

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Developing planning and communicating ideas (Design)	<p>Think of ideas and share their simple designs through talking and drawing.</p> <p>Design purposeful products for themselves and others.</p> <p>Suggest ideas and explain what they are going to do.</p>	<p>Design purposeful, functional and appealing products for themselves and others.</p> <p>Develop their design ideas through discussion, observation, drawing and modelling.</p> <p>Identify a purpose for what they intend to design and make.</p> <p>Make simple drawings and label parts.</p>	<p>Generate ideas for an item considering its purpose and the user/s.</p> <p>Identify a purpose and establish criteria for a successful product.</p> <p>Plan the order of their work before starting.</p> <p>Make drawings with labels when designing.</p>	<p>Generate ideas, considering the purposes for which they are designing.</p> <p>Make labelled drawings from different views showing specific features.</p> <p>Develop a clear idea of what has to be done, planning how to use materials, equipment and processes.</p> <p>Evaluate products and identify criteria that can be used for their own designs.</p>	<p>Generate ideas through brainstorming and identify a purpose for their product.</p> <p>Draw up a specification for their design.</p> <p>Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making if the first attempts fail.</p> <p>Use results of investigations, information sources, including ICT when developing design ideas.</p>	<p>Communicate their ideas through detailed labelled drawings.</p> <p>Develop a design specification.</p> <p>Explore, develop and communicate aspects of their design proposals by modelling their ideas in a variety of ways.</p> <p>Plan the order of their work, choosing appropriate materials, tools and techniques.</p>
Working with tools, equipment, materials and components to make quality products. (Make)	<p>Make their design using appropriate techniques.</p> <p>With help, measure, mark out, cut and shape a range of materials.</p> <p>Use tools e.g. scissors safely.</p> <p>Assemble, join and combine materials and components together using a variety of temporary methods, e.g. glues or masking tape.</p>	<p>Begin to select tools and materials; use vocabulary to name and describe them.</p> <p>Measure, cut and score with some accuracy.</p> <p>Use hand tools safely and appropriately.</p> <p>Assemble, join and combine materials in order to make a product.</p>	<p>Select tools and techniques for making their product.</p> <p>Measure, mark out, cut, score and assemble components with more accuracy.</p> <p>Work safely and accurately with a range of simple tools.</p>	<p>Select appropriate tools and techniques for making their product.</p> <p>Measure, mark out, cut and shape a range of materials using appropriate tools, equipment and techniques.</p> <p>Join and combine materials and components in temporary and permanent ways.</p>	<p>Select appropriate materials, tools and techniques for making their product.</p> <p>Measure and mark out accurately.</p> <p>Use skills in using different tools and equipment safely and accurately.</p>	<p>Select appropriate materials, tools, components and techniques for making their product.</p> <p>Assemble components, make working models.</p> <p>Use tools and equipment safely, accurately and confidently.</p>
Evaluating processes and products (Evaluate)	<p>Evaluate their product by discussing how well it works in relation to the purpose.</p> <p>Evaluate their products as they are developed, beginning to identify strengths and possible changes they might make.</p>	<p>Evaluate against their design criteria.</p> <p>Talk about their product, saying what they like and dislike about them.</p> <p>Evaluate their products as they are developed, identifying strengths and possible changes they might make.</p>	<p>Evaluate their product against original design criteria e.g. how well it meets its intended purpose.</p> <p>Disassemble and evaluate familiar products.</p>	<p>Evaluate their work both during and at the end of the assignment.</p> <p>Evaluate their products carrying out appropriate tests.</p>	<p>Evaluate a product against the original design specification.</p> <p>Evaluate their products personally and seek evaluation from others.</p>	<p>Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests.</p> <p>Record their evaluations using drawings with labels.</p> <p>Evaluate against their original criteria and suggest ways that their product could be improved.</p>

Technical skills and knowledge

Food & Nutrition	Eat more fruit and vegetables	Perfect Pizzas	Seasonal Food	Burgers
	<p>Begin to use techniques such as cutting, peeling and grating.</p> <p>Use a knife to cut some fruit and vegetables. In different ways.</p> <p>Grate an apple and a carrot.</p> <p>Peel a banana, apple and cucumber.</p> <p>Understand basic food hygiene e.g. washing hands, cleaning surfaces.</p> <p>Name a variety of fruits and vegetables.</p> <p>Use adjectives to describe the taste, smell and texture of a variety of fruits and vegetables.</p> <p>Know that some fruits and vegetables need to be washed, cut, cored, peeled or grated before they can be eaten.</p>	<p>Know how to use techniques such as cutting, peeling and grating.</p> <p>Know how to prepare simple dishes safely and hygienically.</p> <p>Name a variety of pizza toppings.</p> <p>Use the model of the balanced plate to evaluate how healthy different pizzas are.</p> <p>Explore different types of bread and evaluate which would work best for a pizza base.</p> <p>Identify which food group a variety of pizza toppings belong to.</p> <p>Sort pizza toppings into groups based on different criteria, e.g. animal vs plant products.</p> <p>Explain why each of the food groups is important for a balanced diet.</p> <p>Design and make a healthy pizza following given criteria.</p> <p>Evaluate their finished pizza, saying what they think and feel about it.</p>	<p>Practise cooking skills including slicing, dicing, beating, whisking, folding, sieving, rolling and grating.</p> <p>Follow recipes to make seasonal foods.</p> <p>Know how to prepare themselves and a work space to cook safely in, learning the basic rules to avoid food contamination.</p> <p>Know that different parts of the world have different seasonal food.</p> <p>Discuss the benefits and problems of unseasonal food being available in shops all year round.</p> <p>Know that some foods, like wheat, are available all year round in the UK.</p> <p>Know how food producers can speed up or slow down the ripening process to make fruits and vegetables available all year round.</p> <p>Know some of the nutrients we get from fruits, vegetables, meat, fish and dairy products.</p> <p>Know when certain meats are in season in the UK and which are available all year round.</p> <p>Explain how fish are caught or reared, processed and used in.</p> <p>Use knowledge of seasonal food to design healthy meals and menus.</p>	<p>Use cooking skills including slicing, dicing, beating, whisking, folding, sieving, rolling and grating, independently and confidently.</p> <p>Work safely and hygienically with confidence and independence.</p> <p>Know that most foods we buy have nutrition labels to help us make informed choices about what we eat.</p> <p>Know that calories come from fats, proteins and carbohydrates.</p> <p>Compare different burgers and assess which is healthiest based on its nutrition label.</p> <p>Explain some of the different ways in which burger patties are cooked.</p> <p>Follow a recipe to make a beef, turkey or vegetable burger patty.</p> <p>Add ingredients to a basic burger patty to reflect global cuisine.</p> <p>Follow a recipe to make different burger sauces, including salsa, tzatziki and barbecue sauce.</p> <p>Explore, taste and assess different types of bread and their suitability for a burger bun.</p> <p>Add mixtures of herbs and spices to a basic bread dough to make flavoured burger buns.</p> <p>Design a burger to incorporate different patties, sides and sauces.</p>

						and for a particular purpose or dietary need. Make and evaluate a burger, following their recipe and design.
Textiles		<p>Puppets Explore a variety of puppets, identifying and labelling their features.</p> <p>Cut out felt using a simple template.</p> <p>Stick pieces of felt together to make a finger puppet.</p> <p>Add pieces of felt and other materials to a finger puppet to create features, such as eyes, hats and mouths.</p> <p>Use running stitch to join two pieces of fabric together.</p> <p>Use over-stitch to join two pieces of fabric together.</p> <p>Sew a button onto a piece of fabric.</p> <p>Design and make a glove puppet by sewing two pieces of fabric together and adding decorations.</p> <p>Follow a design to make a glove puppet by sewing two pieces of fabric together and adding decorations.</p> <p>Evaluate their finished glove puppet by identifying what went well and what could be improved.</p>		<p>Seasonal stockings. Evaluate the function and visual appeal of a variety of Christmas stockings.</p> <p>Use pins to temporarily fasten two pieces of fabric together</p> <p>Use running stitch, back stitch, over-stitch and zigzag stitch to join two pieces of fabric together.</p> <p>Identify a variety of decorative techniques that have been used to decorate Christmas stockings.</p> <p>Sew a button, bead, sequin or pipe cleaner onto a piece of fabric</p> <p>Embroider shapes and patterns into a piece of fabric.</p> <p>Use appliqué to add decoration to a piece of fabric.</p> <p>Use a template to cut out front and back pattern pieces.</p> <p>Design and make a Christmas stocking incorporating a range of decorative techniques</p> <p>Use a template to cut out front and back pattern pieces.</p> <p>Follow a design to create a Christmas stocking.</p> <p>Evaluate the function and visual appeal of their finished Christmas stocking.</p>	<p>Fashion and Textiles Know that products that are woven together are called textiles.</p> <p>Know that different textiles have different properties, and can match these to their purpose.</p> <p>Identify straight stitch, zigzag stitch, whip/blanket stitch, blind stitch, buttonhole stitch and overlock stitch on a variety of ready-made garments.</p> <p>Describe what the job of a fashion designer entails.</p> <p>Sew a basting stitch.</p> <p>Sew a whip stitch.</p> <p>Sew a hem.</p> <p>Sew back stitch.</p> <p>Sew an appliqué decoration.</p> <p>Use back stitch to embroider.</p> <p>Know what a pattern piece is and why they are important when designing a garment.</p> <p>Use pattern pieces to measure, mark, cut and sew fabric</p> <p>Design a drawstring bag, including the necessary pattern pieces.</p> <p>Sew design elements according to design criteria.</p> <p>Join two pieces of fabric by hand sewing, using an appropriate stitch.</p> <p>Evaluate their finished product against a set of design criteria.</p>	
Structures	<p>Stable Structures Identify the features of toy garages.</p> <p>Know what the word 'stable' means.</p> <p>Make changes to the design of a stable structure to make it fit for purpose.</p> <p>Explore a range of materials and evaluate the usefulness of their properties for a particular project.</p> <p>Explore how to make stable structures that hold a given object.</p> <p>Follow a design to make a stable structure.</p> <p>Know some ways to make a structure more stable.</p> <p>Evaluate their finished structure against a set of given criteria.</p>		<p>British Inventors Explain how concrete is used to make structures more stable.</p> <p>Create a structure strong enough to hold a dictionary using just newspaper and tape.</p>	<p>Making Mini Greenhouses Know what a greenhouse is and how they work.</p> <p>Explore a range of different greenhouses.</p> <p>Know how greenhouses are used today.</p> <p>Explain how the shape of a structure affects its stability.</p> <p>Know that the weight of the structure needs to be evenly spread on the base to make it secure.</p> <p>Know that the wider a structure's base is, the more stable it will be.</p> <p>Use 3D nets to explore potential structures for a greenhouse, assessing their stability.</p> <p>Investigate ways of making a structure more stable, e.g. by inserting dowelling or adding triangles at the joints.</p> <p>Experiment with a range of materials to test which would be most appropriate for making the structure of a mini greenhouse.</p> <p>Design a mini greenhouse using specific design criteria.</p> <p>Select appropriate tools and materials to make a mini greenhouse.</p> <p>Follow their design to make a mini greenhouse</p> <p>Evaluate their finished mini greenhouse for stability, effectiveness and visual appeal</p>	<p>Bridges Know what beams and pillars are and how they are used in bridge construction.</p> <p>Predict which beams will be strongest from their cross-section.</p> <p>Test the strength of different beam shapes using paper and card.</p> <p>Explain what a truss is and how trusses make bridges stronger.</p> <p>Identify the three types of trusses commonly used in bridge design.</p> <p>Build a truss bridge spanning a width of 40cm using paper straws.</p> <p>Use a fair test to evaluate the strength of their truss bridge.</p> <p>Explain how arches work to make bridges stronger.</p> <p>Test the arch heights to see which can bear the most load.</p> <p>Make an arch frame.</p> <p>Explain how suspension bridges use tension forces to work.</p> <p>Design, make and evaluate a prototype suspension bridge using a scale of 1:100 according to specific design criteria.</p>	<p>Bird House Builders Investigate the appearance and function of a variety of different bird houses.</p> <p>Identify what materials have been used to construct a variety of bird houses and suggest how the parts have been joined together.</p> <p>Know what a flat pack diagram is and can use it to identify each part of a structure.</p> <p>Create a flat pack diagram of a constructed bird house.</p> <p>Draw an exploded diagram.</p> <p>Identify the tools associated with basic woodwork.</p> <p>Measure, clamp, saw, sand and join wood.</p> <p>Use a hand drill to drill a hole in a piece of wood.</p> <p>Know the safety rules they need to follow when doing woodwork.</p> <p>Design a bird house for a particular bird, taking into account the bird's needs.</p> <p>Select appropriate tools and materials to use when making a bird house.</p> <p>Create a sturdy bird house frame using wood.</p> <p>Evaluate their finished bird house, taking into account the views of others to improve their work.</p>

						Use observation to evaluate the effectiveness of their bird house.
<p>Mechanisms</p>	<p>Moving Minibeasts Make a sliding mechanism out of card.</p> <p>Know what a pivot and lever are.</p> <p>Use a pivot and lever mechanism using card and a split pin.</p> <p>Make a wheel mechanism using card and a split pin.</p> <p>Match a mechanism to the type of movement they produce.</p> <p>Design a moving minibeast picture to include a variety of moving mechanisms</p> <p>Follow a design to create a moving minibeast picture for a particular purpose.</p> <p>Evaluate their finished moving minibeast picture by identifying things that worked well and things that could be improved</p>	<p>Vehicles</p> <p>Investigate a range of vehicles, identifying and labelling their features.</p> <p>Know what an axle is.</p> <p>Know what a chassis is.</p> <p>Explore different ways of using axles, chassis and wheels to create a moving base.</p> <p>Design a vehicle with wheels, axles and chassis, as well as a body</p> <p>Follow a design to make a moving vehicle.</p> <p>Evaluate their finished moving vehicle.</p>	<p>Storybooks</p> <p>Explore moving parts in storybooks, suggesting how they work and what purpose they serve. Explain what the words 'linkage', 'pivot', 'rotate' and 'lever' mean.</p> <p>Use a paper concertina to make an object pop out of a book.</p> <p>Arrange and stick paper between pages to create a pop-out.</p> <p>Use levers to create moving parts.</p> <p>Create moving wheel mechanisms to create different effects.</p> <p>Experiment with different fonts and graphic design features.</p> <p>Design pages of a storybook to include moving mechanisms and appropriate graphic features.</p> <p>Follow their designs to create a storybook with moving mechanisms.</p> <p>Evaluate how well their moving mechanisms work.</p> <p>Evaluate the overall effectiveness of their storybook.</p>		<p>Moving toys</p> <p>Recognise the movement of a mechanism within a toy or model.</p> <p>Understand that a cam mechanism will change rotary motion into linear motion.</p> <p>Investigate examples of cam toys describe how they work using appropriate vocabulary.</p> <p>Explore how different shaped cams affect the movement of the Follower.</p> <p>Design and make a moving toy with a cam mechanism.</p> <p>Evaluate their finished moving toy by identifying things that worked well and things that could be improved</p>	
<p>Electrical systems</p>			<p>Light-up signs</p> <p>Explore and analyse illuminated signs.</p> <p>Create a simple circuit with incandescent bulbs and a switch.</p> <p>Describe the difference between an LED and an incandescent light bulb.</p> <p>Create a simple circuit with an LED bulb and a resistor.</p> <p>Make a circuit with a string of LED lights.</p> <p>Design an illuminated light box against a set of design criteria.</p> <p>Select materials, tools and components to create a free-standing structure.</p>			<p>Programming Pioneers</p> <p>Explain how computers and computer programs are used in a variety of products.</p> <p>Explain how modern memory chips work to store information.</p> <p>Write an algorithm to suggest how various appliances might work.</p> <p>Know what a computer engineer is and what they do.</p> <p>Describe some examples of how computer hardware and software specialists work together to create new products.</p> <p>Develop and build a prototype pedestrian crossing using computer programming.</p> <p>Develop, model and communicate ideas for an embedded system which</p>

			<p>Make a stable, free-standing structure to house an electrical circuit.</p> <p>Strip, twist and join wire to make permanent connections.</p> <p>Insert an electrical circuit into a free-standing structure to create an illuminated light box.</p> <p>Evaluate the effectiveness of their finished product against the design criteria.</p>			<p>monitors and controls a door, room or both.</p> <p>Describe the typical design process for computer-controlled electronic products.</p> <p>Debug errors in an algorithm.</p> <p>Suggest ways to change an algorithm to improve a system.</p> <p>Select and use electronic components to construct a prototype of an embedded computer-controlled room system.</p> <p>Evaluate their design for a computer-controlled system and consider the views of others to improve their work.</p>
<p>Inventions and Achievements</p>			<p>British Inventors</p> <p>Explain about the invention of the mackintosh.</p> <p>Investigate ways of making fabric waterproof.</p> <p>Explain about the invention of the world wide web.</p> <p>Describe how the invention of the internet has changed the world</p>			<p>Programming Pioneers</p> <p>Know that Charles Babbage created the first mechanical computer.</p> <p>Know that Ada Lovelace is referred to as the world's first computer programmer.</p> <p>Know that Steve Jobs and Steve Wozniak co-founded Apple, Inc. to make the first Apple computers.</p>