Year	Cooking & Nutrition	Mechanisms	Structures	Textiles
1	<u>Smoothies</u> Describe fruits and vegetables and explain why they are a fruit or a vegetable. Describe fruits and vegetables by their properties. Explain a range of places that fruits and vegetables grow. Describe basic characteristics of fruit and vegetables. Prepare fruits and vegetables to make a smoothie.	<u>Moving Story Book</u> Identify whether a mechanism is a side-to-side slider or an up and-down slider and determine what movement the mechanism will make. Able to cut slots and insert sliders to demonstrate mechanism. Clearly label drawings to show which parts of their design will move and in which direction. Make a picture, which meets the design criteria, with parts that move purposefully as planned. Evaluate the main strengths and weaknesses of their design and suggest alterations. <u>Wheels & Axles</u> Explain that wheels move because they are attached to an axle and that wheels and axles are used in everyday life Identify the problem with vehicles and explain how it might be altered using the correct vocabulary (wheel, axle and axle holder). Design a vehicle that includes wheels, axles and axle holders, which will allow the wheels to move. Make a moving vehicle which works (wheels move correctly) or if the vehicle doesn't work, can explain what must be changed so that the vehicle can work.	<u>Windmills</u> Identify features that would appeal to the mouse. Creating a design that is suitable for the mouse. Articulating how their design appeals to the mouse. Make stable structures from card, tape and glue, which will support a turbine. Make functioning turbines and axles which are assembled into the main supporting structure. Being able to say what is good and what they could do better.	<u>Puppets</u> Able to join fabrics together using pins, staples or glue. Able to design a puppet and use a template. Able to join their two puppet's faces together as one. Able to decorate a puppet to match their design.

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2	<u>Balanced Diet</u> Able to name the main food groups and to identify foods that belong to each group. Identify the correct food group of a given food and able to describe its taste, texture and smell. Able to think of four different wrap ideas, considering flavour combinations. Able to construct a wrap that meets the design brief and their plan.	<u>Pivots, levers and linkages</u> Use key terms accurately. Identifying the correct terms for levers, linkages and pivots. Analysing popular toys with the correct terminology. Create functional linkages that produce the desired input and output motions. Design monsters suitable for children, which satisfy most of the Design Criteria. Select a suitable linkage system to produce the desired motions. Evaluate two designs against the Design Criteria, and deciding on their best design based on this and the feedback of their peers. Select and assemble materials to create their planned monster features. Assemble the monster to their linkages without affecting the function of them. Evaluate their designs against the design criteria. <u>Ferris Wheels</u> Design and label a wheel, considering the designs of others and making comments about their practicality or appeal. Consider the materials, shape, construction and mechanisms of their wheel and labelling designs. Build a stable structure with a rotating wheel to test and adapt designs as necessary. Follow a design plan to make a completed model of the wheel.	<u>Baby Bear's Chair</u> Identify man-made/natural structures. Contribute to discussions. Identify stable and unstable structural shapes. Identify features that make a chair stable. Work independently to use the materials as demonstrated to begin to make a stable structure. Explain how their ideas would be suitable. Produce a supportive model using the appropriate materials and construction techniques. Explain how they made it strong, stiff and stable.	<u>Pouches</u> Able to sew a running stitch with regular sized stitches, and understanding that both ends must be knotted. Able to prepare and cut the fabric required to make a pouch from a template. Able to use a running stitch to join the two pieces of fabric together. Able to decorate their pouch using materials provided.

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3	<u>Seasonal Eating</u> Able to explain that fruits and vegetables grow in different countries based on their climates. Understand 'seasonal' fruits and vegetables grow in a given season and taste best then. Demonstrate knowledge that eating seasonal fruit and vegetables has a positive effect on the environment. Able to design their own tart recipe using seasonal ingredients. Understand basic rules of hygiene and safety when working with food, and able to follow the instructions within a recipe.	<u>Pneumatic Systems</u> Draw accurate diagrams with correct labels, arrows and explanations and correctly identify definitions for key terms. Identify five appropriate design criteria, communicate two ideas using thumbnail sketches and communicate and develop one idea using exploded diagrams. Illustrate how an exploded diagram differs from a detailed drawing. Create a finished pneumatic toy that fulfils the design brief. Select appropriate equipment and materials to build a working pneumatic system and assemble it within the housing to create the desired motion.	<u>Castles</u> Draw a simple castle that includes the most common features. Label the drawing. Design a castle with key features which appeals to a given person/purpose. Cut along solid lines. Score along dashed lines. Glue securely to assemble geometric shapes. Utilise skills to build a complex structure from simple geometric shapes. Evaluate work by answering simple questions.	<u>Cushions</u> Able to use a cross-stitch to join two pieces of fabric together. Able to use cross-stitch and appliqué to decorate a cushion face. Able to design and cut the template for a cushion. Able to make a cushion that includes appliqué and cross-stitch.	<u>Electronic Charms</u> State a product that has developed over time. Give a brief explanation about the digital revolution and/or, through remembering key examples. Suggest a feature from the Micro:bit for the eCharm. Write a program that initiates a flashing LED panel and/or custom-preset LED panel design on the Micro:bit when a button is pressed. Able to suggest where the errors are if testing is unsuccessful, by comparing the correct code versus their own. Explain the basic functionality of their finished program for example, when you press [A] the lights will flash 10 times. Suggest and identify key features for a pouch, develop design ideas with some thought to the overall theme and chosen user. Use a template when cutting and assemble the pouch with some support. Describe what is meant by 'point of sale display', and give an example. Follow basic design requirements using computer-aided design by drawing at least one shape with a textbox and bright choice of colours, following the teacher demonstration. Evaluate their own design, including a positive point and something they would like to include

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4	<u>Recipes</u> Follow a recipe with some support. Describe some of the features of a biscuit based on taste, smell, texture and appearance. Able to adapt a recipe by adding extra ingredients to it. Plan a biscuit within budget.	<u>Chassis & Launch</u> Able to work independently to produce an accurate, functioning car chassis. Design a shape that is suitable for the project and make some attempt to reduce air resistance through the design of the shape. Produce panels that will fit the chassis and can be assembled effectively using the tabs they have designed. Construct the car bodies effectively. Conduct the trial accurately and draw conclusions and improvements from the results.	<u>Frame Structures</u> Produce a range of free standing frame structures of different shapes and sizes. Design a pavilion that is strong, stable and aesthetically pleasing, including a range of materials to create a desired effect. Select appropriate materials and construction techniques to create a stable, free-standing frame structure for their pavilion which clearly reflects their design. Select appropriate materials and techniques to add cladding to their pavilion which clearly reflects the chosen theme and the design criteria.	<u>Fastenings</u> Identify the features, benefits and disadvantages of a range of fastening types. Able to write design criteria and design a sleeve that matches, including a fastening of some kind. Make a template for their book sleeve. Able to assemble their case using any stitch they are comfortable with.	<u>Torches</u> Identify electrical products and explain why they are useful as well as helping to make a working switch. Identify the features of a torch and how it works, as well as describing what makes a torch successful. Create suitable designs that fit the success criteria and their own design criteria. Create a functioning torch with a switch according to their design criteria.

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5	<u>Healthy Food</u> Understand how beef gets from the farm to our plates. Present the subject of their poster with clear information in an easy to read format. Contribute ideas as to what a 'healthy meal' means. Notice the nutritional differences between different products and recipes. Follow a recipe to produce a healthy bolognese sauce. Design packaging that promotes the ingredients of the bolognese.	<u>Pop-up Book</u> Produce a suitable plan for each page, naming each type of mechanism, input and output accurately. Produce the structure of the book and begin to draw and assemble the components necessary for their first structures/mechanisms. Assemble the components necessary for all their structures/mechanisms and hide the relevant parts of the mechanisms with more layers using spacers where needed. Use a range of mechanisms and structures to illustrate their story and make it interactive for the users. Use layers to hide mechanical elements and illustrate the story through the use of appropriate materials and captions.	<u>Bridges</u> Identify stronger and weaker shapes and points where structures typically failed. Recognise that supporting shapes can help increase the strength of the bridge and allow it to hold more weight. Identify beam, arch and truss bridges and describe their differences. Using triangles to create a simple truss bridge and supports a load (weight). Cut the required beams to the correct size, using the Truss bridge cutting mat as a visual reference. Smooth down the rough cut edges with sandpaper. Follow each stage of the truss bridge creation. Support completion of the bridge in a varying range of accuracy and finish but able to identify some areas for improvement through evaluating the success of their bridge, and reinforce as necessary.	<u>Stuffed Toys</u> Design a stuffed toy considering the main component shapes required and creating an appropriate template. Join two pieces of fabric using a blanket stitch and neatly cutting out their fabric. Use appliqué or decorative stitching to decorate the front of their stuffed toy. Use blanket stitch to assemble their stuffed toy, repair when needed and identify what worked well as well as areas for improvement.	<u>Electronic Cards</u> Create functioning graphite circuits and using circuit symbols correctly to draw an accurate circuit diagram. Design a card with a complete working circuit with positive and negative parts of the battery and LEDs in the correct places. Create a front cover and mapping out where their circuit will be added. Create a functioning circuit which aligns with the front cover.

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6	<u>Come Dine With Me</u> Find a suitable recipe for their course and ingredients and record the relevant ingredients and equipment needed. Follow a recipe, including using the correct quantities of each ingredient. Write a recipe: explaining the process taken. Explaining where certain key foods come from before they appear on the supermarket shelf.	<u>Automata Toys</u> Cut all of the jelutong pieces with accuracy, using tools and equipment safely. Cutt all of the pieces with accuracy, using tools and equipment safely. Assemble the frame securely according to the diagram. Experiment with a range of cams and decide on the most effective for their design ideas. Communicate their design ideas through labelled sketches. Create the appropriate component parts and assembling them using the correct methods.	<u>Playgrounds</u> Communicate five apparatus designs; apply the design criteria to their work and making suitable changes after peer evaluation. Make roughly three different structures from their plans using the materials available. Complete structures, improving on the quality of making from the previous lesson and applying some cladding to a few areas. Secure the apparatus to a base and making a range of landscape features using a range of materials which enhance their apparatus.	<u>Waistcoats</u> Consider a range of factors in their design criteria and create a waistcoat design based on this. Use a template to mark and cut out a design. Use a running stitch to join fabric to make a functional waistcoat. Attach a secure fastening, as well as decorative objects and evaluate their final product.	<u>Steady Hand Game</u> Explain what is meant by 'form' (the shape of a product) and 'function' (how a product works). State what they like or dislike about an existing children's toy and why. Apply some knowledge of skills to their understanding of one or more children's toys, such as the ability to concentrate when solving a rubix cube. Identify components in a steady hand game and design one of their own according to their design criteria, using four different perspective drawings. Create a secure base with neat edges that relates to their design. Make and test a functioning circuit and assembling it within the case.