

St Felix RC Primary School DT Progression Map

	Mechanical systems							
		<u>Y1</u>	<u>Y2</u>	<u>Y3</u>	<u>Y4</u>	<u>Y5</u>	<u>Y6</u>	
		Wheels and Axles	Making a moving monster	Pneumatic Toys	Making a Slingshot Car	Pop-Up Book	<u>Automata Toys</u>	
S k il I s	D e s i g n	 Designing a vehicle that includes wheels, axles and axle holders, that when combined, will allow the wheels to move. Creating clearly labelled drawings that illustrate movement. 	 Creating a class design criteria for amoving monster. Designing a moving monster for a specific audience in accordance with adesign criteria. 	 Designing a toy which uses a pneumatic system. Developing design criteria from a design brief. Generating ideas using thumbnail sketches and exploded diagrams. Learning that different types of drawings are used in design to explain ideasclearly. 	 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. 	 Experimenting with a range of cams, creating a design for an automata toy basedon a choice of cam to create a desired movement. Understanding how linkages change the direction of a force. Making things move at the same time. Understanding and drawing crosssectional diagrams to show the innerworkingsof my design. 	
	ש מא ש	 Adapting mechanisms, when: they do not work as they should. to fit their vehicle design. to improve how they work aftertesting their vehicle. 	 Making linkages using card for levers andsplit pins for pivots. Experimenting with linkages adjusting the widths, lengths and thicknesses of card used. Cutting and assembling componentsneatly. 	 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 systemsto 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. 	 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 toproduce movement. Using layers and spacers to hide the workings of mechanical parts for anaesthetically pleasing result. 	 Measuring, marking and checking the accuracy of the jelutong and dowel piecesrequired. Measuring, marking and cutting components accurately using a ruler and scissors. Assembling components accurately to make a stable frame. Understanding that for the frame to function effectively the components must becut accurately and the joints of the frame secured at right angles. Selecting appropriate materials based on the materials being joined and the speedat which the glue needs to dry/set. 	
	E v a l u a t e	• Testing wheel and axle mechanisms, identifying what stops the wheels fromturning, and recognising that a wheel needs an axle in order to move.	 Evaluating own designs against designcriteria. Using peer feedback to modify a finaldesign. 	 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 adesigner and their client. 	• Evaluating the speed of a final product based on: the effect of shape on speed andthe accuracy of workmanship on performance.	 Evaluating the work of others and receiving feedback on own work. Suggesting points for improvement. 	 Evaluating the work of others and receiving feedback on own work. Applying points of improvement to their toys. Describing changes they would make/do if they were to do the project again. 	



K n w l e d g e	Technical	 To know that wheels need to be round torotate and move. To understand that for a wheel to move itmust be attached to a rotating axle. To know that an axle moves within an axleholder which is fixed to the vehicle or toy. To know that the frame of a vehicle(chassis) needs to be balanced. 	 To know that mechanisms are a collection of moving parts that worktogether as a machine to produce movement. To know that there is always an input andoutput in a mechanism. To know that an input is the energy thatis used to start something working. To know that an output is the movementthat happens as a result of the input. To know that a lever is something thatturns on a pivot. To know that a linkage mechanism ismade up of a series of levers. 	 To understand how pneumatic systems work. 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 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 airresistance. 	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	 To understand that the mechanism in an automata uses a system of cams, axlesand followers. To understand that different shaped cams produce different outputs.
	A d d i t i o n a l	• To know some real-life items that use wheels such as wheelbarrows, hamster wheels and vehicles.	To know some real-life objects thatcontain mechanisms.	 To understand how sketches, drawings and diagrams can be used tocommunicate 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 onpaper quickly. 	 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 shapeaccurately. 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 andmake. To know that designers often want to hide mechanisms to make a productmore aesthetically pleasing. 	 To know that an automata is a hand powered mechanical toy. To know that a cross-sectional diagram shows the inner workings of a product. To understand how to use a bench hook and saw safely. To know that a set square can be used to help mark 90° angles.

	Cooking and Nutrition					
	<u>Y1</u>	<u>Y2</u>	<u>Y3</u>	<u>Y4</u>	<u>Y5</u>	<u>Y6</u>
	Fruit and Veg smoothie	Balanced Diet	Eating Seasonally	Adapting a Recipe	What could be healthier	Com Dine with Me
SD ke is li g sn	• Designing smoothie carton packaging by-hand or onICT software.	Designing a healthy wrap based on a food combinationwhich 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.	• Designing a biscuit within a given budget, drawing upon previous taste testing judgements.	 Adapting a traditional recipe, understanding that the nutritional value of arecipe 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. 	 Writing a recipe, explaining the key steps, method and ingredients. Including facts and drawings from research undertaken.
M a k e	 Chopping fruit and vegetables safely to make asmoothie. 	 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. 	 Following a baking recipe, from start to finish, including the preparation of ingredients. Cooking safely, following basic hygiene rules. Adapting a recipe to improve it or change it to meet new criteria (e.g. from savouryto sweet). 	 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.
Ev alu at e	 Tasting and evaluating different food combinations. Describing appearance, smell and taste. Suggesting information to be included on packaging. 	 Describing the taste, texture and smell of fruit andvegetables. Taste testing food combinations and final products. Describing the information that should be included on alabel. Evaluating which grip was most effective. 	 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. 	 Evaluating a recipe, considering: taste, smell, texture and appearance. Describing the impact of the budget on the selection of ingredients. Evaluating and comparing a range of food products. Suggesting modifications to a recipe (e.g. This biscuit has too many raisins, and it isfalling apart, so next time I will use less raisins). 	 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. Suggesting and writing up points of improvements when scoring others' dishes, and when evaluating their own throughout the planning, preparation and cookingprocess. Evaluating health and safety in production to minimise cross contamination.
K T o c w h e i d c g a e l	 Understanding the difference between fruits andvegetables. 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 'diet' means the food and drink that aperson or animal usually eats. To understand what makes a balanced diet. To know where to find the nutritional information onpackaging. To know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy andfoods high in fat and sugar. To understand that I should eat a range of different foods from each food group. To know that nutrients are substances in food that alliving things need to make energy, grow and develop. To know that 'ingredients' means the items in a mixtureor recipe. To know that I should only have a maximum of fiveteaspoons of sugar a day to stay healthy. To know that many food and drinks we do not expect tocontain sugar do; we call these 'hidden sugars'. 	 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 that similar coloured fruits and vegetables often have similarnutritional benefits. 	 To know that the amount of an ingredient in a recipe is known as the 'quantity.' To know that it is important to use oven gloves when removing hot food from an oven. To know the following cooking techniques: sieving, creaming, rubbing method, cooling. To understand the importance of budgeting while planning ingredients for biscuits. 	 To understand where meat comes from - learning that beef is from cattle andhow 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 foodoption 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. 	 To know that 'flavour' is how a food or drink tastes. To know that many countries have 'national dishes' which are recipes associated with that country. To know that 'processed food' means food that has been put through multiplechanges in a factory. To understand that it is important to wash fruit and vegetables before eating toremove any dirt and insecticides. To understand what happens to a certain food before it appears on the supermarket shelf (Farm to Fork).

		Textiles					
		<u>Y1</u>	<u>Y2</u>	<u>Y3</u>	<u>Y4</u>	<u>Y5</u>	<u>Y6</u>
		Puppets	Pouches	<u>Cushions</u>	<u>Fastenings</u>	Stuffed Toys	Waistcoats
S k I I S	D e s i g n	 Using a template to create a design for a puppet. 	• Designing a pouch.	• Designing and making a template from an existing cushion and applying individual design criteria.	 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. 	 Designing a waistcoat in accordance to a specification linked to set of designcriteria. Annotating designs, to explain their decisions.
	M a k e	 Cutting fabric neatly with scissors. Using joining methods to decorate a puppet. Sequencing steps for construction. 	 Selecting and cutting fabrics for sewing. Decorating a pouch using fabric glue or runningstitch. Threading a needle. Sewing running stitch, with evenly spaced, neat, even stitches to join fabric. Neatly pinning and cutting fabric using atemplate. 	 Following design criteria to create a cushion or Egyptian collar. Selecting and cutting fabrics with ease using fabric scissors. Threading needles with greater independence. Tying knots with greater independence. Sewing cross stitch to join fabric. Decorating fabric using appliqué. Completing design ideas with stuffing and sewing the edges (Cushions) or embellishing the collars based on design ideas (Egyptian collars). 	 Making and testing a paper template with accuracy and in keeping with the designcriteria. Measuring, marking and cutting fabric using a paper template. Selecting a stitch style to join fabric. Working neatly by sewing small, straight stitches. Incorporating a 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. Threading needles independently. Using appliqué to attach pieces of fabric decoration. Sewing blanket stitch to join fabric. Applying blanket stitches are even andregular. 	 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.
	E v a l u a t e	Reflecting on a finished product, explaining likes anddislikes.	 Troubleshooting scenarios posed by teacher. Evaluating the quality of the stitching on others'work. Discussing as a class, the success of their stitchingagainst the success criteria. Identifying aspects of their peers' work that theyparticularly like and why. 	• Evaluating an end product and thinking of other ways in which to createsimilar items.	 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. Articulating the advantages and disadvantages of different fastening types. 	• Testing and evaluating an end product and giving point for furtherimprovements.	• Reflecting on their work continually throughout the design, make and evaluateprocess.
k n v l e d	K T e c v h n e i l c	 To know that 'joining technique' means connecting twopieces of material together. To know that there are various temporary methods ofjoining fabric by using staples. glue or pins. To understand that 	 To know that sewing is a method of joining fabric. To know that different stitches can be used whensewing. To understand the importance of tying a knotafter sewing the final stitch. To know that a thimble can be used to protect myfingers when sewing. 	 To know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces. To know that when two edges of fabric have been joined together it is called a seam. To know that it is important to leave space on the fabric for the seam. 	 To know that a fastening is something which holds two pieces of material togetherfor example a zipper, toggle, button, press stud and velcro. To know that different fastening types are useful for different purposes. To know that creating a mock up 	 To know that blanket stitch is useful to reinforce the edges of a fabricmaterial or join two pieces of fabric. To understand that it is easier to finish simpler designs to a high standard. To know that soft toys are often made by creating appendages separatelyand then attaching them to the main body. 	 To understand that it is important to design clothing with the client/ targetcustomer in mind. To know that using a template (or clothing pattern) helps to accurately mark out adesign on fabric. To understand the importance of consistently sized stitches.

g a e l	different techniques for joiningmaterials can be used for different purposes. • To understand that a template (or fabric pattern) is usedto cut out the same shape multiple times. • To know that drawing a design idea is useful to see howan idea will look.	•To understand that some products are turned inside out after sewing so the stitching is hidden.	(prototype) of their design is useful for checkingideas and proportions.	• To know that small, neat stitches which are pulled taut are important to ensure that the soft toy is strong and holds the stuffing securely.	
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