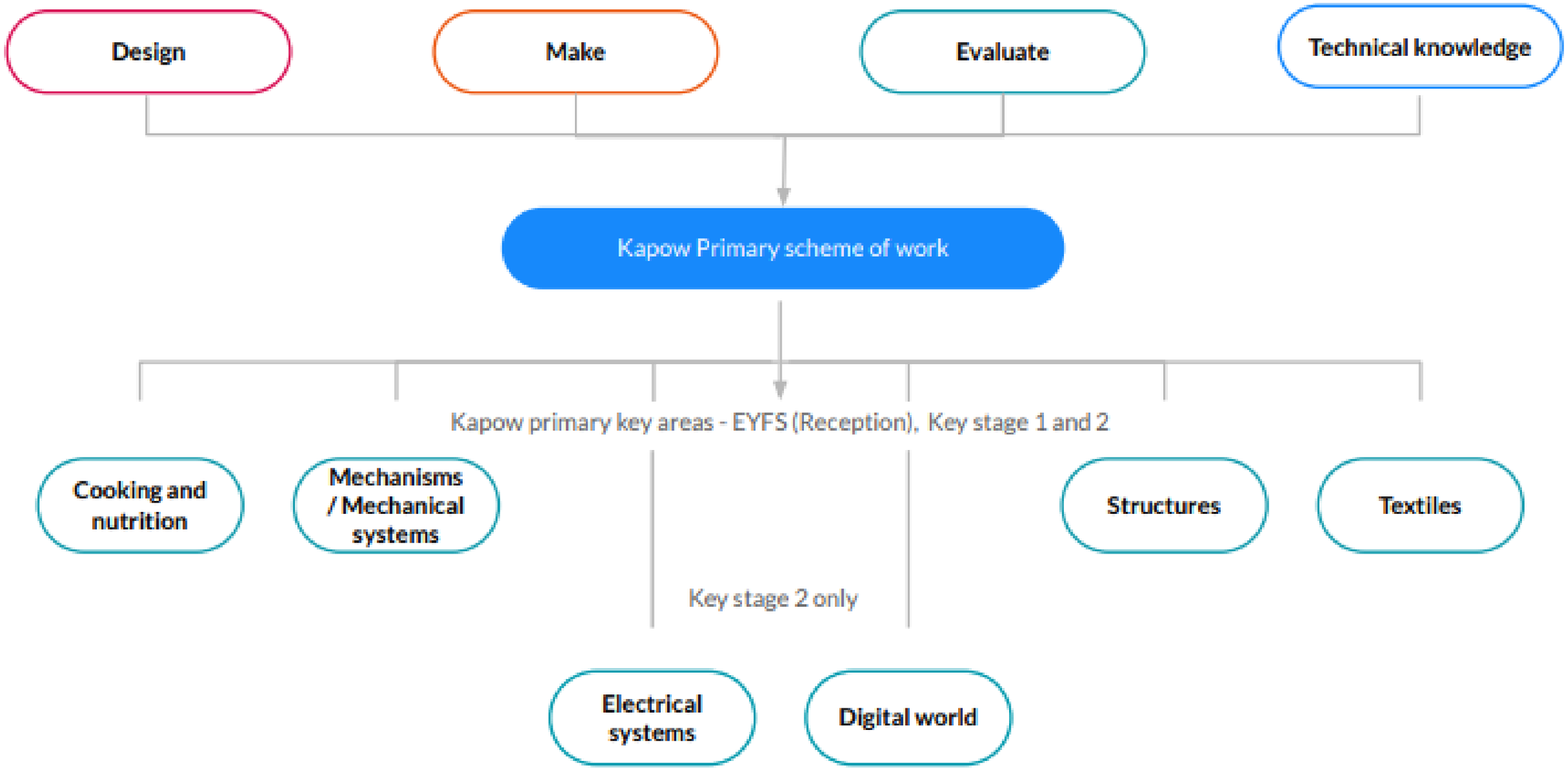
Desford Community Primary School

<u>Design and Technology</u> Progression of Knowledge and Skills

EYFS – Year 6

Knowledge and Skills – Design and Technology

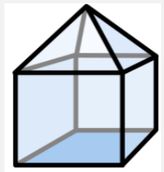
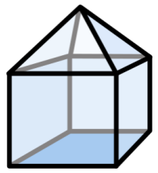
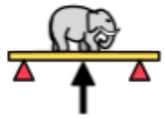
How is the Design and technology scheme of work organised?



Knowledge and Skills – Design and Technology

EYFS				
Expressive Arts & Design **DT**	I wonder what I can use to make that… 	I wonder what resources I need… 	I wonder how I can improve my work… 	**Vocabulary**
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.			Tools, scissors, glue, pencil, brush, fork, knife, spoon, draw, detail, accurate,
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.			Safety, explore, materials, techniques, tools, experiment, investigate, watch, observe, design, colour, form, create, plan, props,
<u>Opportunities & Experiences</u>	○ Children have access to a station of resources to make their own creations, they can access a modelling table at all times. They are encouraged to ask for resources they need if they cannot see them. ○ We teach the skills of cutting and joining and adults in the provision support the children to evaluate what they have done and model ways to make things. ○ Adults support children to develop their own ideas through play and extend their plans and ideas. ○ Children are set tasks in the provision to make things for a specific purpose e.g. Make a home for you bear.			Independence, plan, evaluate, model, create, try, materials,

Knowledge and Skills – Design and Technology

Year 1- Structures					
 **What makes a strong structure?**	 **How do we make structures stable?**	 **How can I design a playground?**	 **Can I make a model playground?**	 **Was my structure strong? Evaluate**	**Vocabulary**
Learning Objective	**Make stable structures, out of card, tape and glue.**	**To include individual preferences and requirements in my design.**	**To assemble the components of my structure.**	**To evaluate my project and adapt my design.**	**axle** **bridge** **design** **design criteria** **model** **net** **structure** **template** **unstable** **stable** **strong** **weak**
Design	○ Learning the importance of a clear design criteria. ○ Include individual preferences and requirements in a design.				
Make	○ Making stable structures from card, tape and glue. ○ Following instructions to cut and assemble the supporting structure for a playground. ○ Learning how to turn 2D nets into 3D structures.				
Evaluate	○ Evaluate the strength and stability of own structure. ○ Identifying the weakest part of a structure. ○ Testing the strength of own structure.				
Technical	○ 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 understand that the shape of materials can be changed to improve the strength and stiffness of structures.				
Cross-curricular	**Science** – materials **Geography** – what is it like here?				

Knowledge and Skills – Design and Technology

Year 1 - Food					
DT - Cooking  **What makes a healthy snack?**	 **Where do our fruits and vegetables grow? (Kapow lesson)**	 **Which fruits do I like? (Taste testing)**	 **How can I design my fruit kebab?**	 **Can I make and evaluate my fruit kebab?**	**Vocabulary**
	To describe where fruits and vegetables grow.	**To select ingredients for a recipe.**	**To apply food preparation skills.**	**To practise food preparation skills.**	
Design	○ Design a healthy snack. ○ Identifying if a food is a fruit or a vegetable.				**chopping board** **cut** **design** **evaluate** **flavour** **fruit** **healthy** **ingredients** **root** **taste** **vegetable**
Make	○ Chopping fruit safely to make a fruit kebab. ○ Identifying if a food is a fruit or a vegetable. ○ Learning where and how fruits and vegetables grow.				
Evaluate	○ Taste testing food combinations and final products.				
Technical	○ To know that a fruit has seeds. ○ To know that fruits grow on trees or vines. ○ To know that vegetables can grow either above or below ground. ○ To know that vegetables is any edible part of a plant.				
Cross-curricular	**Science** – senses				

Knowledge and Skills – Design and Technology

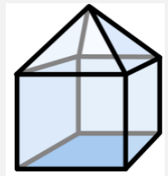
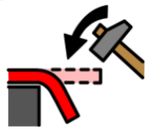
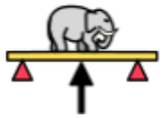
Year 1 – Mechanisms

How can we make a picture move?	Can I explore mechanisms?	How can I design a moving story?	How can I construct a moving story?	How can I evaluate my product?	Vocabulary
Learning Objectives	To explore making mechanisms.	To design a moving storybook.	To construct a moving picture.	To evaluate my finished product.	**sliders** **mechanism** **adapt** **design criteria** **design** **input** **model** **template** **assemble** **test**
Design	○ Design a moving story book for a given audience. ○ To know that in Design and Technology we call a plan a 'design'.				
Make	○ Following a design to create moving models that use levers and sliders.				
Evaluate	○ Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed. ○ Reviewing the success of a product by testing it with its intended audience.				
Technical	○ To know that a mechanism is the parts of an object that move together. ○ To know that a slider mechanism moves an object from side to side.				
Cross-Curricular	English/Reading – stories				

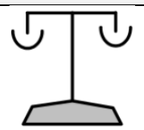
Knowledge and Skills – Design and Technology

Year 2/3 – Textiles (Kapow Primary)					
 **How are materials joined together to make a pouch?**	 **How are materials joined together?**	 **How can I design my pouch and create the templates?**	 **Can I create a pouch?**	 **How can I evaluate my product?**	**Vocabulary**
Learning Objectives	To sew a running stitch.	To design a pouch from the Stone Age.	To join fabrics using a running stitch. To decorate a pouch using fabric glue or stitching.	To evaluate against their design.	**decorate** **fabric** **needle** **needle threader** **knot** **running stitch** **sew** **template** **thread**
Design	○ Design a pouch. ○ To know that sewing is a method of joining fabric.				
Make	○ Selecting and cutting fabrics for sewing. ○ Decorating a pouch using fabric glue or running stitch. ○ Threading a needle. ○ Sewing running stitch, with evenly spaced, neat, even stitches to join fabric. ○ Neatly pining and cutting fabric using a template.				
Evaluate	○ Evaluating the quality of the stitching on others' work. ○ Discussing as a class, the success of their stitching against the success criteria.				
Technical	○ To know that different stitches can be used when sewing. ○ To understand the importance of tying a knot after sewing the final stitch.				
Cross curricular	**History** – Stone Age				

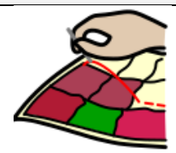
Knowledge and Skills – Design and Technology

Year 2/3 - Structures (Kapow Primary)					
 **How can I make a structure strong and stable?**	 **What are the features of structures?**	 **How does shape affect the stability of structures?**	 **Can I make a stable structure?**	 **Was my structure stable?**	**Vocabulary**
Learning Objective	To explore the concept and features of structures and the stability of different shapes.	To understand that the shape of the structure affects its strength.	To make a structure according to design criteria.	To produce a finished structure and evaluate its strength, stiffness and stability.	**design criteria** **man-made** **natural** **properties** **structure** **stable** **shape** **model** **test**
Design	○ Generating and communicating ideas using sketching and modelling.				
Make	○ 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	○ Testing the strength of own structure. ○ Identifying the weakest part of a structure. ○ Evaluating the strength, stiffness and stability of own structure.				
Technical	○ To know that materials can be manipulated to improve strength and stiffness. ○ To know that a ‘strong’ structure is one which does not break easily. ○ To know that a ‘stable’ structure is one which is firmly fixed and unlikely to change or move. ○ To know that a ‘stiff’ structure or material is one which does not bend easily.				
Cross-curricular	**English** – fairy tales **Science** – materials				

Knowledge and Skills – Design and Technology

Year 2/3 Food Kapow Primary					
Cooking – Kapow (Y2 unit – L2,4,5,6)  **Can I create a tasty, balanced meal?**	 **What is the balance of food groups in a meal?**	 **Which flavours do I like and which food group are they from?**	 **Can I use a bri- ef to design my wrap?**	 **How can I make and evaluate my product?**	**Vocabulary**
Learning Objective	To recognise foods and their groups. To identify the balance of food groups in a meal.	To identify an appropriate piece of equipment to prepare a given food.	To select balanced combinations of ingredients. To design based on criteria.	To evaluate a dish based on design criteria.	**appearance** **balanced** **carbohydrates** **chopping board** **combination** **cut** **diary** **design** **design brief** **diet** **evaluate** **feel** **fruit** **grate**
Design	○ Designing a healthy wrap based on a food combination which works well together.				
Make	○ Slicing food safely using the bridge or claw grip. ○ Constructing a wrap that meets a design brief.				
Evaluate	○ Taste testing food combinations and final products. ○ Describing the information that should be included on a label. ○ Evaluating which grip was most effective.				
Technical	○ To know that ‘diet’ means the food and drink that a person or animal usually eats. ○ To understand what makes a balanced diet. ○ To know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar. ○ To understand that I should eat a range of different foods from each food group, and roughly how much of each food group.				
Cross-Curricular	Science – animals, including humans – diet				

Knowledge and Skills – Design and Technology

Year 4 – Textiles						
 **How can I create an eco-tapestry?**	 **Can I sew a running stitch?** Kapow Primary	 **What is cross-stich and applique?** Kapow Primary	 **How can I design my part of the eco tapestry?**	 **Can I make my eco tapestry?**	 **How can I evaluate my product?**	**Vocabulary**
Learning Objective	To learn how to sew cross-stitch and applique.		To design a product and its template.	To decorate fabric using applique and cross-stitch.	To evaluate my tapestry.	**applique** **cotton** **cross-stitch** **design** **embellish** **equipment** **fabric** **patch** **running stitch** **thread** **seam** **texture** **knot**
Design	○ Designing and making a template for a product (eco tapestry)					
Make	○ Following design criteria to create an eco-tapestry. ○ Selecting and cutting fabrics with ease using fabric scissors. ○ Threading needles and tying knots with greater independence. ○ Sewing cross stitch to join fabric. ○ Decorating fabric using applique.					
Evaluate	○ Evaluating an end product and thinking of other ways in which to create similar items.					
Technical	○ 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. ○					
Cross-Curricular	○ History – Anglo-Saxons					

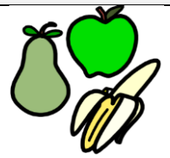
Knowledge and Skills – Design and Technology

Year 4 – Electrical Systems (Kapow Primary)					
How can I make an effective torch?	 **How do electrical items work?**	 **What makes an effective torch?**	 **Can I design an effective torch?**	 **How can I make and evaluate my product?**	**Vocabulary**
Learning Objective	To learn about electrical items and how they work.	To analyse and evaluate electrical products.	To design a product to fit a set of specific user needs.	To make and evaluate a torch.	**battery** **bulb** **buzzer** **conductor** **circuit** **circuit diagram** **electricity** **insulator** **series circuit** **switch** **component** **design** **design criteria** **diagram**
Design	○ Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas.				
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.				
Evaluate	○ Evaluate electrical products. ○ Testing and evaluating the success of a final product.				
Technical	○ 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.				
Cross-Curricular	○ **Science** - electricity				

Knowledge and Skills – Design and Technology

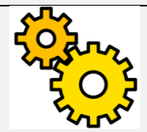
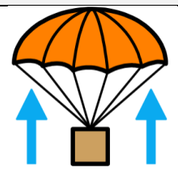
Year 4 – Digital World (Kapow Primary)						
 **How can I create wearable technology? (Y3 unit)**	 **How can I develop a design criteria?**	 **How is code used to program and control a product?**	 **How can I design my product clearly?**	 **How can I develop ideas through CAD?**	 **How can I improve my design based on feedback? (evaluate)**	**Vocabulary**
Learning Objective	To research and evaluate existing products.	To use code to program and control a product.	To develop design criteria.	To develop ideas through computer-aided design.	To improve a design based on feedback.	**digital revolution** **feature** **function** **monitor** **point of sale** **computer-aided design (CAD)** **develop** **digital world** **electronic products** **feedback** **annotate** **control** **digital display** **product design**
Design	○ Developing design criteria to respond to a design brief. ○ Drawing and manipulating 2D shapes, using computer-aided design, to produce a point of sale badge. ○ Developing design ideas through annotated sketches to create a product concept.					
Make	○ Following a list of design requirements. ○ Writing a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm,					
Evaluate	○ Analysing and evaluating wearable technology. ○ Using feedback from peers to improve design.					
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, codable computer. ○ To know that a simulator is able to replicate the functions of an existing piece of technology. ○ To know what the ‘Digital Revolution’. ○ To understand what is meant by ‘point of sale display’. ○ To know that CAD stands for ‘Computer-aided design’.					
Cross-Curricular	**Computing** – programming					

Knowledge and Skills – Design and Technology

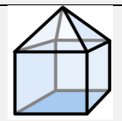
Year 5 – Food (Kapow Primary)						
 **How can I create a recipe using seasonal products?**	 **What are the benefits of seasonal food?**	 **Which seasonal ingredients do I like?**	 **Can I use a brief to design and make a mock-up of my seasonal tart?**	 **How can I make my product?**	 **Did my tart meet the design brief? (evaluate)**	**Vocabulary**
Learning Objective	To explain the benefits of seasonal foods.	To evaluate seasonal ingredients.	To design a mock-up using criteria.	To develop cutting and peeling skills.	To evaluate a dish.	**appearance** **arid** **climate** **complementary** **country** **cut** **design** **evaluate** **export** **fruit** **grate** **import** **ingredients** **Mediterranean**
Design	○ Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish.					
Make	○ 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	○ Establishing and using 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.					
Technical	○ To know that vegetables and fruit grow in certain seasons. ○ 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 know that eating seasonal foods can have a positive impact on the environment.					
Cross-Curricular	○ Geography (Y4) – Where does our food come from?					

Knowledge and Skills – Design and Technology

Year 5 – Mechanisms

 **Can I make an aerodynamic car?**	 **Can I make a chassis and launch mechanism?**	 **How can I design a body that reduces air resistance?**	 **Can I make my product based on my design?**	 **Did my product work?**	**Vocabulary**
Learning Objective	To build a chassis.	To design a shape that reduces air resistance.	To make a model based on a chosen design.	To assemble and test my completed product.	**chassis** **energy** **kinetic** **mechanism** **air resistance** **design** **structure** **graphics** **research** **model** **template**
Design	○ Designing a shape that reduces air resistance. ○ Drawing a net to create a structure form. ○ Choosing shapes that increase or decrease speed as a result of air resistance.				
Make	○ Measuring, marking, cutting and assembling with increasing accuracy. ○ Making a model based on a chosen design.				
Evaluate	○ Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.				
Technical	○ 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.				
Cross-Curricular	○ **Science** - forces				

Knowledge and Skills – Design and Technology

Year 5 - Structures (Kapow Primary)						
 **Can I make a truss bridge?**	 **How can I reinforce a structure?**	 **Can I build a spaghetti truss bridge?**	 **Can I build a wooden truss bridge?**	 **Can I reinforce my truss bridge?**	 **How can I evaluate my bridge?**	**Vocabulary**
Learning Objective	To explore how to reinforce a beam (structure) to improve its strength.	To build a spaghetti truss bridge.	To build a wooden truss bridge.	To complete and reinforce my bridge.	To evaluate my bridge.	**beam bridge** **arch bridge** **truss bridge** **strength** **technique** **corrugation** **lamination** **stiffness** **rigid** **factors** **stability** **visual appeal** **aesthetics** **joints**
Design	○ Designing a stable structure that is able to support weight. ○ Creating a frame structure with a focus on triangulation.					
Make	○ Making a range of different shaped beam bridges. ○ Building a wooden bridge structure. ○ Independently measuring and marking wood accurately. Identifying when a structure needs reinforcement and using card corners for support. Explaining why selecting appropriating materials is an important part of the design process.					
Evaluate	○ 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					
Technical	○ To understand how triangle can be used to reinforce bridges. ○ To understand why material selection is important based in properties.					

Knowledge and Skills – Design and Technology

Year 6						
 **How can I commemorate my time at DCPS using textiles?**	 **Can I sew a running stitch? (Kapow Y2 textiles) What is cross-stich and applique? (KAPOW Y3 – textiles)**	 **What are the advantages and disadvantages of different types of fastenings? KAPOW Y4 (L1)**	 **How are fastenings attached to fabric? (practising sewing buttons/Velcro)**	 **Can I design my commemorative cushion?**	 **How can I make and evaluate my commemorative DCPS cushion?**	**Vocabulary**
Learning Objective	To learn how to sew cross-stitch and applique.	To explain the advantages and disadvantages of different types of fastenings.	To understand how different fastenings work,	To design a product and its template.	To make and evaluate my commemorative DCPS cushion.	**annotate** **decorate** **criteria** **fabric** **fastening** **fix** **mock-up** **stitch** **template** **Velcro**
Design	○ Design a commemorative cushion in accordance to a specification linked to a set of design criteria. ○ Annotating designs, to explain their decisions.					
Make	○ 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. ○ Sewing a strong running stitch, making small, neat stitches and following the edge. ○ Tying strong knots. ○ Decorating a cushion, attaching features (such as applique) using thread. ○ Learning different decorative stitches. ○ Sewing accurately with evenly spaced, neat stitches.					
Evaluate	○ Reflecting on their work continually throughout the design, make and evaluate process.					
Technical	○ To understand the importance of consistently sized stitches. ○ Suggesting modifications for improvement. ○ Articulating the advantages and disadvantages of different fastening types.					
Cross-Curricular	○ **Art**					

Knowledge and Skills – Design and Technology

Year 6 – Electrical Systems (Kapow Primary)						
Can I make a steady hand game?	**What makes a toy functional?**	**Can I design a steady hand game?**	**How can I make the base stable?**	**Can I assemble and complete my game?**	**How can I evaluate my own and others' products?**	**Vocabulary**
Learning Objective	To research and analyse a range of toys.	To design a steady hand game.	To construct a stable base.	To assemble electronics and complete the game.	To evaluate mine and provide feedback to others.	**assemble** **battery** **battery pack** **benefit** **bulb** **bulb holder** **buzzer** **circuit** **circuit symbol** **component** **conductor** **copper** **design** **design criteria**
Design	○ Designing a steady hand game – identifying and naming the components required. ○ Drawing a design from three different perspectives. ○ Generating ideas through sketching and discussion.					
Make	○ Constructing a stable base for a game. ○ Making and testing a circuit. ○ Incorporating a circuit into a base.					
Evaluate	○ Testing own and others finished games, identifying what went well and making suggestions for improvement.					
Technical	○ To know that batteries contain acid which can be dangerous if they leak. ○ To know the names of the components in a basic series circuit, including a buzzer. ○ To understand the diagram perspectives 'top view', 'side view' and 'back'.					
Cross-Curricular	○ **Science** - electricity					