

## Skills Progression – Design and Technology

Year	Term	Scheme of Work	Cooking and Nutrition
1	Autumn	Eat More Fruits and Vegetables	<ul style="list-style-type: none"> <li>• I can name a variety of fruits and vegetables.</li> <li>• I can use adjectives to describe the taste, smell and texture of a variety of fruits and vegetables.</li> <li>• I know that some fruits and vegetables need to be washed, cut, cored, peeled or grated before they can be eaten.</li> <li>• I understand basic food hygiene, e.g. washing hands, tying long hair back and keeping surfaces clean.</li> <li>• I can use a knife to cut some fruits and vegetables in different ways.</li> <li>• I can grate an apple and a carrot.</li> <li>• I can peel a banana, apple and cucumber</li> </ul>
2	Summer	Perfect Pizzas	<ul style="list-style-type: none"> <li>• I can name a variety of pizza toppings.</li> <li>• I can use the model of the balanced plate to evaluate how healthy different pizzas are.</li> <li>• I can explore different types of bread and evaluate which would work best for a pizza base.</li> <li>• I can identify which food group a variety of pizza toppings belong to.</li> <li>• I can sort pizza toppings into groups based on different criteria, e.g. animal vs plant products.</li> <li>• I can explain why each of the food groups is important for a balanced diet.</li> <li>• I can design and make a healthy pizza following given criteria.</li> <li>• I can evaluate my finished pizza, saying what I think and feel about it</li> </ul>
4	Summer	Seasonal Food	<ul style="list-style-type: none"> <li>• I can explain what the term 'seasonal food' means.</li> <li>• I know that different parts of the world have different seasonal food.</li> <li>• I can discuss the benefits and problems of unseasonal food being available in shops all year round.</li> <li>• I know that some foods, like wheat, are available all year round in the UK.</li> </ul>

			<ul style="list-style-type: none"> <li>• I can practise cooking skills including slicing, dicing, beating, whisking, folding, sieving, rolling and grating.</li> <li>• I can follow a recipe to make fairy cakes.</li> <li>• I can describe the cycle of wheat production in the UK.</li> <li>• I can distinguish between fruits that are grown in the UK and those that are grown abroad.</li> <li>• I know how food producers can speed up or slow down the ripening process to make fruits and vegetables available all year round.</li> <li>• I can follow a recipe to make fruit tarts using seasonal fruit.</li> <li>• I can follow a recipe to make stuffed peppers.</li> <li>• I know some of the nutrients we get from fruits, vegetables, meat, fish and dairy products.</li> <li>• I know when certain meats are in season in the UK and which are available all year round.</li> <li>• I can follow a recipe to make meatballs.</li> <li>• I know some vegetarian options that provide the same nutrients as meat.</li> <li>• I can explain how fish are caught or reared, processed and used in healthy meals.</li> <li>• I can use what I have learnt about seasonal food to design healthy meals and menus.</li> </ul>
6	Summer	Burgers	<ul style="list-style-type: none"> <li>• I know that most foods we buy have nutrition labels to help us make informed choices about what we eat.</li> <li>• I know that calories come from fats, proteins and carbohydrates.</li> <li>• I can evaluate how healthy a burger is based on its nutrition label.</li> <li>• I can compare different burgers and assess which is healthiest.</li> <li>• I can explain some of the different ways in which burger patties are cooked.</li> <li>• I can follow a recipe to make a beef, turkey or vegetable burger patty.</li> <li>• I can add ingredients to a basic burger patty to reflect global cuisine.</li> <li>• I can follow a recipe to make different burger sauces, including salsa, tzatziki and barbecue sauce.</li> <li>• I can design a burger menu to incorporate different patties, sides and sauces.</li> <li>• I can explore, taste and assess different types of bread and their suitability for a burger bun.</li> <li>• I can offer suggestions for some alternatives for bread.</li> </ul>

			<ul style="list-style-type: none"> <li>• I can add mixtures of herbs and spices to a basic bread dough to make flavoured burger buns.</li> <li>• I can design a burger for a particular purpose.</li> <li>• I can design a burger for someone with particular dietary requirements.</li> <li>• I can make and evaluate a burger, following my recipe and design.</li> </ul>
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Year	Unit	Scheme of Work	Stable Structures
1	Summer	Stable structures	<ul style="list-style-type: none"> <li>• I can identify the features of toy garages.</li> <li>• I know what the word 'stable' means.</li> <li>• I can make changes to the design of a stable structure to make it fit for purpose.</li> <li>• I can explore a range of materials and evaluate the usefulness of their properties for a particular project.</li> <li>• I can explore how to make stable structures that hold a given object.</li> <li>• I can follow a design to make a stable structure.</li> <li>• I know some ways to make a structure more stable.</li> <li>• I can evaluate my finished structure against a set of given criteria.</li> </ul>
3	Spring	British Inventors	<ul style="list-style-type: none"> <li>• I can explain how concrete is used to make structures more stable.</li> <li>• I can create a structure strong enough to hold a dictionary using just newspaper and tape</li> </ul>
4	Spring	Making Mini Greenhouses	<ul style="list-style-type: none"> <li>• I know what a greenhouse is and how they work.</li> <li>• I can explore a range of different greenhouses.</li> <li>• I know how greenhouses are used today.</li> <li>• I can explain how the shape of a structure affects its stability.</li> <li>• I know that the weight of the structure needs to be evenly spread on the base to make it secure.</li> <li>• I know that the wider a structure's base is, the more stable it will be.</li> <li>• I can use 3D nets to explore potential structures for a greenhouse, assessing their stability.</li> </ul>

			<ul style="list-style-type: none"> <li>• I can investigate ways of making a structure more stable, e.g. by inserting dowelling or adding triangles at the joins.</li> <li>• I can experiment with a range of materials to test which would be most appropriate for making the structure of a mini greenhouse.</li> <li>• I can design a mini greenhouse using specific design criteria.</li> <li>• I can select appropriate tools and materials to make a mini greenhouse.</li> <li>• I can follow my design to make a mini greenhouse.</li> <li>• I can evaluate my finished mini greenhouse for stability, effectiveness and visual appeal.</li> </ul>
5	Autumn	Building Bridges	<ul style="list-style-type: none"> <li>• I know what beams and pillars are and how they are used in bridge construction.</li> <li>• I can predict which beams will be strongest from their cross-section.</li> <li>• I can test the strength of different beam shapes using paper and card.</li> <li>• I can explain what a truss is and how trusses make bridges stronger.</li> <li>• I can identify the three types of trusses commonly used in bridge design.</li> <li>• I can build a truss bridge spanning a width of 40cm using paper straws.</li> <li>• I can use a fair test to evaluate the strength of my truss bridge.</li> <li>• I can explain how arches work to make bridges stronger.</li> <li>• I can test the arch heights to see which can bear the most load.</li> <li>• I can make an arch frame.</li> <li>• I can explain how suspension bridges use tension forces to work.</li> <li>• I can design, make and evaluate a prototype suspension bridge using a scale of 1:100 according to specific design criteria.</li> </ul>
6	Autumn	Nativity Scene	<ul style="list-style-type: none"> <li>• I can investigate the appearance and purpose of a variety of different nativity scenes.</li> <li>• I can identify what materials have been used to construct a variety of nativity scenes and suggest how the parts have been joined together.</li> <li>• I know what a flat pack diagram is and can use it to identify each part of a structure.</li> <li>• I can create a flat pack diagram of a constructed nativity scene.</li> <li>• I can draw an exploded diagram.</li> <li>• I can identify the tools associated with basic woodworking.</li> <li>• I can measure, clamp, saw, sand and join wood.</li> <li>• I can use a hand drill to drill a hole in a piece of wood.</li> <li>• I know the safety rules I need to follow when doing woodworking.</li> <li>• I can select appropriate tools and materials to use when making a nativity scene.</li> <li>• I can create a sturdy nativity frame using wood.</li> </ul>

			<ul style="list-style-type: none"> <li>• I can evaluate my finished nativity scene, taking into account the views of others to improve my work.</li> <li>• I can use observation to evaluate the effectiveness of my nativity scene.</li> </ul>
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Year	Unit	Scheme of Work	Programming and Electrical Systems
3	Summer	Light-Up Signs	<ul style="list-style-type: none"> <li>• I can explore and analyse illuminated signs.</li> <li>• I can create a simple circuit with incandescent bulbs and a switch.</li> <li>• I can describe the difference between an LED and an incandescent light bulb.</li> <li>• I can create a simple circuit with an LED bulb and a resistor.</li> <li>• I can make a circuit with a string of LED lights.</li> <li>• I can design an illuminated light box against a set of design criteria.</li> <li>• I can select materials, tools and components to create a free-standing structure.</li> <li>• I can make a stable, free-standing structure to house an electrical circuit.</li> <li>• I can strip, twist and join wire to make permanent connections.</li> <li>• I can insert an electrical circuit into a free-standing structure to create an illuminated light box.</li> <li>• I can evaluate the effectiveness of my finished product against the design criteria</li> </ul>
6	Spring	Programming Pioneers	<ul style="list-style-type: none"> <li>• I can explain how computers and computer programs are used in a variety of products.</li> <li>• I can explain how modern memory chips work to store information.</li> <li>• I can write an algorithm to suggest how various appliances might work.</li> <li>• I know what a computer engineer is and what they do.</li> <li>• I can describe some examples of how computer hardware and software specialists work together to create new products.</li> <li>• I can develop and build a prototype pedestrian crossing using computer programming.</li> <li>• I can develop, model and communicate ideas for an embedded system which monitors and controls a door, room or both.</li> <li>• I can describe the typical design process for computer-controlled electronic products.</li> <li>• I can debug errors in an algorithm.</li> </ul>

			<ul style="list-style-type: none"> <li>• I can suggest ways to change an algorithm to improve a system.</li> <li>• I can select and use electronic components to construct a prototype of an embedded computer-controlled room system.</li> <li>• I can evaluate my design for a computer-controlled system and consider the views of others to improve my work.</li> </ul>
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Year	Unit	Scheme of Work	Mechanical Systems
1	Spring	Moving Minibeasts	<ul style="list-style-type: none"> <li>• I can make a sliding mechanism out of card.</li> <li>• I know what a pivot and lever are.</li> <li>• I can use a pivot and lever mechanism using card and a split pin.</li> <li>• I can make a wheel mechanism using card and a split pin.</li> <li>• I can match a mechanism to the type of movement they produce.</li> <li>• I can design a moving minibeast picture to include a variety of moving mechanisms.</li> <li>• I can follow a design to create a moving minibeast picture for a particular purpose.</li> <li>• I can evaluate my finished moving minibeast picture by identifying things that worked well and things that could be improved.</li> </ul>
2	Spring	Vehicles	<ul style="list-style-type: none"> <li>• I can investigate a range of vehicles, identifying and labelling their features.</li> <li>• I know what an axle is.</li> <li>• I know what a chassis is.</li> <li>• I can explore different ways of using axles, chassis and wheels to create a moving base.</li> <li>• I can design a vehicle with wheels, axles and chassis, as well as a body.</li> <li>• I can follow a design to make a moving vehicle.</li> <li>• I can evaluate my finished moving vehicle.</li> </ul>
3	Autumn	Storybooks	<ul style="list-style-type: none"> <li>• I can explore moving parts in storybooks, suggesting how they work and what purpose they serve.</li> <li>• I can explain what the words 'linkage', 'pivot', 'rotate' and 'lever' mean.</li> <li>• I can use a paper concertina to make an object pop out of a book.</li> <li>• I can arrange and stick paper between pages to create a pop-out.</li> <li>• I can use levers to create moving parts.</li> <li>• I can create moving wheel mechanisms to create different effects.</li> </ul>

			<ul style="list-style-type: none"> <li>• I can experiment with different fonts and graphic design features.</li> <li>• I can design pages of a storybook to include moving mechanisms and appropriate graphic features.</li> <li>• I can follow my designs to create a storybook with moving mechanisms.</li> <li>• I can evaluate how well my moving mechanisms work.</li> <li>• I can evaluate the overall effectiveness of my storybook.</li> </ul>
5	Spring	Chinese Inventions	<ul style="list-style-type: none"> <li>• I explore how different transmissions create different movements.</li> <li>• I can use a crank to change the motion on a transmission from circular to linear motion.</li> </ul>

Year	Unit	Scheme of Work	Textiles
2	Autumn	Puppets	<ul style="list-style-type: none"> <li>• I can explore a variety of puppets, identifying and labelling their features.</li> <li>• I can cut out felt using a simple template.</li> <li>• I can stick pieces of felt together to make a finger puppet.</li> <li>• I can add pieces of felt and other materials to a finger puppet to create features, such as eyes, hats and mouths.</li> <li>• I can use running stitch to join two pieces of fabric together.</li> <li>• I can use overstretch to join two pieces of fabric together.</li> <li>• I can sew a button onto a piece of fabric.</li> <li>• I can design a glove puppet for a particular purpose.</li> <li>• I can follow a design to make a glove puppet by sewing two pieces of fabric together and adding decorations.</li> <li>• I can evaluate my finished glove puppet by identifying what went well and what could be improved.</li> </ul>

4	Autumn	Seasonal Stockings	<ul style="list-style-type: none"> <li>• I can explain the difference between the function and visual appeal of a product.</li> <li>• I can evaluate the function and visual appeal of a variety of Christmas stockings.</li> <li>• I can use pins to temporarily fasten two pieces of fabric together.</li> <li>• I can use running stitch, back stitch, over stitch and zigzag stitch to join two pieces of fabric together.</li> <li>• I can hide the finishing knot.</li> <li>• I can identify a variety of decorative techniques that have been used to decorate Christmas stockings.</li> <li>• I can sew a button, bead, sequin or pipe cleaner onto a piece of fabric.</li> <li>• I can embroider shapes and patterns into a piece of fabric.</li> <li>• I can use appliqué to add decoration to a piece of fabric.</li> <li>• I can design a Christmas stocking incorporating a range of decorative techniques.</li> <li>• I can use a template to cut out front and back pattern pieces.</li> <li>• I can follow a design to create a Christmas stocking.</li> <li>• I can evaluate the function and visual appeal of my finished Christmas stocking.</li> </ul>
5	Summer	Fashion and Textiles	<ul style="list-style-type: none"> <li>• I can explain the process of turning raw cotton into cloth.</li> <li>• I know that products that are woven together are called textiles.</li> <li>• I know that different textiles have different properties, and can match these to their purpose.</li> <li>• I can identify straight stitch, zigzag stitch, whip/blanket stitch, blind stitch, buttonhole stitch and overlock stitch on a variety of ready-made garments.</li> <li>• I can describe what the job of a fashion designer entails.</li> <li>• I can sew a basting stitch.</li> <li>• I can sew a whip stitch.</li> <li>• I can sew a hem.</li> <li>• I can sew back stitch.</li> <li>• I can sew an appliqué decoration.</li> <li>• I can use back stitch to embroider.</li> <li>• I know what a pattern piece is and why they are important when designing a garment.</li> <li>• I can design a drawstring bag, including the necessary pattern pieces.</li> <li>• I can use pattern pieces to measure, mark, cut and sew fabric.</li> <li>• I can sew design elements according to design criteria.</li> <li>• I can join two pieces of fabric by hand sewing, using an appropriate stitch.</li> <li>• I can evaluate my finished product against a set of design criteria.</li> </ul>



Year	Unit	Scheme of Work	Inventions and Achievements
3	Spring	British Inventors	<ul style="list-style-type: none"> <li>• I can explain about the invention of the mackintosh.</li> <li>• I can investigate ways of making fabric waterproof.</li> <li>• I can explain about the invention of the world wide web.</li> <li>• I can describe how the invention of the internet has changed the world.</li> </ul>
5	Spring	Chinese Inventions	<ul style="list-style-type: none"> <li>• I can explain how the invention of paper helped shape the world.</li> <li>• I can explain the traditional method for making paper.</li> <li>• I can test a variety of types of paper for strength, absorbency, opacity, etc.</li> <li>• I can make recycled paper.</li> <li>• I know how gunpowder was invented.</li> <li>• I can explain how the invention of gunpowder helped shape the world.</li> <li>• I can explain how the invention of the compass changed the world.</li> <li>• I can make a hanging/floating compass.</li> <li>• I can design and label my own compass.</li> <li>• I can explain what water-powered machines are and how they helped change the world.</li> <li>• I can explain why kites were first invented and how they were made.</li> <li>• I can make a variety of kite prototypes and test their effectiveness.</li> <li>• I can design, make and evaluate a kite according to specific design criteria.</li> </ul>
6	Spring	Programming Pioneers	<ul style="list-style-type: none"> <li>• I know that Charles Babbage created the first mechanical computer.</li> <li>• I know that Ada Lovelace is referred to as the world's first computer programmer.</li> <li>• I know that Steve Jobs and Steve Wozniak co-founded Apple, Inc. to make the first Apple computers.</li> </ul>