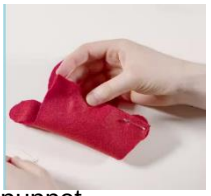
Curriculum Map: Design Technology

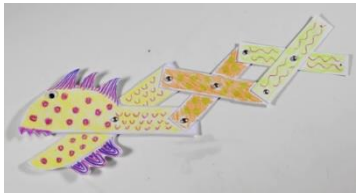
This document should be used alongside the progression of skills document to inform planning.

Year 1				
DT Unit	**DT skills** ***Over this unit, children will apply …***	**Key vocabulary**	**Sequenced steps to learning** ***Over this unit, children will learn …***	**Suggested outcomes** ***Children will produce …***
Mechanisms: Making a moving story book	• Explaining how to adapt mechanisms, using bridges or guides to control the movement. • Designing a moving story book for a given audience. • Following a design to create moving models that use levers and sliders. • Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed. • Reviewing the success of a product by testing it with its intended audience.	Sliders, movement, side-to-side, up-and-down, templates, moving parts, slot, mechanism, slider mechanism	**Sequenced learning steps:** 1. To understand what a mechanism is 2. To understand what a slider mechanism is and identify its main parts 3. To discuss the steps involved in making a moving story book and make a plan 4. To make a moving mechanism and consider what can make it strong (L1) 5. To make a moving mechanism and consider what can make it strong (L2) 6. To evaluate a product https://www.kapowprimary.com/subjects/design-technology/key-stage-1/year-1/mechanisms-making-a-moving-story-book/ **Key knowledge that children will acquire:** • To know that a mechanism is the parts of an object that move together. • To know that a slider mechanism moves an object from side to side. • To know that a slider mechanism has a slider, slots, guides and an object. • To know that bridges and guides are bits of card that purposefully restrict the movement of the slider.	1. Explore different mechanisms & create a class list of different mechanisms that could be used in story book. 2. Create a slider mechanism based on a character from a story book. 3. Sequenced pictures to illustrate plan for making moving story book mechanism 4. Create background for moving mechanism 5. Create slider 6. Basic evaluation of product: what is good and what could be even better? 

Textiles: Templates and joining techniques to create a puppet of Paddington Bear	• Using a template to create a design for a puppet. • Cutting fabric neatly with scissors. • Using joining methods to decorate a puppet. • Sequencing steps for construction. • Reflecting on a finished product, explaining likes and dislikes.	Decorate, design, fabric, glue, model, hand puppet, safety pin, technique, template	**Sequenced learning steps:** 1. To learn to join fabrics together using different methods (Kapow L1) 2. To design my puppet using a template (Kapow L2) 3. To make my puppet by joining fabrics (Kapow L3) 4. To decorate my puppet (Kapow L5) 5. To evaluate my puppet https://www.kapowprimary.com/subjects/design-technology/key-stage-1/year-1/textiles-puppets/ **Key knowledge that children will acquire:** • To know that 'joining technique' means connecting two pieces of material together. • To know that there are various temporary methods of joining fabric by using staples, glue or pins. • To understand that different techniques for joining materials can be used for different purposes. • To understand that a template (or fabric pattern) is used to cut out the same shape multiple times. • To know that drawing a design idea is useful to see how an idea will look.	1. Children to practice joining fabrics by pinning, gluing, stapling 2. Use template to cut out material shape of puppet  3. Join fabrics using preferred technique  4. Finished puppet 5. Basic evaluation of product: what is good and what could be even better?
Wheels and axles: Moving space / adventure buggy	• Designing a vehicle that includes wheels, axles and axle holders, which will allow the wheels to move. • Creating clearly labelled drawings that illustrate movement. • Adapting mechanisms. • Testing mechanisms, identifying what stops wheels from turning, knowing that a wheel	axle axle holder chassis diagram dowel equipment mechanism wheel	**Sequenced learning steps:** 1. To understand how wheels move objects (Kapow L1) 2. To explore how wheels can make the product move 3. To design a moving vehicle (Kapow L3) 4. To build a moving vehicle (Kapow L4) 5. To evaluate my product **Key knowledge that children will acquire:** 1. To know that wheels need to be round to rotate and move. 2. To understand that for a wheel to move it must be attached to a rotating axle.	1. Pictures of objects that can move with diagrams /annotations showing which parts move next to pictures 2. Give the children straws, paper, scissors and glue or masking tape and ask them to see if they can replicate the way in which a moving part is attached to a non-moving part 3. Design of buggy with annotations to show wheels, axles and axle holder 

	needs an axle in order to move.		3. To know that an axle moves within an axle holder which is fixed to the vehicle or toy. 4. To know that the frame of a vehicle (chassis) needs to be balanced. 5. To know some real-life items that use wheels. https://www.kapowprimary.com/subjects/design-technology/key-stage-1/year-1/mechanisms-wheels-and-axles/	4. Construction of moving vehicle using wheels and axles 5. Vehicle race + basic evaluation of what has worked well 

Year 2

DT Unit	DT skills *Over this unit, children will apply …*	Key vocabulary	Sequenced steps to learning *Over this unit, children will learn …*	Suggested outcomes *Children will produce …*
Mechanisms: Making a moving Monster	Create a design criteria for a moving monster. Design a moving monster for a specific audience. Make linkages using card for levers, using split pins. Experiment with linkages and levers, suing thickness. Cutting and assembling components neatly. Evaluating own designs against criteria.	Axle Design Criteria Input Linkage Mechanical Output Pivot Wheel	**Sequenced Learning Steps:** 1. To understand what a pivot, linkage and lever is. (L1) 2. To be able to make linkages. Experiment with width, length and thickness of card. (L2) 3. To be able to design a monster, consider which linkages work. (L3) 4. To make a moving monster. (L4) 5. To decorate a moving monster, consider what will make it fit for purpose. (L4) 6. To evaluate the moving monster. **Key knowledge that children will acquire:** • To know that shapes and structures with wide, flat bases or legs are the most stable. • To understand that the shape of a structure affects its strength. • To know that materials can be manipulated to improve strength and stiffness. • To know that a structure is something which has been formed or made from parts. • To know that a ‘stable’ structure is one which is firmly fixed and unlikely to change or move. • To know that a ‘strong’ structure is one which does not break easily. • To know that a ‘stiff’ structure or material is one which does not bend easily.	1. A discussion around a range of objects and children to identify pivots/levers and linkages. Class discussion.  2. A range of linkages, annotations in sketchbook to state which linkages work. 3. A labelled diagram including linkages and design. 4. A moving monster that can move through levers and linkages. 5. A decorated moving monster to replicate the details of a monster. 6. An evaluation including key  vocabulary, what went well, what they would improve next time.

Structures: To make a free-standing structure Florence Nightingale's bed.	Generating and communicating ideas using sketching and modelling. Learning about different types of structures, found in the natural world and in everyday objects. Making a structure according to design criteria. Creating joints and structures from paper/card and tape. Building a strong and stiff structure by folding paper. Exploring the features of structures. Comparing the stability of different shapes. Testing the strength of their own structures. Identifying the weakest part of a structure. Evaluating the strength, stiffness and stability of their own structure.	Design Criteria Man-made Natural Properties Structure Stable Shape Model Test	**<u>Sequenced learning steps:</u>** 1. To test the stability of 3D shapes. (L1) 2. To explore the strength in different structures, through shape, over-lapping and size. (L2) 3. To design Florence Nightingale's bed, to include shape, structure and materials. (L3) 4. To make Florence Nightingale's bed. (L4) 5. To make Florence Nightingale's bed. 6. To evaluate Florence Nightingale's bed. **<u>Key knowledge that children will acquire:</u>** • To know that shapes and structures with wide, flat bases or legs are the most stable. • To understand that the shape of a structure affects its strength. • To know that materials can be manipulated to improve strength and stiffness. • To know that a structure is something which has been formed or made from parts. • To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move. • To know that a 'strong' structure is one which does not break easily. • To know that a 'stiff' structure or material is one which does not bend easily.	1. Record findings of the stability of 3D shapes in table. Discuss findings as a class.  2. To record which shaped structures can hold the most weight. 3. A Plan of Florence Nightingale's bed. 4. A free-standing structure. 5. A free-standing structure.  6. An evaluation including key vocabulary, what went well and improvements for next time.
Food technology: A balanced diet	Designing a healthy wrap based on a food combination which works well together. Slicing food safely using the bridge or claw grip. Constructing a wrap that meets a design brief. Describing the taste, texture and smell of fruit and vegetables.	balanced diet balance carbohydrate dairy fruit ingredients oils sugar protein vegetable design criteria	Sequenced learning steps: 1. To know what makes a balanced diet; To learn about the hidden sugars in food. (L1) 2. To taste test food combinations; blind taste test food, looking at protein, dairy, vegetables and fruits. (L2) 3. To design a wrap; including a balanced diet, annotate reasoning. (L3) 4. To make a healthy wrap. (L4)	6. Children to sort foods; high in sugar and low in sugar. 7. Record how foods tasted using adjectives. 8. An annotated design, including features of the wrap.

	Taste testing food combinations and final products. Describing the information that should be included on a label. Evaluating which grip was most effective.		5. To evaluate my healthy wrap. How did it taste? How did it make you feel? Was it balanced enough? **<u>Knowledge that children will acquire:</u>** • To know that 'diet' means the food and drink that a person or animal usually eats. • To understand what makes a balanced diet. • To know where to find the nutritional information on packaging. • To know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar. • To understand that I should eat a range of different foods from each food group, and roughly how much of each food group. • To know that nutrients are substances in food that all living things need to make energy, grow and develop. • To know that 'ingredients' means the items in a mixture or recipe. • To know that I should only have a maximum of five teaspoons of sugar a day to stay healthy. • To know that many food and drinks we do not expect to contain sugar do; we call these 'hidden sugars'.	9. A healthy wrap.  10. Evaluation including key vocabulary.

Year 3				
DT Unit	**DT skills** ***Over this unit, children will apply …***	**Key vocabulary**	**Sequenced steps to learning** ***Over this unit, children will learn …***	**Suggested outcomes** ***Children will produce …***
Mechanisms – making a slingshot car ***(based on the Flintstones)***	• Designing a shape that reduces air resistance. • Drawing a net to create a structure from. • Choosing shapes that increase or decrease speed as a result of air resistance. • Personalising a design. • Measuring, marking, cutting and assembling with increasing accuracy. • Making a model based on a chosen design. • Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.	Structure, net, mechanism, kinetic energy, graphics, aesthetic, air resistance, chassis, function, design, design criteria	**Sequenced Learning Steps:** 1. To understand the history of cars & mechanisms 2. To build a car chassis. 3. To design a shape that reduces air resistance. 4. To make a model based on a chosen design. 5. To attach the panels to the chassis; To test product 6. To evaluate car **Key Knowledge:** • To understand that all moving things have kinetic energy. • To understand that kinetic energy is the energy that something (object/person) has by being in motion. • To know that air resistance is the level of drag on an object as it is forced through the air. • To understand that the shape of a moving object will affect how it moves due to air resistance.	1. Annotated pictures of cars (book) 2. Make test chassis 3. Annotated designs drawn from different angles 4. Car body panels 5. Finished car (photo); time trials sheet 6. Evaluation sheet https://www.kapowprimary.com/subjects/design-technology/lower-key-stage-2/year-4/mechanical-systems-making-a-slingshot-car/
Natural disaster shelter/sky scraper to withstand an earthquake/flood	• Designing a stable structure and selecting materials to create a desired effect. • Building frame structures designed to support weight. • Creating a range of different shaped frame structures.	Aesthetic Cladding Design criteria Evaluation Frame structure Function Inspiration Pavilion Reinforce Stable Structure Target audience	**Sequenced Learning Steps:** 1. To understand what a frame structure is; To create a range of different shaped frame structures; 2. To design a structure taking account of design criteria (see lesson 2 designing a pavilion & take relevant criteria) 3. To build a frame structure 4. To cover the frame for added strength 5. To test the stability of structures	7. Annotated pictures of different types of structure 8. Design sheet 9. Completed frame structure 10. Completed structure 11. Photos of tests & results 12. Evaluation sheet

	• Making a variety of free-standing frame structures of different shapes and sizes. • Selecting appropriate materials to build a strong structure and for the cladding. • Reinforcing corners to strengthen a structure. • Creating a design in accordance with a plan. • Learning to create different textural effects with materials. •	Target customer Texture Theme	6. To evaluate structure **Key Knowledge:** • To understand what a frame structure is. • To know that a 'free-standing' structure is one that can stand on its own. • To assess how stable a structure is • To know that aesthetics are how a product looks.	
Healthy and varied diet – Eating seasonally	• Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish. • Knowing how to prepare themselves and a workspace to cook safely in, learning the basic rules to avoid food contamination. • Following the instructions within a recipe. • Establishing and using design criteria to help test and review dishes. • Describing the benefits of seasonal fruits and vegetables and the impact on the environment.	Climate Dry climate Exported Imported Mediterranean climate Nationality Nutrients Polar climate Recipe Seasonal food Seasons Temperate climate Tropical climate	**Sequenced Learning Steps:** 1. To know that climate affects food growth.(2 lessons) 2. To understand the advantages of eating seasonal foods grown in the UK. 3. To create a recipe that is healthy and nutritious using seasonal vegetables and fruits.(2 lessons) 4. To safely follow a recipe when cooking. 5. To evaluate different foods **Key knowledge:** • To know that not all fruits and vegetables can be grown in the UK. • To know that climate affects food growth. • To know that vegetables and fruit grow in certain seasons. • To know that cooking instructions are known as a 'recipe'. • To know that imported food is food that has been brought into the country.	1a. Map of where to find different foods 1b. Make fruit skewers 1. Make fruit crumble 3a. Research seasonal ingredients 3b. Create a simple recipe (instructions) 4. Follow a recipe to make a seasonal tart 5. Evaluation sheet https://www.kapowprimary.com/subjects/design-technology/lower-key-stage-2/year-3/food-eating-seasonally/

	• Suggesting points for improvement when making a seasonal tart.			

Year 4

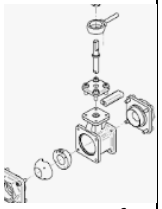
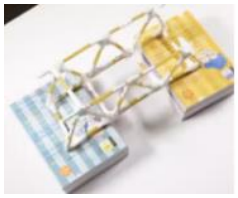
	DT skills *Over this unit, children will apply …*	Key vocabulary	Sequenced steps to learning *Over this unit, children will learn …*	Suggested outcomes *Children will produce …*
Erupting volcano	• Designing a structure • Making a variety of free standing structures of different shapes and sizes. • Selecting appropriate materials to build a strong structure • Creating a design in accordance with a plan. • Learning to create different textural effects with materials. • Evaluating structures made by the class. • Describing what characteristics of a design and construction made it the most • effective. • Considering effective and ineffective designs.	Design criteria Design Form/shape Modroc Chemical reaction Evaluate	**Sequenced Learning Steps:** 1. To research different volcanoes and create a design criteria 2. To plan a volcano according to the design criteria 3. To make the volcano (x3 lessons); the form of the volcano; modroc the form; paint volcano 4. To erupt the volcano and evaluate **Key Knowledge:** • To know that volcanoes are formed differently • To know different types of volcanoes • To know how to use materials to create the form/shape • To know how to use modroc	1. Design criteria sheet 2. Planning sheet 3. Create the form of the volcano 4. Modroc the volcano 5. Paint the volcano 6. Eruption; evaluation sheet
Electrical systems – simple circuits and switches – making a torch	• Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas.	• Battery • Bulb • Buzzer • Cell • Component • Conductor • Copper • Design criteria	**Sequenced Learning Steps:** 1. To analyse and evaluate electrical products. (x2 lessons) 2. To design a product to fit a set of specific user needs. 3. To make and evaluate a torch (x3 lessons) **Key Knowledge:**	1. Use pictures from presentation & create a timeline of torches 2. Complete Product Analysis sheets (Print in Advance) 3. Complete Design sheet according to chosen profile 4. Assemble the torch – housing, reflector & switch 5. Make circuit and fix & position within torch housing 6. Test & evaluate using Evaluation sheet

	• Making a torch with a working electrical circuit and switch. • Using appropriate equipment to cut and attach materials. • Assembling a torch according to the design and success criteria. • Evaluating electrical products. • Testing and evaluating the success of a final product.	• Electrical item • Electricity • Electronic item • Function • Insulator • Series circuit • Switch • Test • Torch • Wire	• To understand that electrical conductors are materials which electricity can pass through. • To understand that electrical insulators are materials which electricity cannot pass through. • To know that a battery contains stored electricity that can be used to power products. • To know that an electrical circuit must be complete for electricity to flow. • To know that a switch can be used to complete and break an electrical circuit.	https://www.kapowprimary.com/subjects/design-technology/lower-key-stage-2/year-4/electrical-systems-torches/
Digital world: Mindful moments timer	• Writing design criteria for a programmed timer (micro:bit). • Creating a 3D using modelling materials. • Documenting and evaluating a project. • Exploring different mindfulness strategies. • Applying the results of research to further inform my design criteria. • Developing a prototype case for a mindful moment timer. • Using and manipulating shapes and clipart by using computer-aided design (CAD), to produce a logo. Following a list of design requirements.	• advantage • annotate • assemble • aesthetic • block • brand • brand identity • bug • computer-aided design (CAD) • clipart • coding • criteria • debug • design • develop • disadvantage • display • ergonomic • evaluate • exhibition • feedback • form • function • join • logo • loop	**Sequenced Learning Steps:** 1. To evaluate existing products. 2. To develop design criteria. 3. To program and control a product. 4. To develop and communicate ideas. 5. To develop ideas through computer-aided design. 6. To consider feedback and evaluate. **Key Knowledge:** • To understand what variables are in programming. • To know some of the features of a micro:bit. • To know that an algorithm is a set of instructions to be followed by the computer. T • To know that it is important to check code for errors (bugs). • To know that a simulator can be used as a way of checking code works before installing it onto an electronic device. • To understand the terms ‘ergonomic’ and ‘aesthetic’. • To know that a prototype is a 3D model made out of cheap materials, that allows us to test design ideas and make better decisions about size, shape and materials.	1. Timer Analysis and Evaluation Sheet 2. Timed Mindfulness Colouring Sheet and Design Criteria sheet 3. Micro:bit pass sheet; Build code (screenshot) 4. Complete prototype plan for timer 5. Design a logo using computer 6. Exhibition (for users earlier on – teachers Tas); Product Evaluation sheet https://www.kapowprimary.com/subjects/design-technology/lower-key-stage-2/year-4/digital-world-mindful-moments-timer/

	• Programming a micro:bit in the Microsoft micro:bit editor, to time a set number of seconds/minutes upon button press. • Investigating and analysing a range of timers by identifying and comparing their advantages and disadvantages. • Evaluating a program against points on a design criteria and amending them to include any changes made. • Understanding what a logo is and why they are important in the world of design and business • Testing a program for bugs (errors in the code). • Finding and fixing bugs (debug) in code. • Using an exhibition to gather feedback.	• mindfulness • model • net • program • prototype • research • script • sketchpad • test • timer • user • variable	• To know that an exhibition is a way for companies to showcase products, meet potential new customers and gather feedback from users.	

Year 5

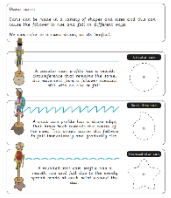
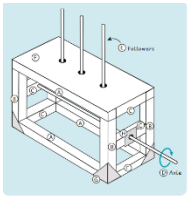
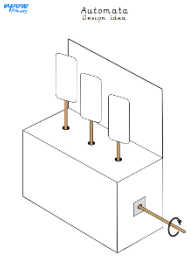
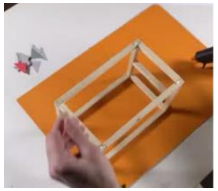
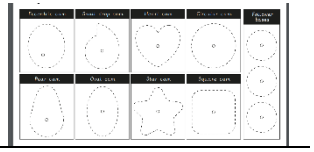
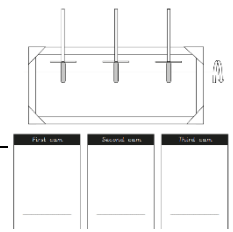
DT Unit	DT skills *Over this unit, children will apply …*	Key vocabulary	Sequenced steps to learning *Over this unit, children will learn …*	Suggested outcomes *Children will produce …*
Textiles: Stuffed toys	Designing a stuffed toy considering the main component shapes required and creating an appropriate template. Considering the proportions of individual components. Creating a 3D stuffed toy from a 2D design. Measuring, marking and cutting fabric accurately and independently. Creating strong and secure blanket stitches when joining fabric. Threading needles independently. Using appliqué to attach pieces of fabric decoration. Sewing blanket stitch to join fabric. Applying blanket stitch so the spaces between the stitches are even and regular. Testing and evaluating an end product and giving points for further improvements.	accurate annotate appendage blanket-stitch design criteria detail evaluation fabric sew shape stuffed toy stuffing template	**Sequenced learning steps:** 1. To look at a range of stuffed toys. To identify how the stuffed toys are joined together, similarities and differences between the toys. 2. To practise blanket stitch. To learn that neat stitches create a soft toy with strong holds. 3. To design a stuffed toy; including features and identify where the toy will need joining. 4. To create stuffed toy, focusing on drawing, cutting and stitching fabric. 5. To create and add decorations to the fabric and assemble the stuffed toy. 6. To evaluate the product; including whether the product is suitable for I's audience, is it well assembled? https://www.kapowprimary.com/subjects/design-technology/upper-key-stage-2/year-5/textiles-stuffed-toys/ **Key knowledge that children will acquire:** • To know that blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric. • To understand that it is easier to finish simpler designs to a high standard. • To know that soft toys are often made by creating appendages separately and then attaching them to the main body. • To know that small, neat stitches which are pulled taut are important to ensure that the soft toy is strong and holds the stuffing securely.	1. Photo of a stuffed toy; to annotate where the stuffed toy is joined. Annotate the parts of a stuffed toy. 2. Blanket stitches practised onto pieces of fabric. 3. A toy design including annotations; type of stitch, materials and design. 4. A stuffed toy with blanket stitches.  5. A stuffed toy. An evaluation.

Pneumatic mechanism: Making a rocket that launches	Design, create and evaluate our creation. Choose suitable materials Articulate the purpose and steps of the creation. Create clear steps/instructions. Ensure the product is suitable for the target audience. Take a user's view into account when designing.	mechanism lever pivot linkage system pneumatic system input output component thumbnail sketch research adapt properties reinforce motion	**Sequenced learning steps:** 1. To understand how pneumatic toys work. https://www.kapowprimary.com/subjects/design-technology/lower-key-stage-2/year-3/mechanical-systems-pneumatic-toys/lesson-1-exploring-pneumatics/ 2. Exploring pneumatics. Using balloons, tubes and syringes to test pneumatics. 3. To design a pneumatic rocket. Include; materials used, how it will work. Use thumbnail sketches and an exploded drawing to show how the parts will attach together. 4. To the pneumatic part of the rocket. 5. To make and assemble to rocket. 6. To test and evaluate their work and the work of others. **Key knowledge that children will acquire:** • To understand how pneumatic systems, work. • To understand that pneumatic systems can be used as part of a mechanism. • To know that pneumatic systems operate by drawing in, releasing and compressing air.	1. Whole class discussion. 2. Pneumatics activity sheet, children to record which methods work and how they work. 3. A thumbnail sketch and an exploded drawing with appropriate annotations.  4. To pneumatic structure of the toy. 5. A lightweight rocket for the toy. 6. An evaluation; including key vocabulary, what worked well, what would you change? 
Structures: Bridges	Designing a stable structure that is able to support weight. Creating a frame structure with focus on triangulation. Making a range of different shaped beam bridges. Using triangles to create truss bridges that span a given distance and support a load. Building a wooden bridge structure. Independently measuring and marking	beam bridge arch bridge truss bridge strength technique corrugation lamination stiffness rigid factors stability visual appeal aesthetics joints	**Sequenced learning steps:** 1. To explore how to reinforce a beam (structure) to improve its strength. (L1) 2. To build a spaghetti Truss bridge, use triangles to create bridges and test them. (L2) 3. To build a wooden truss bridge using triangles, selecting appropriate tools and to measure and mark the wood accurately.(L3) 4. To build a wooden truss bridge using triangles, selecting appropriate tools and to measure and mark the wood accurately.(L3) 5. To finalise the bridge and understand how to make the bridge sturdier. (L4). 6. To evaluate and test the wooden truss bridge, is it free standing? Can it withhold weight? **Key knowledge that children will acquire:**	1. Diagrams of different bridges and annotated  including; structure, beam, type of bridge. 2. A small spaghetti truss bridge. Notes in sketchbook about what worked/ didn't work.

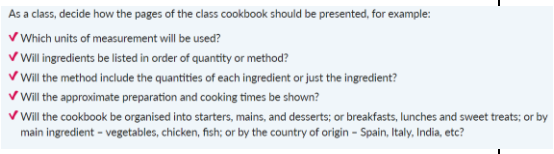
	wood accurately. Selecting appropriate tools and equipment for particular tasks. Identifying where a structure needs reinforcement and using card corners for support. Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary. Suggesting points for improvements for own bridges and those designed by others.		• To understand some different ways to reinforce structures. • To understand how triangles can be used to reinforce bridges. • To know that properties are words that describe the form and function of materials. • To understand why material selection is important based on their properties. • To understand the material (functional and aesthetic) properties of wood.	3. A wooden truss  bridge. 4. 5. A strengthened wooden truss bridge 6. Evaluation and peer evaluations.

Year 6

DT Unit	DT skills *Over this unit, children will apply …*	Key vocabulary	Sequenced steps to learning *Over this unit, children will learn …*	Suggested outcomes *Children will produce …*
Structures: World War 2 Bomb Shelter	• Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately • 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 • Investigate and analyse a range of existing products • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • Understand how key events and individuals in design and technology have helped shape the world.	Shaping Joining Finishing Accuracy Diagram Construct Materials Components Aesthetic Design Reinforce Structure	**Sequenced learning steps:** 1. To learn about the different types of shelter that existed to protect people during the Blitz, considering the strengths and weaknesses of each design 2. To learn about the different joining techniques that can be used to join materials to build a sturdy structure 3. To design a bomb shelter, considering the materials that will be needed and how these will be joined to make it strong (3D design where possible). 4. To construct a shelter (2 lessons) + consider aesthetic qualities for finishing 5. To evaluate my finished shelter **Key knowledge that children will acquire:** • To know which tools to choose from to cut materials. • To know joining techniques to use to join materials that add strength to a structure. • To know that a detailed plan supports the construction of a final product. • To know that there were different types of shelter that existed in WW2 and that each had strengths and weaknesses.	1. Annotated pictures detailing type of shelter, how it was used and the strengths and weaknesses of it 2. Practice joining materials + class list on most successful materials and means of joining 3. Annotated design of shelter, listing materials required and joining techniques 4. Constructed shelter 5. Test by dropping a weight on the shelter. Detailed evaluation, considering: how closely does the product reflect the plan, strengths and any areas for improvement.  Materials needed: • Lollipop sticks • Glue gun • Corrugated plastic / card • Cardboard • Paint • Box for base

Mechanical toy: cam mechanisms / automata toys	• Experimenting with a range of cams, creating a design for an automata toy based on a choice of cam to create a desired movement. • Understanding how linkages change the direction of a force. • Making things move at the same time. • Understanding and drawing cross-sectional diagrams to show the inner-workings of my design. • Measuring, marking and cutting components accurately using a ruler and scissors. • Assembling components accurately to make a stable frame. • Understanding that for the frame to function effectively the components must be cut accurately and the joints of the frame secured at right angles. • Selecting appropriate materials based on the materials being joined and the speed at which the glue needs to dry/set. • Evaluating the work of others and receiving feedback on own work. • Applying points of improvement to their toys. • Describing changes they would make/do if they were to do the project again.	accurate assembly-diagram automata axle bench hook cam clamp component cutting list diagram dowel drill bits exploded-diagram finish follower frame function hand drill jelutong linkage mark out measure mechanism model research right-angle set square tenon saw	**Sequenced learning steps:** 1. To learn what cams are and where they are used 2. To look at a finished cam mechanism toy and design mechanical toy using a cam mechanism 3. To prepare wood for assembly within the frame (Kapow L1) 4. To prepare a frame (Kapow L2) 5. To experiment with cams (Kapow L3) 6. To construct cam mechanism toy 7. To apply the housing and finishing touches to the automata frame (Kapow L4) 8. To evaluate my product https://www.kapowprimary.com/subjects/design-technology/upper-key-stage-2/year-6/mechanical-systems-automata-toys/ **Key knowledge that children will acquire:** • To understand that the mechanism in an automata uses a system of cams, axles and followers. • To understand that different shaped cams produce different outputs. • To know that an automata is a hand-powered mechanical toy. • To know that a cross-sectional diagram shows the inner workings of a product.	1. Images of cam mechanisms used in different ways (e.g. car engine) stuck into books + an explanation of how they work (Kapow L3 resource)  2. Children work in pairs to complete an annotated design of cam mechanism toy, considering: theme of toy (e.g. scene / narrative), materials required, joining and components.   3. Prepared wood in readiness for assembly, including measurements, marking and cuttings. 4. Constructed frame for mechanical toy  5. Children try different cam profiles on a dowel to see how they change movement, choosing cams for their own design (Kapow resource)  

				6. Constructed cam mechanism toy (in stages) 7. Completed cam mechanism toy, with finishing touches added  8. Detailed evaluation of product – what worked well, what could be improved and what have children learnt? ***Children to complete project in pairs*** Materials needed: • Hand drills • Saws • Bench hooks • Scissors • Glue guns • Thick cardboard to cut cams from • 3mm dowels • Wooden square rod to make frame
Cooking & Nutrition: Come dine with me	• Writing a recipe, explaining the key steps, method and ingredients. • Including facts and drawings from research undertaken. • Following a recipe, including using the correct quantities of each ingredient. • Adapting a recipe based on research. • Working to a given timescale. • Working safely and hygienically with independence. • Evaluating a recipe, considering: taste, smell,	equipment flavours ingredients method research recipe bridge method cookbook cross-contamination farm to fork preparation storyboard	**Sequenced learning steps:** 1. To research what makes a healthy 3-course meal (Kapow L1) 2. To design a healthy 3-course meal (Kapow L1) 3. To read recipe books and write up their own recipe (Kapow L2) 4. To prepare a meal using a recipe (Kapow L3) 5. To make any changes to their recipe in light of the outcome (evaluation) **Key knowledge that children will acquire:** • To know that 'flavour' is how a food or drink tastes.	1. Children work in small groups to research healthy food / ingredients and create a poster / record on sugar paper what three dishes could make up their meal. 2. Children to work in a group to plan a recipe, answering a set of questions on what they should consider. **Key questions** ✓ For which course and ingredient are you researching recipes? ✓ How will the flavours work together in the recipe? ✓ Will the three dishes you are making as a group work well together? ✓ Are you following a theme – what is it? ✓ How easy will the recipe be to make? ✓ What ingredients do you need? ✓ How long does the recipe take to cook? ✓ What additional ingredients does the recipe need? ✓ How long does it take to prepare? ✓ What cooking techniques are used? ✓ How long does it take to cook? ✓ How would you categorise this food – what nationality/food type?

	texture and origin of the food group. • Taste testing and scoring final products. • Suggesting and writing up points of improvements in productions. • Evaluating health and safety in production to minimise cross contamination.		• To know that many countries have 'national dishes' which are recipes associated with that country. • To know that 'processed food' means food that has been put through multiple changes in a factory. • To understand that it is important to wash fruit and vegetables before eating to remove any dirt and insecticides. • To understand what happens to a certain food before it appears on the supermarket shelf (Farm to Fork).	3. Children to review how recipes are presented in a cook book and decide how they will present their own recipe, recording their own.  As a class, decide how the pages of the class cookbook should be presented, for example: ✓ Which units of measurement will be used? ✓ Will ingredients be listed in order of quantity or method? ✓ Will the method include the quantities of each ingredient or just the ingredient? ✓ Will the approximate preparation and cooking times be shown? ✓ Will the cookbook be organised into starters, mains, and desserts; or breakfasts, lunches and sweet treats; or by main ingredient – vegetables, chicken, fish; or by the country of origin – Spain, Italy, India, etc? 4. Prepared meal using range of cooking equipment. 5. Adapted recipe recorded to reflect any changes (e.g. create a class cook book full of recipes).