Bidston Avenue Primary School

'Achieving Together'

BIDSTON AVENUE

Skills & Knowledge Progression: D&T

Year group	Cooking & Nutrition	Stable Structures	Textiles
Nursery (F1)	• Explore and taste a selection of foods from the UK and India. • Make a sandwich, choosing the filling and developing spreading skills. • Make Indian coconut sweets by combining and manipulating the ingredients.	• Build increasingly complex and imaginative structures (linked to topics) using small world resources such as blocks and construction kits, and including outdoor large construction. • Use picture books, photographs and toys to explore pirate ship designs. • Manipulate different materials to make a simple pirate ship model using reclaimed materials of carboard and plastic. • Test the model pirate ships, comparing the models used.	• Look at stick, glove and finger puppets. • Make a glove or stick animal puppet, choosing from a range of materials. • Explore different materials freely, to develop their ideas about how to use them and what to make. • Join different materials and explore different textures.
Reception (F2)	• Create a design for a gingerbread person. • Follow a simple recipe and combine ingredients to make a gingerbread person. • Decorate and evaluate biscuit produced against original design. • Talk about the processes undertaken to make and decorate their biscuit.	• Use photographs, non-fiction books and own observations to make a minibeast model using reclaimed materials. • Safely use a variety of tools to join materials together. • Use a variety of joining techniques to attach the model parts. • Refine and develop ideas while building the minibeast model. • Share and talk about the processes undertaken to build their minibeast model.	• Explore different Autumn coloured manmade and natural materials. • Join different materials together using weaving techniques in a simple frame. • Share their creations, explaining the process they have used.

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Year group	Stable Structures	Cooking & Nutrition	Mechanical systems
Year 1	• Identify the features of toy garages. • Know what the word 'stable' means. • Make changes to the design of a stable structure to make it fit for purpose. • Explore a range of materials and evaluate the usefulness of their properties for a particular project. • Explore how to make stable structures that hold a given object. • Follow a design to make a stable structure. • Know some ways to make a structure more stable. • Evaluate my finished structure against a set of given criteria.	• Name a variety of fruits and vegetables. • Describe the taste, smell and texture of a variety of fruits and vegetables. • Know that some fruits and vegetables need to be washed, cut, cored, peeled or grated before they can be eaten. • Understand basic food hygiene, • Use a knife to cut some fruits and vegetables in different ways. • I can grate and peel a variety of fruit and vegetables.	• Make a sliding mechanism out of card. • Know what a pivot and lever are. • Use a pivot and lever mechanism using card and a split pin. • Make a wheel mechanism using card and a split pin. • Match a mechanism to the type of movement they produce. • Design a moving minibeast picture to include a variety of moving mechanisms. • Follow a design to create a moving minibeast picture for a particular purpose. • Evaluate my finished moving minibeast picture by identifying things that worked well and things that could be improved.

	Mechanical Systems	Cooking & Nutrition	Textiles
Year 2	• Investigate a range of vehicles, identifying and labelling their features. • Know what an axle is. • Know what a chassis is. • Explore different ways of using axles, chassis and wheels to create a moving base. • Design a vehicle with wheels, axles and chassis, as well as a body. • Follow a design to make a moving vehicle. • Evaluate my finished moving vehicle.	• Name a variety of pizza toppings. • Use the model of the balanced plate to evaluate how healthy different pizzas are. • Explore different types of bread and evaluate which would work best for a pizza base. • Identify which food group a variety of pizza toppings belong to. • Sort pizza toppings into groups based on different criteria, e.g. animal vs plant products. • Explain why each of the food groups is important for a balanced diet. • Design and make a healthy pizza following given criteria. • Evaluate my finished pizza, saying what I think and feel about it	• Explore a variety of puppets, identifying and labelling their features. • Cut out felt using a simple template. • Stick pieces of felt together to make a finger puppet. • Add pieces of felt and other materials to a finger puppet to create features, such as eyes, hats and mouths. • Use running stitch to join two pieces of fabric together. • Use overstitch to join two pieces of fabric together. • Sew a button onto a piece of fabric. • Design a glove puppet for a particular purpose. • Follow a design to make a glove puppet by sewing two pieces of fabric together and adding decorations. • Evaluate my finished glove puppet by identifying what went well and what could be improved.

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Year group	Cooking & Nutrition	Stable Structure and Inventions & Achievements	Stable Structures
Year 3	• Explain what the term 'seasonal food' means. • Know that different parts of the world have different seasonal food. • Discuss the benefits and problems of unseasonal food being available in shops all year round. • Know that some foods, like wheat, are available all year round in the UK. • Practise cooking skills including slicing, dicing, beating, whisking, folding, sieving, rolling and grating. • Follow a recipe. • Describe the cycle of wheat production in the UK. • Distinguish between fruits that are grown in the UK and those that are grown abroad. • Know how food producers can speed up or slow down the ripening process to make fruits and vegetables available all year round. • Know some of the nutrients we get from fruits, vegetables, meat, fish and dairy products. • Know when certain meats are in season in the UK and which are available all year round. • Know some vegetarian options that provide the same nutrients as meat. • Explain how fish are caught or reared, processed and used in healthy meals. • Use what I have learnt about seasonal food to design healthy meals and menus	• Explain about the invention of the mackintosh. • Investigate ways of making fabric waterproof. • Explain about the invention of the world wide web. • Describe how the invention of the internet has changed the world. • Explain how concrete is used to make structures more stable. • Create a structure strong enough to hold a dictionary using just newspaper and tape.	• Know what a greenhouse is and how they work. • Explore a range of different greenhouses. • Know how greenhouses are used today. • Explain how the shape of a structure affects its stability. • Know that the weight of the structure needs to be evenly spread on the base to make it secure. • Know that the wider a structure's base is, the more stable it will be. • Use 3D nets to explore potential structures for a greenhouse, assessing their stability. • Investigate ways of making a structure more stable, e.g. by inserting dowelling or adding triangles at the joins. • Experiment with a range of materials to test which would be most appropriate for making the structure of a mini greenhouse. • Design a mini greenhouse using specific design criteria. • Select appropriate tools and materials to make a mini greenhouse. • Follow my design to make a mini greenhouse. • Evaluate my finished mini greenhouse for stability, effectiveness and visual appeal.

Year group	Textiles	Mechanical Systems	Programming & Electrical Systems
Year 4	• Explain the difference between the function and visual appeal of a product. • Evaluate the function and visual appeal of a variety of Christmas stockings. • Use pins to temporarily fasten two pieces of fabric together. • Use running stick, back stitch, overstitch and zigzag stitch to join two pieces of fabric together. • Hide the finishing knot. • Identify a variety of decorative techniques that have been used to decorate Christmas stockings. • Sew a button, bead, sequin or pipe cleaner onto a piece of fabric. • Embroider shapes and patterns into a piece of fabric. • Use appliqué to add decoration to a piece of fabric. • I can design a Christmas stocking incorporating a range of decorative techniques. • Use a template to cut out front and back pattern pieces. • Follow a design to create a Christmas stocking. • Evaluate the function and visual appeal of my finished Christmas stocking.	• Explore moving parts in storybooks, suggesting how they work and what purpose they serve. • Explain what the words 'linkage', 'pivot', 'rotate' and 'lever' mean. • Use a paper concertina to make an object pop out of a book. • Arrange and stick paper between pages to create a pop-out. • Use levers to create moving parts. • Create moving wheel mechanisms to create different effects. • Experiment with different fonts and graphic design features. • Design pages of a storybook to include moving mechanisms and appropriate graphic features. • Follow my designs to create a storybook with moving mechanisms. • Evaluate how well my moving mechanisms work. • Evaluate the overall effectiveness of my storybook.	• Explore and analyse illuminated signs. • Create a simple circuit with incandescent bulbs and a switch. • Describe the difference between an LED and an incandescent light bulb. • Create a simple circuit with an LED bulb and a resistor. • Make a circuit with a string of LED lights. • Design an illuminated light box against a set of design criteria. • Select materials, tools and components to create a free-standing structure. • Make a stable, free-standing structure to house an electrical circuit. • Strip, twist and join wire to make permanent connections. • Insert an electrical circuit into a free-standing structure to create an illuminated light box. • Evaluate the effectiveness of my finished product against the design criteria.

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Year group	Cooking & Nutrition	Textiles	Programming & Electrical Systems and Inventions & Achievements
Year 5	• Know that most foods we buy have nutrition labels to help us make informed choices about what we eat. • Know that calories come from fats, proteins and carbohydrates. • Evaluate how healthy a burger is based on its nutrition label. • Compare different burgers and assess which is healthiest. • Explain some of the different ways in which burger patties are cooked. • Follow a recipe to make a patty and a burger sauce. • Add ingredients to a basic burger patty to reflect global cuisine. • Design a burger menu to incorporate different patties, sides and sauces. • Explore, taste and assess different types of bread and their suitability for a burger bun. • Offer suggestions for some alternatives for bread. • Add mixtures of herbs and spices to a basic bread dough to make flavoured burger buns. • Design a burger for a particular purpose and for particular dietary requirements. • Make and evaluate a burger, following my recipe and design	• Explain the process of turning raw cotton into cloth. • Know that products that are woven together are called textiles. • Know that different textiles have different properties, and can match these to their purpose. • Identify straight stitch, zigzag stitch, whip/blanket stitch, blind stitch, buttonhole stitch and overlock stitch on a variety of ready-made garments. • Describe what the job of a fashion designer entails. • Sew a basting stitch, back stitch and whip stitch. • Sew a hem. • Sew an appliqué decoration and use back stitch to embroider. • Know what a pattern piece is and why they are important when designing a garment. • Design a drawstring bag, including the necessary pattern pieces. • Use pattern pieces to measure, mark, cut and sew fabric. • Sew design elements according to design criteria. • Join two pieces of fabric by hand sewing, using an appropriate stitch. Evaluate my finished product against a set of design criteria.	• Explain how computers and computer programs are used in a variety of products. • Explain how modern memory chips work to store information. • Write an algorithm to suggest how various appliances might work. • Know what a computer engineer is and what they do. • Describe some examples of how computer hardware and software specialists work together to create new products. • Develop and build a prototype pedestrian crossing using computer programming. • Develop, model and communicate ideas for an embedded system which monitors and controls a door, room or both. • Describe the typical design process for computer-controlled electronic products. • Debug errors in an algorithm. • Suggest ways to change an algorithm to improve a system. • Select and use electronic components to construct a prototype of an embedded computer-controlled room system. • Evaluate my design for a computer-controlled system and consider the views of others to improve my work. • Know that Charles Babbage created the first mechanical computer. • Know that Ada Lovelace is referred to as the world's first computer programmer. • Know that Steve Jobs and Steve Wozniak co-founded Apple, Inc. to make the first Apple computers.

Year group	Stable Structures	Mechanical Systems and Inventions & Achievements	Stable Structures
Year 6	• Know what beams and pillars are and how they are used in bridge construction. • Predict which beams will be strongest from their cross-section. • Test the strength of different beam shapes using paper and card. • Explain what a truss is and how trusses make bridges stronger. • Identify the three types of trusses commonly used in bridge design. • Build a truss bridge spanning a width of 40cm using paper straws. • Use a fair test to evaluate the strength of my truss bridge. • Explain how arches work to make bridges stronger. • Test the arch heights to see which can bear the most load. • Make an arch frame. • Explain how suspension bridges use tension forces to work. • Design, make and evaluate a prototype suspension bridge using a scale of 1:100 according to specific design criteria.	• Explore how different transmissions create different movements. • Use a crank to change the motion on a transmission from circular to linear motion. • Explain how the invention of paper helped shape the world. • Explain the traditional method for making paper. • Test a variety of types of paper for strength, absorbency, opacity, etc. • Make recycled paper. • Know how gunpowder was invented. • Explain how the invention of gunpowder helped shape the world. • Explain how the invention of the compass changed the world. • Make a hanging/floating compass. • Design and label my own compass. • Explain what water-powered machines are and how they helped change the world. • Explain why kites were first invented and how they were made. • Make a variety of kite prototypes and test their effectiveness. • Design, make and evaluate a kite according to specific design criteria.	• Investigate the appearance and function of a variety of different bird houses. • Identify what materials have been used to construct a variety of bird houses and suggest how the parts have been joined together. • Know what a flat pack diagram is and can use it to identify each part of a structure. • Create a flat pack diagram of a constructed bird house. • Draw an exploded diagram. • Identify the tools associated with basic woodwork. • Measure, clamp, saw, sand and join wood. • Use a hand drill to drill a hole in a piece of wood. • Know the safety rules I need to follow when doing woodwork. • Design a bird house for a particular bird, considering the bird's needs. • Select appropriate tools and materials to use when making a bird house. • Create a sturdy bird house frame using wood. • Evaluate my finished bird house, considering the views of others to improve my work. • Use observation to evaluate the effectiveness of my bird house.