ST CHARLES' CATHOLIC PRIMARY SCHOOL

DT PROGRESSION OF SKILLS, KNOWLEDGE AND VOCABULARY

	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
	STRUCTURES						
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	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 structure that is able to support weight Creating frame structure with focus on triangulation	
	MECHANISMS / MECHANICAL SYSTEMS						
			Creating a class design criteria for a moving monster Designing a moving monster for a specific audience in accordance with a design criteria	Designing a toy which uses a pneumatic system. Developing design criteria from a design brief. Generating ideas using thumbnail sketches and exploded diagrams.		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	

				Learning that different types of drawings are used in design to explain ideas clearly.			
	ELECTIRICAL SYSTEMS (KS2 ONLY)						
					Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas		Designing a steady hand game - identifying and naming the components required Drawing a design from three different perspectives Generating ideas through sketching and discussion Modelling ideas through prototypes Understanding the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'
	COOKING AND NUTRITION						
		Designing smoothie carton packaging by-hand or on ICT software	Designing a healthy wrap based on a food combination which work well together	Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish		Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients	Writing a recipe, explaining the key steps, method and ingredients Including facts and drawings from research undertaken

						Writing an amended method for a recipe to incorporate the relevant changes to ingredients Designing appealing packaging to reflect a recipe	
	TEXTILES						
		Using a template to create a design for a puppet			Writing design criteria for a product, articulating decisions made Designing a personalised Book sleeve		Designing a stuffed toy considering the main component shapes required and creating an appropriate template Considering the proportions of individual components
	DIGITAL WORLD (KS2 ONLY)						
					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		
	EYFS	**YEAR 1**	**YEAR 2**	**YEAR 3**	**YEAR 4**	**YEAR 5**	**YEAR 6**
MAKE	**STRUCTURES**						
	Explore, use and	Making stable	Making a structure	Constructing a range		Making a range of	

	refine a variety of artistic effects to express their ideas and feelings. Return to and build on their previous learning, refining ideas and developing their ability to represent them. Progress towards a more fluent style of moving, with developing control and grace. Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor. Create collaboratively, sharing ideas, resources and skills. **ELG** Use a range of small tools, including scissors, paintbrushes and	structures from card, tape and glue 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	according to design criteria Creating joints and structures from paper/card and tape	of 3D geometric shapes using nets. Creating special features for individual designs. Making facades from a range of recycled materials		different shaped beam bridges Using triangles to create truss bridges that span a given distance and supports a load Building a wooden bridge structure Independently measuring and marking wood accurately Selecting appropriate tools and equipment for particular tasks Using the correct techniques to saws safely Identifying where a structure needs reinforcement and using card corners for support Explaining why selecting appropriating materials is an important part of the design process Understanding basic wood	

	cutlery.						
	MECHANISMS / MECHANICAL SYSTEMS						
			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	Creating a pneumatic system to create a desired motion. Building secure housing for a pneumatic system. Using syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy. Selecting materials due to their functional and aesthetic characteristics. Manipulating materials to create different effects by cutting, creasing, folding and weaving.		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	
	ELECTIRICAL SYSTEMS (KS2 ONLY)						
					Making a torch with a working electrical circuit and switch Using appropriate equipment to cut and attach materials Assembling a torch according to the		Constructing a stable base for a game Accurately cutting, folding and assembling a net Decorating the base of the game to a high quality finish

					design and success criteria		Making and testing a circuit Incorporating a circuit into a base
	COOKING AND NUTRITION						
		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	Slicing food safely using the bridge or claw grip Constructing a wrap that meets a design brief	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		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	Following a recipe, including using the correct quantities of each ingredient Adapting a recipe based on research Working to a given timescale Working safely and hygienically with independence
	TEXTILES						
		Cutting fabric neatly with scissors Using joining methods to decorate a puppet Sequencing steps for construction			Making and testing a paper template with accuracy and in keeping with the design criteria Measuring, marking and cutting fabric using a paper template Selecting a stitch style to join fabric, working neatly sewing small neat stitches Incorporating fastening to a design		Creating a 3D stuffed toy from a 2D design Measuring, marking and cutting fabric accurately and independently Creating strong and secure blanket stitches when joining fabric Using applique to attach pieces of fabric decoration
	DIGITAL WORLD (KS2 ONLY)						

					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		
	EYFS	**YEAR 1**	**YEAR 2**	**YEAR 3**	**YEAR 4**	**YEAR 5**	**YEAR 6**
EVALUATE	**STRUCTURES**						
	<u>ELG</u> 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.	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	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		Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary Suggesting points for improvements for own bridges and those designed by others	

	MECHANISMS / MECHANICAL SYSTEMS						
			Evaluating own designs against design criteria Using peer feedback to modify a final design	Using the views of others to improve designs. Testing and modifying the outcome, suggesting improvements. Understanding the purpose of exploded-diagrams through the eyes of a designer and their client.		Evaluating the work of others and receiving feedback on own work Suggesting points for improvement	
	ELECTIRICAL SYSTEMS (KS2 ONLY)						
					Evaluating electrical products Testing and evaluating the success of a final product and taking inspiration from the work of peers		Testing own and others finished games, identifying what went well and making suggestions for improvement Gathering images and information about existing children's toys Analysing a selection of existing children's toys
	COOKING AND NUTRITION						
		Tasting and evaluating different food combinations Describing appearance, smell and taste Suggesting information to be	Describing the taste, texture and smell of fruit and vegetables Taste testing food combinations and final products Describing the information that	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		Identifying the nutritional differences between different products and recipes Identifying and describing healthy benefits of food groups	Evaluating a recipe, considering: taste, smell, texture and origin of the food group Taste testing and scoring final products

		included on packaging	should be included on a label Evaluating which grip was most effective	Suggesting points for improvement when making a seasonal tart			Suggesting and writing up points of improvements in productions Evaluating health and safety in production to minimise cross
	TEXTILES						
		Reflecting on a finished product, explaining likes and dislikes			Testing and evaluating an end product against the original design criteria Deciding how many of the criteria should be met for the product to be considered successful Suggesting modifications for improvement		Testing and evaluating an end product and giving point for further improvements
	DIGITAL WORLD (KS2 ONLY)						
					Analysing and evaluating an existing product Identifying the key features of a pouch		
	EYFS	**YEAR 1**	**YEAR 2**	**YEAR 3**	**YEAR 4**	**YEAR 5**	**YEAR 6**
TECHNICAL KNOWLEDGE	**STRUCTURES**						
		Describing the purpose of structures, including windmills Learning how to turn	Identifying natural and man-made structures Identifying when a structure is more or less stable than	To understand that wide and flat based objects are more stable. To understand the		Exploring how to create a strong beam Identifying arch and beam bridges and understanding the terms: compression	

		2D nets into 3D structures Learning that the shape of materials can be changed to improve the strength and stiffness of structures Understanding that cylinders are a strong type of structure that are often used for windmills and lighthouses Understanding that windmill turbines use wind to turn and make the machines inside work Understanding that axles are used in structures and mechanisms to make parts turn in a circle Developing awareness of different structures for different purposes	another Knowing that shapes and structures with wide, flat bases or legs are the most stable Understanding that the shape of a structure affects its strength Using the vocabulary: strength, stiffness and stability Knowing that materials can be manipulated to improve strength and stiffness Building a strong and stiff structure by folding paper	importance of strength and stiffness in structures. 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		and tension Identifying stronger and weaker structures Finding different ways to reinforce structures Understanding how triangles can be used to reinforce bridges Articulating the difference between beam, arch, truss and suspension bridges	
	MECHANISMS / MECHANICAL SYSTEMS						
			To know that mechanisms are a collection	To understand how pneumatic systems work.		Knowing that an input is the motion used to start a mechanism	

			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 To know some real-life objects that contain mechanisms	To understand that pneumatic systems can be used as part of a mechanism. To know that pneumatic systems operate by drawing in, releasing and compressing air. To understand how sketches, drawings and diagrams can be used to communicate design ideas. To know that exploded-diagrams are used to show how different parts of a product fit together. To know that thumbnail sketches are small drawings to get ideas down on paper quickly.		Knowing that output is the motion that happens as a result of starting the input Knowing that mechanisms control movement Describing mechanisms that can be used to change one kind of motion into another	
	ELECTIRICAL SYSTEMS (KS2 ONLY)						
					Learning how electrical items work Identifying electrical products		Learning that batteries contain acid, which can be dangerous if they leak

					Learning what electrical conductors and insulators are Understanding that a battery contains stored electricity and can be used to power products Identifying the features of a torch Understanding how a torch works Articulating the positives and negatives about different torches		Identifying and naming the circuit components in a steady hand game
	COOKING AND NUTRITION						
		Understanding the difference between fruits and vegetables Describing and grouping fruits by texture and taste	Understanding what makes a balanced diet Knowing where to find the nutritional information on packaging Knowing the five food groups	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		Understanding where food comes from - learning that beef is from cattle and how beef is reared and processed Understanding what constitutes a balanced diet Learning to adapt a recipe to make it healthier Comparing two adapted recipes using a nutritional calculator and then identifying the healthier option	Learning how to research a recipe by ingredient Recording the relevant ingredients and equipment needed for a recipe Understanding the combinations of food that will complement one another Understanding where food comes from, describing the process of 'Farm to Fork' for a given ingredient

				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			
	TEXTILES						

					Testing and evaluating an end product against the original design criteria Deciding how many of the criteria should be met for the product to be considered successful Suggesting modifications for improvement		Testing and evaluating an end product and giving point for further improvements
	DIGITAL WORLD (KS2 ONLY)						
					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 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		