will move.

4	Be able to select the correct components and equipment needed to assemble the mechanism.	**Making**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Pick final design and draw it on the design and making sheet (detailed and labelled). • Complete the steps on how you are going to create the final product on the design and making sheet. • Begin to make.	• Children are able to select their final design – which is purposefully labelled to show the movement of the mechanism. • Re-create this on their design and making sheet. • **BEFORE MAKING** • Complete creation steps on design and making sheet. • To be able to effectively look at plans and step to reduce a final product.	• Using their final design and step by step guided, can they create and make their final product. • Can they finalise their product and assess if it moves correctly.
5	To be able to evaluate their product against the design brief and assess their work.	**Evaluate**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Complete making aspect (if needed) • **Unit evaluation.**	• Children are able to think critically about their final product and the design brief. • Can they use their designs to assess if they've being successful with their final product. • Critically think about how they could make their final product better. • Complete evaluation on design and making sheet.	• Children be able to assess and evaluate their final product. • Can they use their final design to state whether they have being successful. • Can they think about what they could change to make it better. • Can they assess the customers view of the product – would it sell, does it work effectively, who would buy it.



DT Year 5 Knowledge Mat

Design and Make a toy with a moving CAM

Key Knowledge
To know how the components of a working cam mechanism and create a moving toy.
To know a range of different mechanism and how they are linked to motions and movement.
To know the components of a cam mechanism and know the shape of the CAM controls the movement of the follower.
Be able to select the correct components and equipment needed to assemble the mechanism.
To know how to create a design and use this to recreate their product using the appropriate vocabulary.
To be able to evaluate their product against the design brief and assess their work.

Vocabulary	
cam	A linkage system which has a follower to convert rotary movement to linear movement.
follower	Touches the cam and follows the shape, moving up and down.
slide	A secure compartment that guides the follower and keeps it in place.
mechanism	A system of parts working together in a machine / system.
Assemble	Fit together the separate component parts.
Component	A part or element of a larger whole

Prior Knowledge–

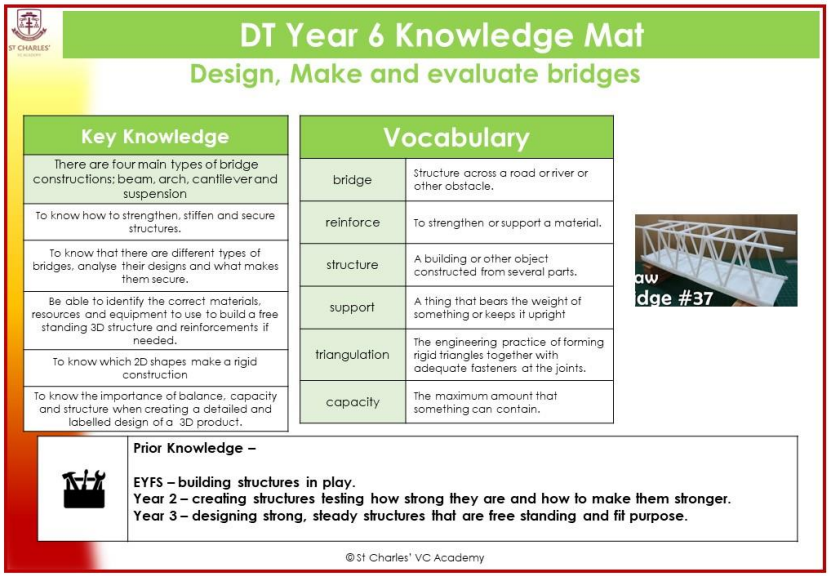
Year 3 – pneumatic systems

Year 6

Autumn – Structures – Design and make a bridge

Session	Key knowledge	Area of D&T and Skills	Subject sequence	Outcome	Lesson ideas / suggestions
1	Retrieval from last academic year / Half term (Tick and Fix) Complete Brain Buzz of retrieval Share Knowledge mat Share vocabulary toolkit and explore vocabulary Explore children prior knowledge of the area of D&T and topic 'show me what you already know task'				
2	To know how to strengthen, stiffen and secure structures. To know that there are different types of bridges, analyse their designs and what makes them secure. Be able to identify the correct materials, resources and equipment to use to build a free standing 3D structure and reinforcements if needed.	**Structures – bridges** **Design brief –** **Design and make a prototype for Hull City Counsil for a new bridge for the city.**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Research and practice and refine lesson about the specific learning focus of the D&T unit. • Evidence work using work sheets.	• Children are able to identify the area of D&T they're working in. • Be able to understand what a structure / freestanding structures are, linking to previous learning (year 2 and 3) • Children can understand the purpose of a bridge and structure. • Begin to understand how structures can be supported to become free standing. • To know what materials are used to create sturdy / safe structures.	• Children explore and are exposed to different types of structure of bridges. • Explore and analyse bridges, discuss their purpose and how they can stand on their own. • Go for a walk around Hull and visit the different bridges in the city centre. • Experiment with different materials, different techniques used to strengthen the structure. Using these bits of materials and the techniques, can they create a freestanding structure with different 2D shapes. • Using a range of materials can the children investigate and identify which materials will be suitable, in relation their properties, to create a 3D structure.
3	To know which 2D shapes make a rigid construction To know the importance of balance, capacity and structure when creating a detailed and labelled design of a 3D product.	**Generating ideas – designing**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • **Explore the product, dissemble a WAGOLL, taste the food, explore the materials.** • Complete the top half of the design and making sheet. • Using this experience create 3 or 4 designs of their final product. • **Designs are detailed and are coloured**	• Gain a deeper understanding of the components of a bridge and how they stand strong and sturdy – in relation to their shapes. • Analyse different styles of bridges – identifying their likes and dislikes. • To be able to successfully understand and select the correct materials and equipment for their structure – in relation to free standing, sturdiness and strength. • Be able to understand importance of the factors needed to make a bridge – balance, capacity.	• Enhance understanding by disassembling and assembling WAGOLLS / WABOLLS of bridges – looking at the different components that are attached and fastened together to create a strong structure. Discussion on balance and capacity. • Using their personal likes and dislikes from looking at the bridges, are they able to generate ideas for their structure. • Effectively select the materials and equipment for designs. • Create detailed and labelled designs, explaining how their bridges will stand,

				• Complete top half of designing and making sheet.	shapes they will use and how they will secure the structure.
4	To know the importance of balance, capacity and structure when creating a detailed and labelled design of a 3D product.	**Making**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Pick final design and draw it on the design and making sheet (detailed and labelled). • Complete the steps on how you are going to create the final product on the design and making sheet. • Begin to make.	• Children are able to select their final design – which is purposefully labelled to show the ingredients and equipment they will use. • Re-create this on their design and making sheet. • **BEFORE MAKING** • Complete creation steps on design and making sheet. • To be able to effectively look at plans and step to produce a final product.	• Using their final design and step by step guided, can they create and make their final product. • Can they finalise their product and put it to the test – does it stand, strong and secure.
5		**Evaluate**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Complete making aspect (if needed) • **Unit evaluation.**	• Children are able to think critically about their final product and the design brief. • Can they use their designs to assess if they've being successful with their final product. • Critically think about how they could make their final product better. • Complete evaluation on design and making sheet.	• Children be able to assess and evaluate their final product. • Can they use their final design to state whether they have being successful. • Can they think about what they could change to make it better. • Can they assess the prototype, is it strong enough, would it be safe, would is be effective for the purpose of the city.



Spring – Cooking and Nutrition – Design and make bread with toppings

Session	Key knowledge	Area of D&T and Skills	Subject sequence	Outcome	Lesson ideas / suggestions
1	Retrieval from last academic year / Half term (Tick and Fix) Complete Brain Buzz of retrieval Share Knowledge mat Share vocabulary toolkit and explore vocabulary Explore children prior knowledge of the area of D&T and topic 'show me what you already know task'				
2	To explore the origins of bread and how bread varies throughout the world due to seasonality, culture and ingredients. To understand how adding ingredients can change the flavour of food.	**Cooking and nutrition – Create flavoured bread.** **Design brief –** **Design and make flavoured bread for Jacksons Bakery**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Research and practice and refine lesson about the specific learning focus of the D&T unit. • Evidence work using work sheets.	• Children are able to identify the area of D&T they're working in. • Be able to understand what a cooking and nutrition is. • Children can understand where bread came from and how it is made. • Be able to understand that food is different all around the world – especially bread. Begin to understand the different flavours of bread • Be able to understand that food is grown at different times of the year (especially flavours for bread). • To be able to understand that food is grown all over the world and due to factors like climate and seasons, some foods can only be grown in certain countries. • Be able to identify the ingredients needed to make bread and the factors they play (yeast). • To refine the hygiene and cooking utensil knowledge from previous years.	• Create information cards , fact files or posters about bread (where, how it is made, factors needed for them to grow successfully) • Research the ingredients to make bread – focusing on flavours. Can they create a set of instructions on how to make it and the importance of the ingredients. • Explore / taste a range of breads and understand the different types of ingredients they can include. • Create a short poster or sign to remind the class about how we can stay hygienic while cooking and handling food. • Children create a piece of writing (newspaper report) as if they are reporting about the seasonality. •
3	To know how to create a detailed design and use this to recreate their product using the appropriate vocabulary.	**Generating ideas – designing**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • **Explore the product, dissemble a WAGOLL, taste the food, explore the materials.** • Complete the top half of the design and making sheet.	• • To be able to use their personal experience from observing different varieties of bread to identify the pattern / shape / tastes they would like to create.	• Enhance understanding by watching a WAGOLL of a bread being made. • Role play the steps of how to make a stuffed pepper – could be like a Simon says activity. Can they provide detailed and accurate steps including hygiene steps, equipment and ingredients .

			• Using this experience create 3 or 4 designs of their final product. • **Designs are detailed and are coloured**	• Children be able to apply knowledge to create a range of designs for their flavoured bread. • Complete top half of designing and making sheet.	• Children select the ingredients they would like to use and then use these to create detailed designs of their breads. Designs to be labelled – showing the specific pattern and ingredients used and why. •
4	To know how to select and use appropriate cooking utensils to prepare and cook food.	**Making**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Pick final design and draw it on the design and making sheet (detailed and labelled). • Complete the steps on how you are going to create the final product on the design and making sheet. • Begin to make.	• Children are able to select their final design – which is purposefully labelled to show the ingredients and equipment they will use. • Gain a deeper understanding of the equipment needed to cook with. • Re-create this on their design and making sheet. • **BEFORE MAKING** • Complete creation steps on design and making sheet. • To be able to effectively look at plans and step to produce a final product.	• Using their final design and step by step guided, can they create and make their final product. • Can they finalise their product and put it to the taste test.
5	To use their new knowledge to evaluate their final product effectively to establish whether it was successful.	**Evaluate**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Complete making aspect (if needed) • **Unit evaluation.**	• Children are able to think critically about their final product and the design brief. • Can they use their designs to assess if they've being successful with their final product. • Critically think about how they could make their final product better. • Complete evaluation on design and making sheet.	• Children be able to assess and evaluate their final product. • Can they use their final design to state whether they have being successful. • Can they think about what they could change to make it better. • Can they evaluate and discuss if their bread loafs would be successful at Jacksons Bakery, due to taste and presentation. Thinking from a customer point of view. • Taste and rate each other's bread. •

DT Year 6 Knowledge Mat

Design, make and evaluate bread with different shapes and toppings

Key Knowledge
To design, make and evaluate various breads with different shapes and toppings
To know how to select and use appropriate cooking utensils to prepare and cook food.
To explore the origins of bread and how bread varies throughout the world due to seasonality, culture and ingredients.
To understand how adding ingredients can change the flavour of food.
To know how to create a detailed design and use this to recreate their product using the appropriate vocabulary.
To use their new knowledge to evaluate their final product effectively to establish whether it was successful.

Vocabulary	
ingredients	Any of the foods or substances that are combined to make a particular dish.
bake	To cook food by dry heat without direct exposure to a flame, typically in an oven.
combine	Join or merge items.
culture	The ideas, customs, and social behaviour of a particular people or society.
seasonality – seasonal food	Seasonal food refers to the times of year when the harvest or the flavor of a given type of food is at its peak.
flavour	The distinctive taste of a food or drink.

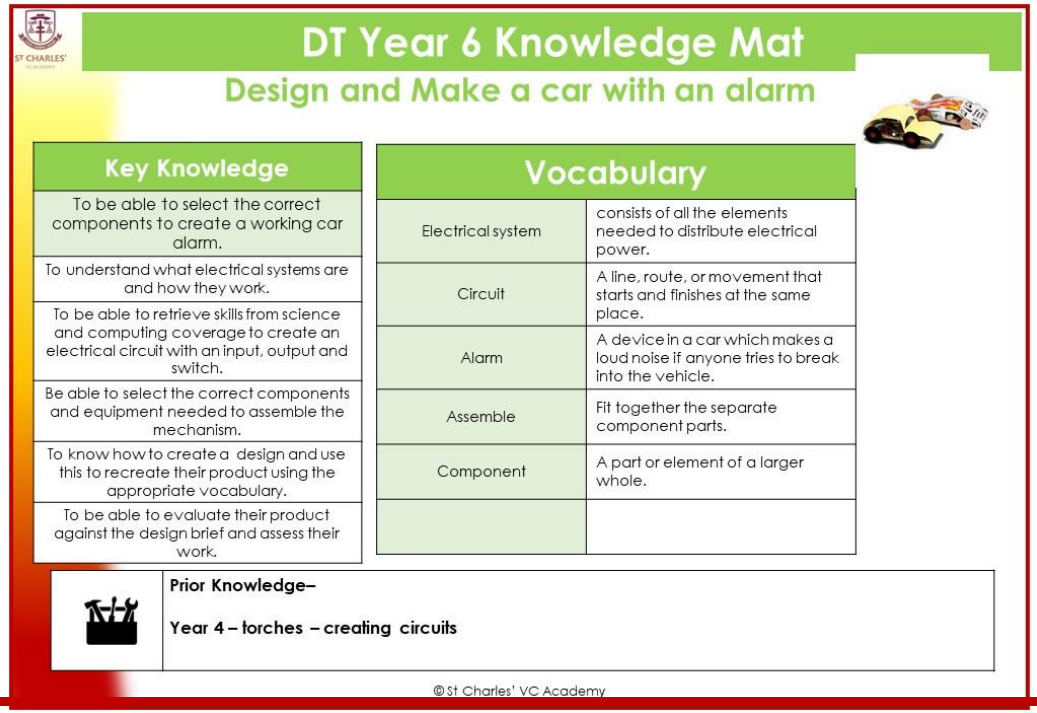
Prior Knowledge– EYFS uses the tools (knife) in the malleable areas
Y1 seaside sculptures of fruit, introduce to hygiene and safety in using knife, grater
Y2 Pizza
Y3 sandwiches
Y4 stuffed peppers
Y5 bread without additives or simple shapes

©St Charles' VC Academy

Summer – Electronic systems – Design and make a car with an alarm.

Session	Key knowledge	Area of D&T and Skills	Subject sequence	Outcome	Lesson ideas / suggestions
1	Retrieval from last academic year / Half term (Tick and Fix) Complete Brain Buzz of retrieval Share Knowledge mat Share vocabulary toolkit and explore vocabulary Explore children prior knowledge of the area of D&T and topic 'show me what you already know task'				
2	To understand what electrical systems are and how they work. To be able to retrieve skills from science and computing coverage to create an electrical circuit with an input, output and switch. Be able to select the correct components and equipment needed to assemble the mechanism.	**Electrical systems – make a working car alarm** **Design brief –** **Design and make a prototype for car supermarket – to secure the safety of cars.**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Research and practice and refine lesson about the specific learning focus of the D&T unit. • Evidence work using work sheets.	• Children are able to identify the area of D&T they're working in. • Be able to understand what circuits are and what it can look like. • Be able to understand what components are needed in order to build a circuit and the part they play (input, output and switch) • Identify suitable materials.	• Explore / class discussion about what a circuit is and what it can look like. • Children can select and sort a range of different materials and equipment to be able to create a working circuit. • Draw, label and explain why they need each component. • Explore ways of how the circuit can be open or closed and explain the difference.
3	To know how to create a design and use this to recreate their product using the appropriate vocabulary.	**Generating ideas – designing**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • **Explore the product, dissemble a WAGOLL, taste the food, explore the materials.** • Complete the top half of the design and making sheet. • Using this experience create 3 or 4 designs of their final product. • **Designs are detailed and are coloured**	• Gain a deeper understand of an electrical circuit, why we use them and what they look like. • To know how the alarm system is triggered due to the change in circuit. • Children be able to apply knowledge to create a range of designs for their stockings. • Complete top half of designing and making sheet.	• Children explore a WAGOLL of the final product (car with working alarm) how it has being made, attached and materials used. • Explore the theme of the car alarm and talk about customer concept (not making it for themselves). • Accurately select / identify the materials they need to be successful. • Select a theme and allow the children to create detailed designs of their cars – drawing both the view of the car complete and the design of the circuit inside. •
4	To be able to retrieve skills from science and computing coverage to create an	**Making**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson.	• Children are able to select their final design. • Re-create this on their design and making sheet.	• Using a range of their equipment and materials, can the children use their designs to create their final product.

	electrical circuit with an input, output and switch.		• Pick final design and draw it on the design and making sheet (detailed and labelled). • Complete the steps on how you are going to create the final product on the design and making sheet. • Begin to make.	• **BEFORE MAKING** • Complete creation steps on design and making sheet. • To be able to effectively look at plans and step to produce a final product.	• Can they finalise their product to see if it works.
5	To be able to evaluate their product against the design brief and assess their work.	**Evaluate**	• Retrieval from previous lesson. • Retrieval discussion with the children about what they did last lesson. • Complete making aspect (if needed) • **Unit evaluation.**	• Children are able to think critically about their final product and the design brief. • Can they use their designs to assess if they've being successful with their final product. • Critically think about how they could make their final product better. • Complete evaluation on design and making sheet.	• Children be able to assess and evaluate their final product. • Can they use their final design. • Can they think about what they could change to make it better. • Can they assess whether or not the car alarm would be useful to car supermarket to secure the safety of their cars. • Peer assess each other's.



DT Year 6 Knowledge Mat

Design and Make a car with an alarm

Key Knowledge
To be able to select the correct components to create a working car alarm.
To understand what electrical systems are and how they work.
To be able to retrieve skills from science and computing coverage to create an electrical circuit with an input, output and switch.
Be able to select the correct components and equipment needed to assemble the mechanism.
To know how to create a design and use this to recreate their product using the appropriate vocabulary.
To be able to evaluate their product against the design brief and assess their work.

Vocabulary	
Electrical system	consists of all the elements needed to distribute electrical power.
Circuit	A line, route, or movement that starts and finishes at the same place.
Alarm	A device in a car which makes a loud noise if anyone tries to break into the vehicle.
Assemble	Fit together the separate component parts.
Component	A part or element of a larger whole.

Prior Knowledge–

Year 4 – torches – creating circuits

© St Charles' VC Academy

Key Performance Indicators for DT

Year 1		
Design	**Make**	**Evaluate**
• Design appealing products for a particular user based on simple design criteria. • Generate initial ideas and design criteria through own experiences. • Develop and communicate these ideas through talk and drawings and mock ups where relevant.	• Select and use simple utensils, tools and equipment to perform a job e.g. peel, cut, slice, squeeze, grate and • chop safely; marking out, • cutting, joining and finishing; cut, shape and join paper and card. • Select from a range of ingredients and materials according to their characteristics to create a chosen product.	• Taste, explore and evaluate a range of products to determine the intended user's preferences for the product • Evaluate their ideas throughout and finished products against design criteria, including intended user and purpose.
• **Cooking and Nutrition**	• **Textiles**	• **Mechanism**
• Understand where a range of fruit and vegetables come from e.g. farmed or grown at home. • Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of *The eatwell plate*. • Know and use technical and sensory vocabulary relevant to the project.	• Understand how simple 3-D textile products are made, using a template to create two identical shapes. • Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. • Explore different finishing techniques • Know and use technical vocabulary relevant to the project.	• Explore and use sliders and levers. • Understand that different mechanisms produce different types of movement. • Know and use technical vocabulary relevant to the project.

Year 2		
Design	**Make**	**Evaluate**
• Generate ideas based onsimple design criteria and their own experiences, explaining what they could make. • Develop, model and communicate their ideas through talking, mock-upsand drawings.	• Plan by suggesting what to do next. • Select and use tools, • equipment, skills and • techniques to perform • practical tasks, explainingtheir choices. • Select new and used materials, components, reclaimed materials and construction kits to build and create their products. • Use simple finishing techniques suitable for theproducts they are creating.	• Explore a range of existingproducts related to their design criteria. • Evaluate their product by discussing how well it works in relation to the purpose, theuser and whether it meets the original design criteria.
• **Cooking and Nutrition**	**Mechanism**	**Structures**
• Understand where a range offruit and vegetables come from e.g. farmed or grown at home. • Understand and use basic principles of a healthy and varied diet to prepare dishes,including how fruit and vegetables are part of *The eatwell plate*. • Know and use technical andsensory vocabulary relevant to the project.	• Explore and use wheels, axles and axle holders. • Distinguish between fixed and freely moving axles. • Know and use technical vocabulary relevant to the project.	• Know how to make freestanding structuresstronger, stiffer and more stable. • Know and use technical vocabulary relevant to the project.

Year 3		
Design	**Make**	**Evaluate**
• Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s. • Use annotated sketches, prototypes, final product sketches and pattern pieces; communication technology, such as web-based recipes, todevelop and communicate ideas.	• Plan the main stages ofmaking. • Select from and use a rangeof appropriate utensils, tools and equipment with some accuracy related to theirproduct. • Select from and use finishing techniques suitablefor the product they are creating.	• Investigate a range of 3-D textile products, ingredientsand lever and linkage products relevant to their project. • Test their product againstthe original design criteria and with the intended user. • Evaluate the ongoing workand the final product with reference to the design criteria and the views of others.
Mechanism	**Cooking and Nutrition**	**Structures**
• Understand and use lever and linkage mechanisms. • Distinguish between fixed and loose pivots. • Know and use technical vocabulary relevant to the project.	• Know how to use appropriate equipment and utensils to prepare and combine food. • Know about a range of fresh and processed ingredients appropriate fortheir product, and whetherthey are grown, reared or caught. • Know and use relevant technical and sensory vocabulary appropriately.	• Develop and use knowledge of how to construct strong, stiff shell structures. • Develop and use knowledge of nets of cubes and cuboids and, where appropriate,more complex 3D shapes. • Know and use technical vocabulary relevant to the project.

Year 4		
Design	**Make**	**Evaluate**
• Generate and clarify ideas through discussion with peersto develop design criteria to inform the design of productsthat are fit for purpose, aimed at particular individuals or groups. • Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas. • Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional andexploded diagrams.	• Order the main stages of making. • Select and use appropriate • tools to measure, mark out, cut, score, shape and combine with some accuracy related to their products. • Explain their choice of materials according to functional properties andaesthetic qualities. • Select from and use materials and components, including ingredients, construction and electrical components according to their function and properties.	• Investigate and evaluate a range of products including the ingredients, materials, components and techniquesthat are used. • Test and evaluate their own products against design criteria and the intended userand purpose. • Evaluate their ideas and products against their own design criteria and identify the strengths and areas forimprovement in their work.
Textiles	**Structures**	**Electrical Systems**
• Know how to strengthen, stiffen, and reinforce existing fabrics. • Understand how to securely join two pieces of fabric together. • Understand the need for patterns and seam allowances. • Know and use technical vocabulary relevant to the project.	• Know how to use appropriate equipment and utensils to prepare and combine food. • Know about a range of freshand processed ingredients appropriate for their product,and whether they are grown, reared or caught. • Know and use relevant technical and sensory vocabulary appropriately.	• Understand and use electrical systems intheir products linked to science coverage. • Apply their understanding of computing to program and control their products. • Know and use technical vocabulary • relevant to the project.

Year 5		
Design	**Make**	**Evaluate**
• Generate innovative ideas through research including surveys, interviews and questionnaires and discussionwith peers to develop a design brief and criteria for a design specification. • Design purposeful, functional, appealing products for the intended user that are fit for purposebased on a simple design specification. • Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. and, where appropriate, computer-aideddesign	• Produce detailed lists ofequipment and fabrics relevant to their tasks • Write a step-by-step plan,including a list of resources required. • Select from and use, a range of appropriate utensils, tools and equipment accurately to measure and combine appropriate ingredients, materials and resources.	• Investigate and analyse products linked to their finalproduct. • Compare the final productto the original design specification and record theevaluations. • Test products with intendeduser and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. • Consider the views of others to improve their work
Textiles	**Mechanism**	**Cooking and Nutrition**
• Produce a 3-D textile product from a combination of accurately made pattern pieces, fabric shapes and different fabrics. • Understand how fabrics can be strengthened, stiffened and reinforcedwhere appropriate. • Know and use technical vocabulary • relevant to the project.	• Understand that mechanical and electrical systems have an input, processand an output. • Understand how gears and pulleys can be used to speed up, slow down or changethe direction of movement. • Know and use technical vocabularyrelevant to the project.	• Know how to use utensils and equipment including heatsources to prepare and cook food. • Understand about seasonality in relation to food products and the source of different food products. • Know and use relevanttechnical and sensory vocabulary.

Year 6		
Design	**Make**	**Evaluate**
• Use research using surveys, interviews, questionnaires and web-based resources. to develop a design specificationfor a range of functional products. • Develop a simple design specification to guide the development of their ideas and products, taking accountof constraints including time,resources and cost. • Generate and develop innovative ideas and share and clarify these through discussion. • Communicate ideas throughannotated sketches, pictorial representations of electrical circuits or circuit diagrams.	• Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. • Competently select from and use appropriate toolsto accurately measure, mark, cut and assemble materials, and securely connect electrical components to produce reliable, functional products. • Use finishing and decorativetechniques suitable for the product they are designing and making.	• Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. • Competently select from and use appropriate toolsto accurately measure, mark, cut and assemble materials, and securely connect electrical components to produce reliable, functional products. • Use finishing and decorativetechniques suitable for the product they are designing and making.
Electrical Systems	**Cooking and Nutrition**	**Structures**
• Understand and use electrical systems intheir products linked to science coverage. • Apply their understanding of computing toprogram, monitor and control their products. • Know and use technical vocabulary • relevant to the project.	• Know how to use utensils and equipment including heatsources to prepare and cook food. • Understand about seasonality in relation to food products and the source of different food products. • Know and use relevanttechnical and sensory vocabulary.	• Understand how to strengthen, stiffen and reinforce 3-D frameworks. • Know and use technical vocabulary relevantto the project.