



## Design & Technology Progression Map

	<b>EYFS</b> <b>Nursery &amp; reception</b>	<b>KS1</b> <b>Years 1 &amp; 2</b>	<b>KS2</b> <b>Years 3, 4, 5 &amp; 6</b>
<b>Age related statutory coverage</b>	<ul style="list-style-type: none"> <li>• Understands that media can be combined to create new effects.</li> <li>• Constructs with a purpose in mind, using a variety of resources.</li> <li>• Uses simple tools and techniques competently and appropriately.</li> <li>• Selects appropriate resources and adapts work where necessary.</li> <li>• Selects tools and techniques needed to shape, assemble and join materials they are using.</li> <li>• Children safely use and explore a variety of materials, tools and techniques, experimenting with design, form and function.</li> <li>• Create simple representations of objects.</li> <li>• Children use what they have learnt about media and materials in original ways, thinking about uses and purposes.</li> </ul>	<p style="text-align: center;"><u>DESIGN</u></p> <ul style="list-style-type: none"> <li>• Design purposeful, functional, appealing products based on design criteria.</li> <li>• Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and ICT and, where appropriate, information and communication technology</li> </ul>	<p style="text-align: center;"><u>DESIGN</u></p> <ul style="list-style-type: none"> <li>• Use research and develop criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups</li> <li>• Generate, develop, model and communicate ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</li> </ul>
	<p style="text-align: center;"><u>DESIGN AND DEVELOP</u></p> <ul style="list-style-type: none"> <li>• Talk about what they want to make.</li> </ul>	<p style="text-align: center;"><u>MAKE</u></p> <ul style="list-style-type: none"> <li>• Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</li> <li>• Select from and use a wide range of materials and components, including construction materials, textiles, ingredients according to their characteristics</li> </ul>	<p style="text-align: center;"><u>MAKE</u></p> <ul style="list-style-type: none"> <li>• Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</li> <li>• 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</li> </ul>
	<p style="text-align: center;"><u>MAKING</u></p> <ul style="list-style-type: none"> <li>• Use a variety of tools and materials to make models.</li> </ul>	<p style="text-align: center;"><u>EVALUATE</u></p> <ul style="list-style-type: none"> <li>• Explore and evaluate a range of existing products</li> <li>• Evaluate ideas and products against design criteria</li> </ul>	<p style="text-align: center;"><u>EVALUATE</u></p> <ul style="list-style-type: none"> <li>• Investigate and analyse a range of existing products</li> <li>• Evaluate ideas and products against their own design criteria and consider the views of others to improve their work</li> <li>• Understand how key events and individuals have helped shape the world</li> </ul>
		<p style="text-align: center;"><u>TECHNICAL KNOWLEDGE</u></p> <ul style="list-style-type: none"> <li>• Build structures, exploring how they can be made stronger, stiffer and more stable</li> <li>• Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products</li> </ul>	<p style="text-align: center;"><u>TECHNICAL</u></p> <ul style="list-style-type: none"> <li>• Apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> <li>• Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</li> <li>• Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</li> <li>• Apply their understanding of computing to program, monitor and control products</li> </ul>



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	<p><u>PRODUCT AND EVALUATION</u></p> <ul style="list-style-type: none"><li>• Be excited about what they have made.</li></ul>	<p><u>COOKING AND NUTRITION</u></p> <ul style="list-style-type: none"><li>• Use the basic principles of a healthy and varied diet to prepare dishes</li><li>• Understand where food comes from</li></ul>	<p><u>COOKING AND NUTRITION</u></p> <ul style="list-style-type: none"><li>• Understand and apply the principles of a healthy and varied diet</li><li>• Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</li><li>• Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed</li></ul>
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		Key Stage 1 Years 1 & 2	Lower Key Stage 2 Years 3 & 4	Upper Key Stage 2 Years 5 & 6	
Kapow unit name			Torches	Electronic Greeting Card	Steady Hand Game
Electrical Systems	Design	N/A – not taught in KS1	<ul style="list-style-type: none"> <li>Design a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas</li> </ul>	<ul style="list-style-type: none"> <li>Design an electronic greetings card with a simple electrical control circuit</li> <li>Create a labelled design showing positive and negative parts in relation to the LED and the battery</li> </ul>	<ul style="list-style-type: none"> <li>Design a steady hand game – identifying and naming the components required</li> <li>Draw a design from three different perspectives</li> <li>Generate ideas through sketching and discussion</li> <li>Model ideas through prototypes</li> </ul>
	Make	N/A – not taught in KS1	<ul style="list-style-type: none"> <li>Make a torch with a working electrical circuit and switch</li> <li>Use appropriate equipment to cut and attach materials</li> <li>Assemble a torch according to the design and success criteria</li> </ul>	<ul style="list-style-type: none"> <li>Make a working circuit</li> <li>Create an electronics greeting card, referring to a design criteria</li> <li>Map out where different components of the circuit will go</li> </ul>	<ul style="list-style-type: none"> <li>Make electromagnetic motors and tweaking the motor to improve its function</li> <li>Construct a stable base for an Electromagnetic game</li> <li>Accurate cut, fold and assemble a net</li> <li>Decorate the base of the game</li> <li>Make and test a circuit</li> <li>Incorporate a circuit into a base</li> </ul>
	Evaluate	N/A – not taught in KS1	<ul style="list-style-type: none"> <li>Evaluate electrical products</li> <li>Test and evaluate the success of a final product and take inspiration from the work of peers</li> </ul>	<ul style="list-style-type: none"> <li>Evaluate a completed product against the original design sheet and looking at modifications that could be made to improve the reliability or aesthetics of it or to incorporate another type of electronic device, eg: buzzer</li> </ul>	<ul style="list-style-type: none"> <li>Test own and others finished games, identifying what went well and making suggestions for improvement</li> </ul>
	Technical knowledge	N/A – not taught in KS1	<ul style="list-style-type: none"> <li>Learn how electrical items work</li> <li>Identify electrical products</li> <li>Learn what electrical conductors and insulators are</li> <li>Understand that a battery contains stored electricity and can be used to power products</li> <li>Identify the features of a torch</li> <li>Understand how a torch works</li> <li>Articulate the positives and negatives about different torches</li> </ul>	<ul style="list-style-type: none"> <li>Learn the key components used to create a functioning circuit</li> <li>Learn that graphite is a conductor and can be used as part of a circuit</li> <li>Learn the difference between series and parallel circuits</li> <li>Understand that breaks in a circuit will stop it from working</li> </ul>	<ul style="list-style-type: none"> <li>Understand how electromagnetic motors work</li> <li>Learn that batteries contain acid, which can be dangerous if they leak</li> <li>Learn that when electricity enters a magnetic field it can make a motor</li> </ul>



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		<b>Key Stage 1 Years 1 &amp; 2</b>	<b>Lower Key Stage 2 Years 3 &amp; 4</b>	<b>Upper Key Stage 2 Years 5 &amp; 6</b>
Kapow unit name		Fruit and Vegetables	Eating Seasonally	Come Dine With Me
<b>Cooking and nutrition</b>	Design	<ul style="list-style-type: none"> <li>Design a smoothie cartoon based on the smoothie they have chosen to make from the three given options</li> </ul>	<ul style="list-style-type: none"> <li>Create a healthy and nutritious recipe for a savoury dish using seasonal ingredients, considering the taste, texture, smell and appearance of the dish.</li> </ul>	<ul style="list-style-type: none"> <li>Write a recipe, explaining the key steps, method and ingredients, including facts and drawings from research undertaken.</li> </ul>
	Make	<ul style="list-style-type: none"> <li>Chop fruit and vegetables safely</li> <li>Identify if a food is a fruit or a vegetable</li> <li>Learn where and how fruits and vegetables grow</li> </ul>	<ul style="list-style-type: none"> <li>Know how to prepare themselves and a work space to cook safely in</li> <li>Follow basic hygiene rules to avoid food contamination.</li> <li>Follow the instructions within a recipe</li> <li>Follow a baking recipe</li> <li>Adapt a recipe.</li> </ul>	<ul style="list-style-type: none"> <li>Cutting and preparing vegetables safely</li> <li>Use equipment safely, including knives, hot pans and hobs</li> <li>Know how to avoid cross contamination</li> <li>Follow a step by step method carefully to make a recipe</li> <li>Follow a recipe, including using the correct quantities of each ingredient</li> <li>Adapt a recipe based on research</li> <li>Work to a given timescale</li> <li>Work safely and hygienically with independence</li> </ul>
	Evaluate	<ul style="list-style-type: none"> <li>Taste and evaluate different food combinations</li> <li>Describe appearance, smell and taste</li> <li>Suggest information to be included on packaging</li> </ul>	<ul style="list-style-type: none"> <li>Establish and use design criteria to help test and review dishes</li> <li>Describe the benefits of seasonal fruits and vegetables and the impact on the environment</li> <li>Suggest points for improvement when making a seasonal tart</li> <li>Evaluate a recipe, considering: taste, smell, texture and appearance</li> <li>Describe the impact of the budget on the selection of ingredients</li> <li>Evaluate and compare a range of products</li> <li>Suggest modifications</li> </ul>	<ul style="list-style-type: none"> <li>Evaluate a recipe, considering: taste, smell, texture and origin of the food group</li> <li>Taste test and score final products</li> <li>Suggest and write up points of improvements in productions</li> <li>Evaluate health and safety in production to minimise cross contamination</li> </ul>
	Technical knowledge	<ul style="list-style-type: none"> <li>Understand the difference between fruits and vegetables</li> <li>Describe and grouping fruits by texture and taste</li> </ul>	<ul style="list-style-type: none"> <li>Learn that climate affects food growth</li> <li>Work with cooking equipment safely and hygienically</li> <li>Learn that imported foods travel from far away and this can negatively impact the environment</li> <li>Learn that vegetables and fruit grow in certain seasons</li> <li>Learn that each fruit and vegetable gives us nutritional benefits</li> <li>Learn to use store and clean a knife safely</li> </ul>	<ul style="list-style-type: none"> <li>Learn how to research a recipe by ingredient</li> <li>Recording the relevant ingredients and equipment needed for a recipe</li> <li>Understand the combinations of food that will complement one another</li> <li>Understand where food comes from, describing the process of 'Farm to Fork' for a given ingredient</li> </ul>



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		<b>Key Stage 1 Years 1 &amp; 2</b>	<b>Lower Key Stage 2 Years 3 &amp; 4</b>	<b>Upper Key Stage 2 Years 5 &amp; 6</b>
Kapow unit name		Baby Bear's Chair	Castles	Bridges
<b>Structures</b>	<b>Design</b>	<ul style="list-style-type: none"> <li>• Generate and communicate ideas using sketching and modelling</li> <li>• Learn about different types of structures, found in the natural world and in everyday objects</li> </ul>	<ul style="list-style-type: none"> <li>• Designing a castle with key features to appeal to a specific person/ purpose</li> <li>• Drawing and labelling a castle design using 2D shapes, labelling: - the 3D shapes that will create the features – materials need and colours</li> </ul>	<ul style="list-style-type: none"> <li>• Design a stable structure that is able to support weight</li> <li>• Create frame structure with focus on triangulation</li> </ul>
	<b>Make</b>	<ul style="list-style-type: none"> <li>• Make a structure according to design criteria</li> <li>• Create joints and structures from paper/card and tape</li> </ul>	<ul style="list-style-type: none"> <li>• Constructing a range of 3D geometric shapes using nets</li> <li>• Creating special features for individual designs</li> <li>• Making facades from a range of recycled materials</li> </ul>	<ul style="list-style-type: none"> <li>• Make a range of different shaped beam bridges</li> <li>• Use triangles to create truss bridges that span a given distance and supports a load</li> <li>• Build a wooden bridge structure</li> <li>• Independently measure and mark wood accurately</li> <li>• Select appropriate tools and equipment for particular tasks</li> <li>• Use the correct techniques to saws safely</li> <li>• Identify where a structure needs reinforcement and using card corners for support</li> </ul>
	<b>Evaluate</b>	<ul style="list-style-type: none"> <li>• Explore the features of structures</li> <li>• Compare the stability of different shapes</li> <li>• Test the strength of own structures</li> <li>• Identify the weakest part of a structure</li> <li>• Evaluate the strength, stiffness and stability of own structure</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design</li> <li>• Suggesting points for modification of the individual designs</li> </ul>	<ul style="list-style-type: none"> <li>• Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary</li> <li>• Suggesting points for improvements for own bridges and those designed by others</li> </ul>
	<b>Technical knowledge</b>	<ul style="list-style-type: none"> <li>• Identify natural and man-made structures</li> <li>• Identify when a structure is more or less stable than another</li> <li>• Know that shapes and structures with wide, flat bases or legs are the most stable</li> <li>• Understand that the shape of a structure affects its strength</li> <li>• Use the vocabulary: strength, stiffness and stability</li> <li>• Know that materials can be manipulated to improve strength and stiffness</li> <li>• Build a strong and stiff structure by folding paper</li> </ul>	<ul style="list-style-type: none"> <li>• Identifying features of a castle</li> <li>• Identifying suitable materials to be selected and used for a castle, considering weight, compression, tension</li> <li>• Extending the knowledge of wide and flat based objects are more stable</li> <li>• Understanding the terminology of strut, tie, span, beam</li> <li>• Understanding the difference between frame and shell structure</li> </ul>	<ul style="list-style-type: none"> <li>• Exploring how to create a strong beam</li> <li>• Identifying arch and beam bridges and understanding the terms: compression and tension</li> <li>• Identifying stronger and weaker structures</li> <li>• Finding different ways to reinforce structures</li> <li>• Understanding how triangles can be used to reinforce bridges</li> <li>• Articulating the difference between beam, arch, truss and suspension bridges</li> </ul>



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		<b>Key Stage 1 Years 1 &amp; 2</b>		<b>Lower Key Stage 2 Years 3 &amp; 4</b>		<b>Upper Key Stage 2 Years 5 &amp; 6</b>
Kapow unit name		Moving Story Book	Wheels and Axels	Pneumatic system	Sling Shot Car	Pop-up book
<b>Mechanisms / Mechanical structures</b>	<b>Design</b>	<ul style="list-style-type: none"> <li>• Design a moving story book for a given audience</li> <li>• Create clearly labelled drawings which illustrate</li> </ul>	<ul style="list-style-type: none"> <li>• Explain how to adapt mechanisms, using bridges or guides to control the movement</li> <li>• Design a vehicle that includes wheels, axles and axle holders, which will allow the wheels to move</li> <li>• Create clearly labelled drawings which illustrate</li> </ul>	<ul style="list-style-type: none"> <li>• Design a toy which uses a pneumatic system</li> <li>• Develop design criteria from a design brief</li> <li>• Generate ideas using thumbnail sketches and exploded diagrams</li> <li>• Learn that different types of drawings are used in design to explain ideas clearly</li> </ul>	<ul style="list-style-type: none"> <li>• Design a shape that reduces air resistance</li> <li>• Draw a net to create a structure from</li> <li>• Choose shapes that increase or decrease speed as a result of air resistance</li> <li>• Personalise a design</li> </ul>	<ul style="list-style-type: none"> <li>• Design a pop-up book which uses a mixture of structures and mechanisms</li> <li>• Name each mechanism, input and output accurately</li> <li>• Storyboard ideas for a book</li> </ul>
	<b>Make</b>	<ul style="list-style-type: none"> <li>• Follow a design to create moving models that use levers and sliders</li> <li>• Adapt mechanisms</li> </ul>	<ul style="list-style-type: none"> <li>• Follow a design to create moving models that use levers and sliders</li> <li>• Adapt mechanisms</li> </ul>	<ul style="list-style-type: none"> <li>• Create a pneumatic system to create a desired motion</li> <li>• Build secure housing for a pneumatic system</li> <li>• Use syringes and balloons to create different types of pneumatic systems to make a functional pneumatic system</li> <li>• Select materials due to their functional and aesthetic characteristics</li> <li>• Manipulate materials to create different effects by cutting, creasing, folding, weaving</li> </ul>	<ul style="list-style-type: none"> <li>• Measure, mark, cut and assemble with increasing accuracy</li> <li>• Make a model based on a chosen design</li> </ul>	<ul style="list-style-type: none"> <li>• Follow a design brief to make a pop-up book, neatly and with focus on accuracy</li> <li>• Make mechanisms and/or structures using sliders, pivots and folds to produce movement</li> <li>• Use layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result</li> </ul>
	<b>Evaluate</b>	<ul style="list-style-type: none"> <li>• Test a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed</li> <li>• Review the success of a product by testing it with its intended audience</li> </ul>	<ul style="list-style-type: none"> <li>• Test a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed</li> <li>• Review the success of a product by testing it with its intended audience</li> <li>• Test mechanisms, identifying what stops wheels from turning, knowing that a wheel needs an axle in order to move</li> </ul>	<ul style="list-style-type: none"> <li>• Use the views of others to improve designs</li> <li>• Test and modify the outcome, suggesting improvements</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluate the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluate the work of others and receiving feedback on own work</li> <li>• Suggest points for improvement</li> </ul>



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<b>Technical knowledge</b>	<ul style="list-style-type: none"> <li>Learn that levers and sliders are mechanisms and can make things move</li> <li>Identify whether a mechanism is a lever or slider and determining what movement the mechanism will make</li> <li>Use the vocabulary: up, down, left, right, vertical and horizontal to describe movement</li> </ul>	<ul style="list-style-type: none"> <li>Learn that levers and sliders are mechanisms and can make things move</li> <li>Identify whether a mechanism is a lever or slider and determining what movement the mechanism will make</li> <li>Use the vocabulary: up, down, left, right, vertical and horizontal to describe movement</li> <li>Identify what mechanism makes a toy or vehicle roll forwards</li> <li>Learn that for a wheel to move it must be attached to an axle</li> </ul>	<ul style="list-style-type: none"> <li>Understand how pneumatic systems work</li> <li>Learn that mechanisms are a system of parts that work together to create motion</li> <li>Understand that pneumatic systems can be used as part of a mechanism</li> <li>Learn that pneumatic systems force air over a distance to create</li> </ul>	<ul style="list-style-type: none"> <li>Learn that products change and evolve over time</li> <li>Learn that all moving things have kinetic energy</li> <li>Understand that kinetic energy is the energy that something (object person) has by being in motion</li> </ul>	<ul style="list-style-type: none"> <li>Knowing that an input is the motion used to start a mechanism</li> <li>Knowing that output is the motion that happens as a result of starting the input</li> <li>Knowing that mechanisms control movement</li> <li>Describing mechanisms that can be used to change one kind of motion into another</li> </ul>
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		<b>Key Stage 1 Years 1 &amp; 2</b>		<b>Lower Key Stage 2 Years 3 &amp; 4</b>		<b>Upper Key Stage 2 Years 5 &amp; 6</b>	
Kapow unit name		Puppet	Pouches	Cushion		Stuffed toy	
<b>Textiles</b>	<b>Design</b>	<ul style="list-style-type: none"> <li>Use a template to create a design for a puppet</li> </ul>	<ul style="list-style-type: none"> <li>Designing a pouch</li> </ul>	<ul style="list-style-type: none"> <li>Designing and making a template from an existing cushion and applying individual design criteria</li> </ul>		<ul style="list-style-type: none"> <li>Design a stuffed toy considering the main component shapes required and creating an appropriate template</li> <li>Consider proportions of individual components</li> </ul>	
	<b>Make</b>	<ul style="list-style-type: none"> <li>Cut fabric neatly with scissors</li> <li>Use joining methods to decorate a puppet</li> <li>Sequence steps for construction</li> </ul>	<ul style="list-style-type: none"> <li>Selecting and cutting fabrics for sewing</li> <li>Decorating a pouch using fabric glue or running stitch</li> </ul>	<ul style="list-style-type: none"> <li>Following design criteria to create a cushion</li> <li>Selecting and cutting fabrics with ease using fabric scissors</li> <li>Sewing cross stitch to join fabric</li> <li>Decorating fabric using appliqué</li> <li>Completing design ideas with stuffing and sewing</li> </ul>		<ul style="list-style-type: none"> <li>Create a 3D toy from a 2D design</li> <li>Measure, mark and cut fabric accurately and independently</li> <li>Create strong and secure blanket stitches when joining fabric</li> <li>Use applique to attach pieces of fabric decoration</li> </ul>	
	<b>Evaluate</b>	<ul style="list-style-type: none"> <li>Reflect on a finished product, explaining likes and dislikes</li> </ul>	<ul style="list-style-type: none"> <li>Troubleshooting scenarios posed by teacher</li> <li>Evaluating the quality of the stitching on others' work</li> <li>Discussing as a class, the success of their stitching against the success criteria</li> <li>Identifying aspects of their peers' work that they particularly like and why</li> </ul>	<ul style="list-style-type: none"> <li>Evaluating an end product and thinking of other ways in which to create similar items</li> </ul>		<ul style="list-style-type: none"> <li>Test and evaluate an end product and giving point for further improvements</li> </ul>	



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	Technical knowledge	<ul style="list-style-type: none"><li>• Learn different ways in which to join fabrics together: pinning, stapling, gluing</li></ul>	<ul style="list-style-type: none"><li>• Joining items using fabric glue or stitching</li><li>• Identifying benefits of these techniques</li><li>• Threading a needle</li><li>• Sewing running stitch, with evenly spaced, neat, even stitches to join fabric</li><li>• Neatly pinning and cutting fabric using a template</li></ul>	<ul style="list-style-type: none"><li>• Threading needles with greater independence</li><li>• Tying knots with greater independence</li><li>• Sewing cross stitch and appliqué</li><li>• Understanding the need to count the thread on a piece of even weave fabric in each direction to create uniform size and appearance</li><li>• Understanding that fabrics can be layered for affect</li></ul>	<ul style="list-style-type: none"><li>• Learn to sew blanket stitch to join fabric</li><li>• Apply blanket stitch so the space between the stitches are even and regular</li><li>• Thread needles independently</li></ul>
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