St Cuthbert's
ROMAN CATHOLIC ACADEMY TRUST

St Peter's VC Academy

DT

Curriculum

GROWING IN FAITH

ST PETER'S
VC ACADEMY

Intent

Design Technology incorporates innovative creativity and risk-taking leading to a high level of resourcefulness enabling learners to become channels of divine inspiration. Design Technology calls forth imagination, resourcefulness and creativity whilst drawing on a wide variety of complementary disciplines. Design Technology challenges students to engage with issues of inclusion, stewardship, the dignity of the human person and ecology.

Design Technology is an inspiring, rigorous and practical subject. Design and Technology encourages children to learn to think and intervene creatively to solve problems both as individuals and as members of a team. At St.Peter's, we encourage children to use their creativity and imagination, to design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. We aim to, wherever possible, link work to other disciplines such as mathematics, science, engineering, computing and art. The children are also given opportunities to reflect upon and evaluate past and present design technology, its uses and its effectiveness and are encouraged to become innovators and risk-takers. Through our design and technology curriculum, we aim to build an awareness of the impact of design and technology on our lives and encourage pupils to become resourceful, enterprising citizens who will have the skills to contribute to future advancements.

At the end of Foundation at St Peter's	At the end of KS1 at St Peter's	At the end of KS2 at St Peter's
Pupils are taught - To explore the textures, movement, feel and look of different media and materials. Respond to a range of media and materials developing an understanding that they manipulate and create effects with these. Construct with a purpose in mind using a variety of resources. Develop skills to use simple tools and techniques competently and appropriately. Select appropriate resources for a product and adapt their work where necessary.	Pupils are taught - The three main strands of DT and are thinking about, designing, making and evaluating their products. Through a variety of creative and practical activities, the knowledge, understanding, skills and vocabulary needed to engage in an iterative process of designing and making.	Pupils are taught - To understand the functional and aesthetic properties of a range of materials and resources. Understand how to use and combine tools to carry out different processes for shaping, decorating and manufacturing products. Build and apply a repertoire of skills, knowledge and understanding to produce high quality, innovative outcomes, including models, prototypes, CAD and products to fulfil the needs of users, clients and scenarios. Understand and apply the principles of healthy eating, diets and recipes, including key processes, food groups and cooking equipment. Have an appreciation for key individuals, inventions and events in history and of today that impact our world. Recognise where our decisions can impact the wider world in terms of community, social and environmental issues. Self-evaluate and reflect on learning at different stages and identify areas to improve. Meet the end of key stage expectations outlined in the National curriculum for Design and technology.

Implementation

Pedagogy: How the Curriculum is Taught

The design and technology National Curriculum outlines the three main stages of the design process: design, make and evaluate. Each stage of the design process is underpinned by technical knowledge which encompasses the contextual, historical, and technical understanding required for each strand. Cooking and nutrition has a separate section, with a focus on specific principles, skills and techniques in food, including where food comes from, diet and seasonality.

The National Curriculum organises the Design and Technology attainment targets under five subheading strands:

- Design
- Make
- Evaluate
- Technical knowledge
- Cooking and nutrition

Our curriculum overview at St.Peter's shows which of our units cover each of the National Curriculum attainment targets as well as each of the five strands.

The St Peter's Curriculum has been designed as a spiral curriculum with the following key principles in mind:

✓ Cyclical: Pupils return to the key areas again and again during their time in primary school.

✓ Increasing depth: Each time a key area is revisited it is covered with greater complexity.

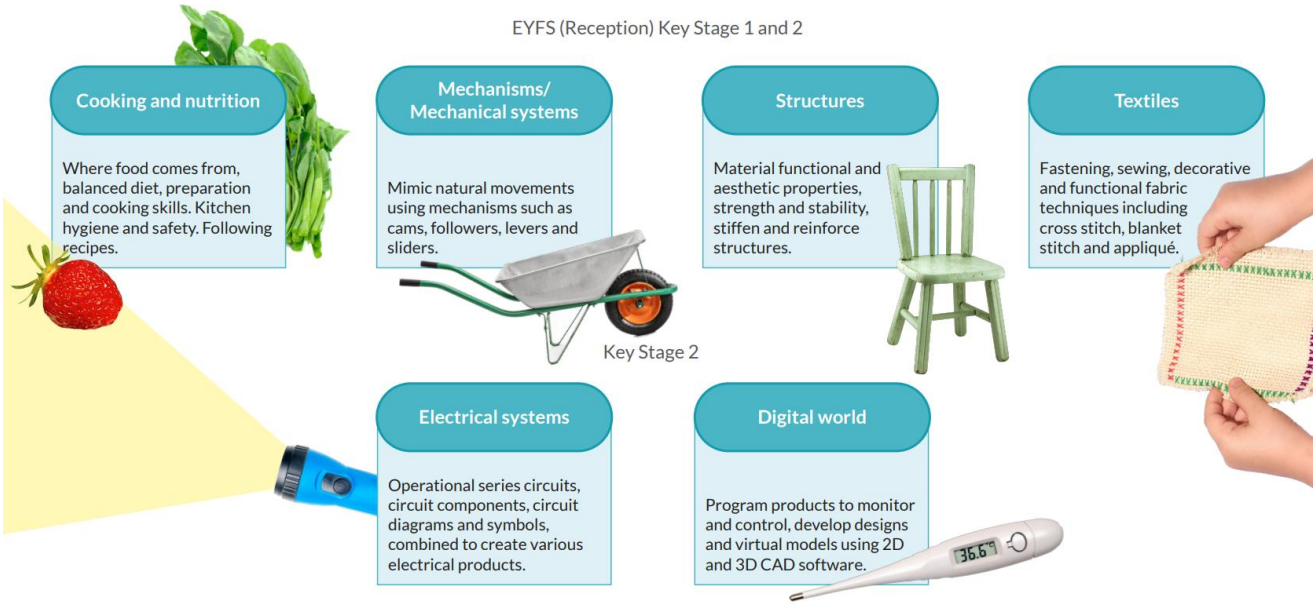
✓ Prior knowledge: Upon returning to each key area, prior knowledge is utilised so pupils can build upon previous foundations, rather than starting again.

Our progression of skills shows the skills that are taught within each year group and how these skills develop to ensure that attainment targets are securely met by the end of each key stage. Our knowledge organisers show how knowledge is progressed and built on through each year group.

Through our curriculum at St.Peter's, pupils respond to design briefs and scenarios that require consideration of the needs of others, developing their skills in six key areas:

- Mechanisms
- Structures
- Textiles
- Cooking and nutrition (food)
- Electrical systems (KS2)
- Digital world (KS2)

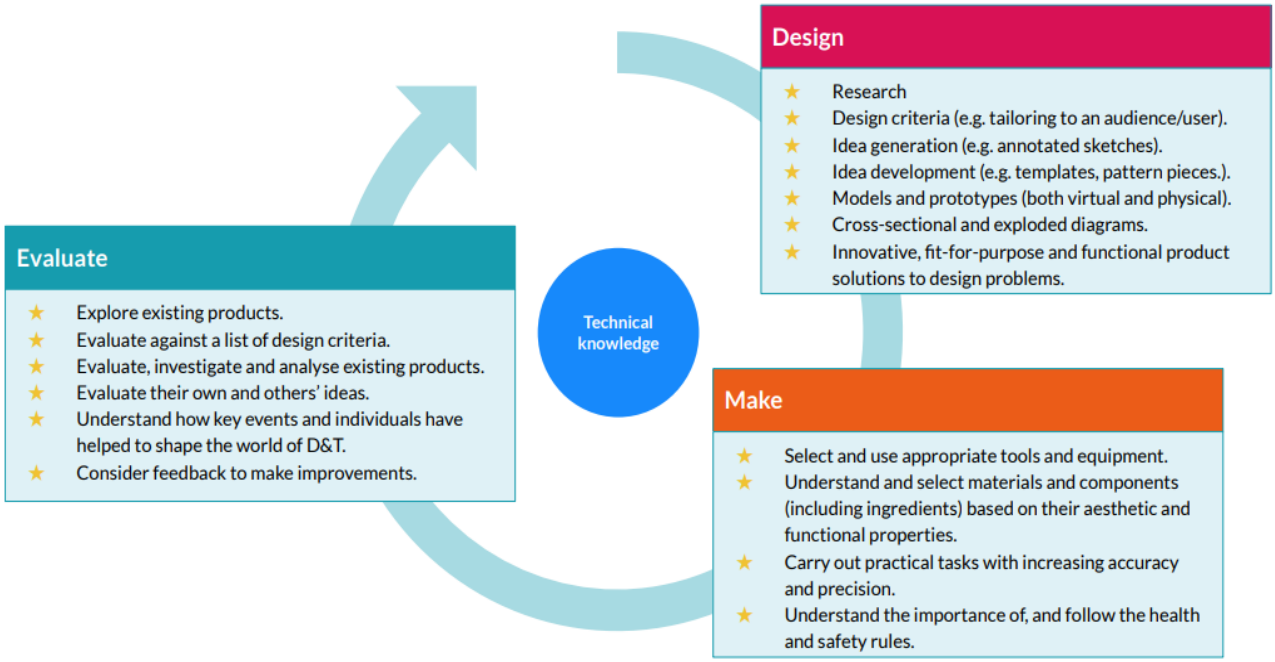
Each of our key areas follows the design process (design, make and evaluate) and has a particular theme and focus from the technical knowledge or cooking and nutrition section of the curriculum. Our curriculum is a spiral curriculum, with key areas revisited again and again with increasing complexity, allowing pupils to revisit and build on their previous learning.



Lessons incorporate a range of teaching strategies from independent tasks, paired and group work including practical hands-on, computer-based and inventive tasks. This variety means that lessons are engaging and appeal to those with a variety of learning styles. Lessons are differentiated to ensure that lessons can be accessed by all pupils and opportunities to stretch pupils' learning are available when required. Knowledge organisers for each unit support pupils in building a foundation of factual knowledge by encouraging recall of key facts and vocabulary. Design and technology lessons at St.Peter's follow a structure of a review of previous learning, new learning presented in small steps, guided and independent practise and finally a check for pupil understanding.

Strong subject knowledge is vital for staff to be able to deliver a highly effective and robust Design and technology curriculum. We follow the KAPOW scheme of work which includes multiple teacher videos to develop subject knowledge and support ongoing CPD.

The Design Process



Impact

Assessment

We use a multi-faceted approach to assessment within design and technology.

- End of study quizzes built within every study to ascertain knowledge.
- Retrieval practice to take place at the beginning of every lesson.
- Assessment for learning is used within each lesson through skilful use of questioning and live feedback.
- Pupil voice to support the evidence that pupils know and remember more over time.
- Design and technology reports facilitate pupils to independently apply appropriate substantive & disciplinary knowledge of pupils developing in thinking like a designer. These begin in EYFS with verbalising answers to a question at the end of a topic and continue throughout every year group.

Cultural Capital

Enrichment is an essential part of the St Peter's Design and Technology curriculum which provides pupils with discrete time to focus and deepen their learning, they provide opportunities for new experiences as well as nurturing and developing a thirst for learning.

- STEM workshops
- A cross-curricular approach with computing sessions supported by a technology expert.
- Design and making days where year groups work together.
- Visits from professionals in the community.

Career Professional Development

We develop strong subject knowledge amongst all staff which is achieved through; comprehensive middle leadership development, a focus on developing all teachers' subject knowledge and design and technology pedagogy. All staff benefit from implementing the high-quality planning resources provided by the Trust yet amended to meet the needs of all pupils.

Study Overview

	Autumn	Spring	Summer
EYFS	Children explore their design & technology understanding through: the structure and routine of the day, child led learning, the carefully planned learning environment and planned and sequenced, adult directed learning opportunities. **Pumpkin Soup** **Junk Modelling** **Boats** Coverage of these three units should be covered across the year to link with the cross curricular nature of the EYFS and to support pupils' understanding of chronology and passing of time.		
KS1	**Design** NC - Pupils are taught to design purposeful, functional, appealing products for themselves and other users based on design criteria. Pupils generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology **Make** NC - Pupils are taught to select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] Pupils select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. **Evaluate** **NC -** Pupils are taught to explore and evaluate a range of existing products. Pupils evaluate their ideas and products against design criteria.		
Y1	**Puppets**	**Windmills** NC - Pupils are taught to build structures, exploring how they can be made stronger, stiffer and more stable. Pupils explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.	**Fruits & Vegetables** NC - Pupils are taught to use the basic principles of a healthy and varied diet to prepare dishes. Pupils understand where food comes from.
Y2	**Baby Bear's Chair** NC - Pupils are taught to build structures, exploring how they can be made stronger, stiffer and more stable.	**Ferris Wheel** NC - Pupils are taught to build structures, exploring how they can be made stronger, stiffer and more stable. Pupils explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.	**Making a Moving Monster** NC - Pupils explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

KS2	**Design** NC - Pupils are taught to use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups Pupils generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. **Make** NC - Pupils are taught to select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately Pupils select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities **Evaluate** NC - Pupils are taught to investigate and analyse a range of existing products Pupils evaluate their ideas and products against their own design criteria and consider the views of others to improve their work Pupils understand how key events and individuals in design and technology have helped shape the world		
Y3	**Eating Seasonally** NC - Pupils are taught to understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. Pupils prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.	**Electronic Charm** NC - Pupils are taught to apply their understanding of computing to program, monitor and control their products.	**Constructing a Castle** NC - Pupils are taught to apply their understanding of how to strengthen, stiffen and reinforce more complex structures.
Y4	**Pavilions** NC - Pupils are taught to apply their understanding of how to strengthen, stiffen and reinforce more complex structures.	**Making a Slingshot** NC - Pupils are taught to apply their understanding of how to strengthen, stiffen and reinforce more complex structures. Pupils understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]	**Torches** NC - Pupils are taught to understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
Y5	**Doodlers** NC - Pupils are taught to understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]	**Making a Pop Up Book** NC - Pupils are taught to understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]	**What could be healthier?** NC - Pupils are taught to understand and apply the principles of a healthy and varied diet. Pupils prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
Y6	**Waistcoats**	**Playgrounds** NC - Pupils are taught to apply their understanding of how to strengthen, stiffen and reinforce more complex structures.	**Navigating the World** NC - Pupils are taught to apply their understanding of computing to program, monitor and control their products.

Progression
Skills & Knowledge

Structures

		EYFS (Reception)	
		Junk modelling	Boats
Skills	Design	• Making verbal plans and material choices. • Developing a junk model.	• Designing a junk model boat. • Using knowledge from exploration to inform design.
	Make	• Improving fine motor/scissor skills with a variety of materials. • Joining materials in a variety of ways (temporary and permanent). • Joining different materials together. • Describing their junk model, and how they intend to put it together.	• Making a boat that floats and is waterproof, considering material choices.
	Evaluate	• Giving a verbal evaluation of their own and others' junk models with adult support. • Checking to see if their model matches their plan. • Considering what they would do differently if they were to do it again. • Describing their favourite and least favourite part of their model.	• Making predictions about, and evaluating different materials to see if they are waterproof. • Making predictions about, and evaluating existing boats to see which floats best. • Testing their design and reflecting on what could have been done differently. • Investigating the how the shapes and structure of a boat affect the way it moves.
Knowledge	Technical	• To know there are a range to different materials that can be used to make a model and that they are all slightly different. • Making simple suggestions to fix their junk model.	• To know that 'waterproof' materials are those which do not absorb water.
	Additional		• To know that some objects float and others sink. • To know the different parts of a boat.

		Year 1	Year 2
		Constructing a windmill	Baby bear's chair
Skills	Design	• Learning the importance of a clear design criteria. • Including individual preferences and requirements in a design.	• Generating and communicating ideas using sketching and modelling. • Learning about different types of structures, found in the natural world and in everyday objects.
	Make	• Making stable structures from card, tape and glue. • Learning how to turn 2D nets into 3D structures. • Following instructions to cut and assemble the supporting structure of a windmill. • Making functioning turbines and axles which are assembled into a main supporting structure.	• Making a structure according to design criteria. • Creating joints and structures from paper/card and tape. • Building a strong and stiff structure by folding paper.
	Evaluate	• Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't • Suggest points for improvements	• Exploring the features of structures. • Comparing the stability of different shapes. • Testing the strength of own structures. • Identifying the weakest part of a structure. • Evaluating the strength, stiffness and stability of own structure.
Knowledge	Technical	• To understand that the shape of materials can be changed to improve the strength and stiffness of structures. • To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses). • To understand that axles are used in structures and mechanisms to make parts turn in a circle. • To begin to understand that different structures are used for different purposes. • To know that a structure is something that has been made and put together.	• To know that shapes and structures with wide, flat bases or legs are the most stable. • To understand that the shape of a structure affects its strength. • To know that materials can be manipulated to improve strength and stiffness. • To know that a structure is something which has been formed or made from parts. • To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move. • To know that a 'strong' structure is one which does not break easily. • To know that a 'stiff' structure or material is one which does not bend easily.
	Additional	• To know that a client is the person I am designing for. • To know that design criteria is a list of points to ensure the product meets the clients needs and wants. • To know that a windmill harnesses the power of wind for a purpose like grinding grain, pumping water or generating electricity. • To know that windmill turbines use wind to turn and make the machines inside work. • To know that a windmill is a structure with sails that are moved by the wind. • To know the three main parts of a windmill are the turbine, axle and structure.	• To know that natural structures are those found in nature. • To know that man-made structures are those made by people.

		Year 3	Year 4
		Constructing a castle	Pavilions
Skills	Design	• Designing a castle with key features to appeal to a specific person/purpose. • Drawing and labelling a castle design using 2D shapes, labelling: -the 3D shapes that will create the features - materials needed and colours. • Designing and/or decorating a castle tower on CAD software.	• Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect. • Building frame structures designed to support weight.
	Make	• Constructing a range of 3D geometric shapes using nets. • Creating special features for individual designs. • Making facades from a range of recycled materials.	• Creating a range of different shaped frame structures. • Making a variety of free standing frame structures of different shapes and sizes. • Selecting appropriate materials to build a strong structure and cladding. • Reinforcing corners to strengthen a structure. • Creating a design in accordance with a plan. • Learning to create different textural effects with materials.
	Evaluate	• Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design. • Suggesting points for modification of the individual designs.	•Evaluating structures made by the class. • Describing what characteristics of a design and construction made it the most effective. • Considering effective and ineffective designs.
Knowledge	Technical	• To understand that wide and flat based objects are more stable. • To understand the importance of strength and stiffness in structures.	• To understand what a frame structure is. • To know that a 'free-standing' structure is one which can stand on its own.
	Additional	• To know the following features of a castle: flags, towers, battlements, turrets, curtain walls, moat, drawbridge and gatehouse - and their purpose. • To know that a façade is the front of a structure. • To understand that a castle needed to be strong and stable to withstand enemy attack. • To know that a paper net is a flat 2D shape that can become a 3D shape once assembled. • To know that a design specification is a list of success criteria for a product.	• To know that a pavilion is a a decorative building or structure for leisure activities. • To know that cladding can be applied to structures for different effects. • To know that aesthetics are how a product looks. • To know that a product's function means its purpose. • To understand that the target audience means the person or group of people a product is designed for. • To know that architects consider light, shadow and patterns when designing.

		Year 6
		Playgrounds
Skills	Design	• Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs.
	Make	• Building a range of play apparatus structures drawing upon new and prior knowledge of structures. • Measuring, marking and cutting wood to create a range of structures. • Using a range of materials to reinforce and add decoration to structures.
	Evaluate	• Improving a design plan based on peer evaluation. • Testing and adapting a design to improve it as it is developed. • Identifying what makes a successful structure.
Knowledge	Technical	• To know that structures can be strengthened by manipulating materials and shapes.
	Additional	• To understand what a 'footprint plan' is. • To understand that in the real world, design , can impact users in positive and negative ways. • To know that a prototype is a cheap model to test a design idea.

Mechanisms & Mechanical Systems

		Year 2	
		Fairground wheel	Making a moving monster
Skills	Design	• Selecting a suitable linkage system to produce the desired motion. • Designing a wheel.	• Creating a class design criteria for a moving monster. • Designing a moving monster for a specific audience in accordance with a design criteria.
	Make	• Selecting materials according to their characteristics. • Following a design brief.	• Making linkages using card for levers and split pins for pivots. • Experimenting with linkages adjusting the widths, lengths and thicknesses of card used. • Cutting and assembling components neatly.
	Evaluate	• Evaluating different designs. • Testing and adapting a design.	• Evaluating own designs against design criteria. • Using peer feedback to modify a final design.
Knowledge	Technical	• To know that different materials have different properties and are therefore suitable for different uses.	• To know that mechanisms are a collection of moving parts that work together as a machine to produce movement. • To know that there is always an input and output in a mechanism. • To know that an input is the energy that is used to start something working. • To know that an output is the movement that happens as a result of the input. • To know that a lever is something that turns on a pivot. • To know that a linkage mechanism is made up of a series of levers.
	Additional	• To know the features of a ferris wheel include the wheel, frame, pods, a base an axle and an axle holder. • To know that it is important to test my design as I go along so that I can solve any problems that may occur.	• To know some real-life objects that contain mechanisms.

		Year 4	Year 5
		Making a slingshot car	Making a pop up book
Skills	Design	• Designing a shape that reduces air resistance. • Drawing a net to create a structure from. • Choosing shapes that increase or decrease speed as a result of air resistance. • Personalising a design.	• Designing a pop-up book which uses a mixture of structures and mechanisms. • Naming each mechanism, input and output accurately. • Storyboarding ideas for a book.
	Make	• Measuring, marking, cutting and assembling with increasing accuracy. • Making a model based on a chosen design.	• Following a design brief to make a pop up book, neatly and with focus on accuracy. • Making mechanisms and/or structures using sliders, pivots and folds to produce movement. • Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result.
	Evaluate	• Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.	• Evaluating the work of others and receiving feedback on own work. • Suggesting points for improvement.
Knowledge	Technical	• To understand that all moving things have kinetic energy. • To understand that kinetic energy is the energy that something (object/person) has by being in motion. • To know that air resistance is the level of drag on an object as it is forced through the air. • To understand that the shape of a moving object will affect how it moves due to air resistance.	• To know that mechanisms control movement. • To understand that mechanisms can be used to change one kind of motion into another. • To understand how to use sliders, pivots and folds to create paper-based mechanisms.
	Additional	• To understand that products change and evolve over time. • To know that aesthetics means how an object or product looks in design and technology. • To know that a template is a stencil you can use to help you draw the same shape accurately. • To know that a birds-eye view means a view from a high angle (as if a bird in flight). • To know that graphics are images which are designed to explain or advertise something. •To know that it is important to assess and evaluate design ideas and models against a list of design criteria.	• To know that a design brief is a description of what I am going to design and make. • To know that designers often want to hide mechanisms to make a product more aesthetically pleasing.

Electrical Systems (KS2)

		Year 4	Year 5
		Torches	Doodlers
Skills	Design	• Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas.	• Identifying factors that could be changed on existing products and explaining how these would alter the form and function of the product. • Developing design criteria based on findings from investigating existing products. • Developing design criteria that clarifies the target user.
	Make	• Making a torch with a working electrical circuit and switch. • Using appropriate equipment to cut and attach materials. • Assembling a torch according to the design and success criteria.	• Altering a product's form and function by tinkering with its configuration. • Making a functional series circuit, incorporating a motor. • Constructing a product with consideration for the design criteria. • Breaking down the construction process into steps so that others can make the product.
	Evaluate	• Evaluating electrical products. • Testing and evaluating the success of a final product.	• Carry out a product analysis to look at the purpose of a product along with its strengths and weaknesses. • Determining which parts of a product affect its function and which parts affect its form. • Analysing whether changes in configuration positively or negatively affect an existing product. • Peer evaluating a set of instructions to build a product.
Knowledge	Technical	• To understand that electrical conductors are materials which electricity can pass through. • To understand that electrical insulators are materials which electricity cannot pass through. • To know that a battery contains stored electricity that can be used to power products. • To know that an electrical circuit must be complete for electricity to flow. • To know that a switch can be used to complete and break an electrical circuit.	• To know that series circuits only have one direction for the electricity to flow. • To know when there is a break in a series circuit, all components turn off. • To know that an electric motor converts electrical energy into rotational movement, causing the motor's axle to spin. • To know a motorised product is one which uses a motor to function.
	Additional	• To know the features of a torch: case, contacts, batteries, switch, reflector, lamp, lens. • To know facts from the history and invention of the electric light bulb(s) - by Sir Joseph Swan and Thomas Edison.	• To know that product analysis is critiquing the strengths and weaknesses of a product. • To know that 'configuration' means how the parts of a product are arranged.

Cooking & Nutrition

		Year 1	Year 3
		Fruit and vegetables	Eating seasonally
Skills	Design	• Designing smoothie carton packaging by-hand or on ICT software.	• Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish.
	Make	• Chopping fruit and vegetables safely to make a smoothie. • Identifying if a food is a fruit or a vegetable. • Learning where and how fruits and vegetables grow.	• Knowing how to prepare themselves and a work space to cook safely in, learning the basic rules to avoid food contamination. • Following the instructions within a recipe.
	Evaluate	• Tasting and evaluating different food combinations. • Describing appearance, smell and taste. • Suggesting information to be included on packaging.	• Establishing and using design criteria to help test and review dishes. • Describing the benefits of seasonal fruits and vegetables and the impact on the environment. • Suggesting points for improvement when making a seasonal tart.
Knowledge		• Understanding the difference between fruits and vegetables. • To understand that some foods typically known as vegetables are actually fruits (e.g. cucumber). • To know that a blender is a machine which mixes ingredients together into a smooth liquid. • To know that a fruit has seeds and a vegetable does not. • To know that fruits grow on trees or vines. • To know that vegetables can grow either above or below ground. • To know that vegetables can come from different parts of the plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber).	• To know that not all fruits and vegetables can be grown in the UK. • To know that climate affects food growth. • To know that vegetables and fruit grow in certain seasons. • To know that cooking instructions are known as a 'recipe'. • To know that imported food is food which has been brought into the country. • To know that exported food is food which has been sent to another country.. • To understand that imported foods travel from far away and this can negatively impact the environment. • To know that each fruit and vegetable gives us nutritional benefits because they contain vitamins, minerals and fibre. • To understand that vitamins, minerals and fibre are important for energy, growth and maintaining health. • To know safety rules for using, storing and cleaning a knife safely. • To know that similar coloured fruits and vegetables often have similar nutritional benefits.

Year 5

What could be healthier?

Skills	Design	• Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients. • Writing an amended method for a recipe to incorporate the relevant changes to ingredients. • Designing appealing packaging to reflect a recipe.
	Make	• Cutting and preparing vegetables safely. • Using equipment safely, including knives, hot pans and hobs. • Knowing how to avoid cross-contamination. • Following a step by step method carefully to make a recipe.
	Evaluate	• Identifying the nutritional differences between different products and recipes. • Identifying and describing healthy benefits of food groups.
Knowledge		• To understand where meat comes from - learning that beef is from cattle and how beef is reared and processed, including key welfare issues. • To know that I can adapt a recipe to make it healthier by substituting ingredients. • To know that I can use a nutritional calculator to see how healthy a food option is. • To understand that 'cross-contamination' means bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects.

Textiles

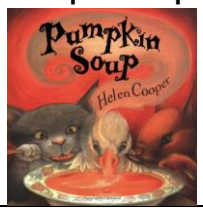
		Year 1	Year 6
		Puppets	Waistcoats
Skills	Design	• Using a template to create a design for a puppet.	• Designing a waistcoat in accordance to a specification linked to set of design criteria. • Annotating designs, to explain their decisions.
	Make	• Cutting fabric neatly with scissors. • Using joining methods to decorate a puppet. • Sequencing the steps taken during construction.	• Using a template when cutting fabric to ensure they achieve the correct shape. • Using pins effectively to secure a template to fabric without creases or bulges. • Marking and cutting fabric accurately, in accordance with their design. • Sewing a strong running stitch, making small, neat stitches and following the edge. • Tying strong knots. • Decorating a waistcoat, attaching features (such as appliqué) using thread. • Finishing the waistcoat with a secure fastening (such as buttons). • Learning different decorative stitches. • Sewing accurately with evenly spaced, neat stitches.
	Evaluate	• Reflecting on a finished product, explaining likes and dislikes.	• Reflecting on their work continually throughout the design, make and evaluate process.
Knowledge		• To know that 'joining technique' means connecting two pieces of material together. • To know that there are various temporary methods of joining fabric by using staples. glue or pins. • To understand that different techniques for joining materials can be used for different purposes. • To understand that a template (or fabric pattern) is used to cut out the same shape multiple times. • To know that drawing a design idea is useful to see how an idea will look.	• To understand that it is important to design clothing with the client/ target customer in mind. • To know that using a template (or clothing pattern) helps to accurately mark out a design on fabric. • To understand the importance of consistently sized stitches.

Digital World (KS2)

		Year 3	Year 6
		Electronic charm	Navigating the world
Skills	Design	• Problem solving by suggesting potential features on a Micro: bit and justifying my ideas • Developing design ideas for a technology pouch • Drawing and manipulating 2D shapes, using computer-aided design, to produce a point of sale badge	• Writing a design brief from information submitted by a client • Developing design criteria to fulfil the client's request • Considering and suggesting additional functions for my navigation tool • Developing a product idea through annotated sketches • Placing and manoeuvring 3D objects, using CAD • Changing the properties of, or combine one or more 3D objects, using CAD
	Make	• Using a template when cutting and assembling the pouch • Following a list of design requirements • Selecting and using the appropriate tools and equipment for cutting, joining, shaping and decorating a foam pouch • Applying functional features such as using foam to create soft buttons	• Considering materials and their functional properties, especially those that are sustainable and recyclable (for example, cork and bamboo) • Explaining material choices and why they were chosen as part of a product concept • Programming an N,E, S,W cardinal compass
	Evaluate	• Analysing and evaluating an existing product • Identifying the key features of a pouch	• Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool • Developing an awareness of sustainable design • Identifying key industries that utilise 3D CAD modelling and explain why • Describing how the product concept fits the client's request and how it will benefit the customers • Explaining the key functions in my program, including any additions • Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool • Explaining the key functions and features of my navigation tool to the client as part of a product concept pitch • Demonstrating a functional program as part of a product concept
Knowledge	Technical	• To understand that in programming a 'loop' is code that repeats something again and again until stopped • To know that a Micro:bit is a pocket-sized, codeable computer • Writing a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm	• To know that accelerometers can detect movement • To understand that sensors can be useful in products as they mean the product can function without human input
	Additional	•To know what the 'Digital Revolution' is and features of some of the products that have evolved as a result •To know that in Design and technology the term 'smart' means a programmed product •To know the difference between analogue and digital technologies • To understand what is meant by 'point of sale display' • To know that CAD stands for Computer-aided design	• To know that designers write design briefs and develop design criteria to enable them to fulfil a client's request • To know that 'multifunctional' means an object or product has more than one function • To know that magnetometers are devices that measure the Earth's magnetic field to determine which direction you are facing

Lesson Sequence

EYFS

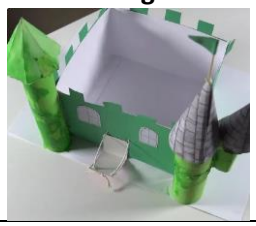
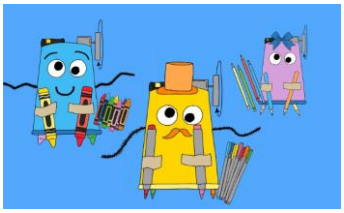
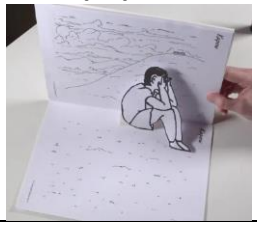
Pumpkin Soup	Junk Modelling	Boats
		
Step 1- look at different fruits and vegetables. **Step 2-**explore a pumpkin. **Step 3-**look at a pumpkin soup recipe. **Step 4-**develop knife skills by chopping ingredients. **Step 5-**make the soup. **Step 6-**talk about what they like/dislike about the soup and why. **Assessment through observations**	**Step 1-**exploring junk modelling. **Step 2-** cutting and scissor skills. **Step 3-**choosing resources. **Step 4-**making models. **Step 5-**discuss their models. **Step 6-**present their models to the class. **Assessment through observations**	**Step 1-**waterproof materials. **Step 2-** floating and sinking. **Step 3-**investigate different types of boats. **Step 4-**investigate different shapes of boats. **Step 5-**design boats. **Step 6-**make boats. **Assessment through observations**

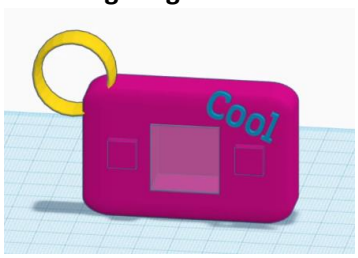
Y1

Puppets	Windmills	Fruit & Vegetables
		
L1-Designing my puppet **L2-** Designing my puppet **L3-** Designing my puppet **L4-**Joining fabrics **L5-**Decorating my puppet **L6-**Evaluating my puppet **Quiz**	**L1-**Designing the structure **L2-**Designing the structure **L3-**Assembling the structure **L4-**Assembling the structure **L5-**Assembling the windmill **L6-**Testing and evaluating **Quiz**	**L1-**Fruit or vegetable? **L2-**Where fruit and vegetables grow. **L3-**Smoothie ingredients tasting **L4-**making smoothies **Quiz** **L5-**making a moving story **L6-**making a moving story

Y2

Baby Bear's Chair	Fairground Wheel	Moving Monster
		
L1-Explore stability **L2-**Strengthening materials **L3-**Making baby bears chair **L4-** Making baby bears chair **L5-** Fixing and testing baby bears chair **L6-**Fixing and testing baby bears chair **Quiz**	**L1-**Design and Ferris wheel **L2-** Design and Ferris wheel **L3-** Planning the build **L4-** Planning the build **L5-** Building the frame with wheels **L6-** Building the frame with wheels **Quiz**	**L1-**Pivots, leavers and linkages **L2-**Making linkages **L3-**Designing my monster **L4-**Making my monster **Quiz** **L5-**Food a balanced diet **L6-** Food a balanced diet

Y3		
Eating Seasonally 	**Electronic Charms** 	**Constructing a Castle** 
L1-Where in the world? **L2-**British seasonal foods **L3-** British seasonal foods **L4-** Rainbow food **L5-** Rainbow food **L6-** Making tarts **Quiz**	**L1-**Smart wearables **L2-**Programming an eCharm **L3-**eCharm pouches **L4-** eCharm pouches **L5-** Point of sale displays **L6-** Point of sale displays **Quiz**	**L1-**Features of a castle **L2-**Designing a castle **L3-**Nets and structures **L4-** Building a castle **Quiz** **L6-**Textiles-cross stitch and applique **L5-**Mechanical systems-pneumatic toys
Y4		
Pavilions 	**Slingshot Cars** 	**Torches** 
L1-Exploring frame structures **L2-**Designing a pavilion **L3-** Designing a pavilion **L4-**Pavillion frame **L5-**Pavillion cladding **L6-**Pavillion cladding **Quiz**	**L1-**Chassis and launch mechanism **L2-**Designing a car body **L3-**Making the car body **L4-** Making the car body **L5-**Assembly and testing **L6-** Assembly and testing **Quiz**	**L1-**Electrical products **L2-**Evaluating torches **L3-**Torch design **L4-** Torch assembly **Quiz** **L5-**Food-adapting a recipe **L6-**Textiles-fastenings
Y5		
Doodlers 	**Pop up Book** 	**What could be healthier?** 
L1-Electrical systems and motors **L2-**Meet the doodlers **L3-**Doodler design and construction **L4-** Doodler design and construction **L5-** Doodler DIY kits **L6-** Doodler DIY kits **Quiz**	**L1-**Pop up book page design **L2-**Making my pop-up book **L3-**Using layers and spaces **L4-** Using layers and spaces **L5-**Writing and illustrating **L6-** Writing and illustrating **Quiz**	**L1-**From farm to fork **L2-**What does healthy look like? **L3-** What does healthy look like? **L4-** Adapting and improving a recipe **L5-** Adapting and improving a recipe **L6-**Mama Mia! Healthy bolognese **Quiz**

Y6		
Waistcoats	**Playgrounds**	**Navigating the World**
		
L1-Waistcoat design **L2-**Preparing fabric **L3-** Assembling waistcoat **L4-**Assembling waistcoat **L5-**Decorating waistcoat **L6-** Decorating waistcoat **Quiz**	**L1-**Design a new playground **L2-** Design a new playground **L3-** Building structures **L4-** Building structures **L5-**Perfecting structures **L6-**Playground landscapes **Quiz**	**L1-**Navigating the world **L2-**Programming a navigation tool **L3-**Product concept **L4-**CAD models **L5-**product pitch **L6-** product pitch **Quiz**