PROGRESSION OF SKILLS – Design and Technology

EYFS Provision						
Expressive Arts - DT development	**Nursery**			**Reception**		
	• Can cut snips in paper E.g making snips in paper to create a mane for a lion. • Build and stack objects and join objects together E.g. within continuous provision in the construction area – block play • Build with a purpose in mind E.g Children are encouraged to plan what they make before they make it through adult questioning. • Experiments with colour and texture • Use simple tools to shape, assemble and join materials – glue, paste, scissors, tape E.g Children have access to these resources within their continuous provision in the creative area. • Carve and make shapes into modelling materials E.g Within continuous provision in the malleable area when creating their own Halloween pumpkins. • Sort materials by colour E.g when reading the Colour Monster story, children create collages of coloured jars.			• Use scissors along straight and curved shape E.g. Cutting out pictures to add to their Easter card • Build and join 3D structures using a range of materials for a specific purpose E.g. with construction area in continuous provision both indoors and outdoors. Children use construction kits such as K'nex as well as joining materials in the creative area as they junk model. • Experiments with colour, design, texture and function E.g Children use playdough or salt dough to make a specific item. • Uses a wide range of tools with greater accuracy to shape, assemble and join materials – glue, tape, scissors, string, staples, clips, weaving E.g children use a wide range of resources independently within the creative area during continuous provision time. • Sort materials by colour and texture E.g Within the investigation station area of the classroom children learn about materials, using their senses to explore them and going on materials hunts.		
Skills	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**
Vocabulary	• Blender • Carton • Fruit • Healthy • Ingredients • Peel • Peeler • Recipe • Slice • Smoothie • Stencil • Template • Vegetable • Assemble • Design • Evaluation • Mechanism • Model • Sliders • Stencil • Target audience • Template • Test Client • Design • Evaluation • Net • Stable • Strong • Test • Weak • Windmill • Decorate • Design • Fabric • Glue • Model • Hand puppet • Safety pin • Staple • Stencil • Template Axle • Axle holder • Chassis • Design • Evaluation • Fix • Mechanic • Mechanism • Model • Test • Wheel	• Alternative • Diet • Balanced diet • Evaluation • Expensive • Healthy • Ingredients • Nutrients • Packaging • Refrigerator • Sugar • Substitute Evaluation • Input • Lever • Linear motion • Linkage • Mechanical • Mechanism • Motion • Oscillating motion • Output • Pivot • Reciprocating motion • Rotary motion • Survey Function • Man-made • Mould • Natural • Stable • Stiff • Strong • Structure • Test • Weak Accurate • Fabric • Knot • Pouch • Running-stitch • Sew • Shape • Stencil • Template • Thimble Axle • Decorate • Evaluation • Ferris wheel • Mechanism • Stable • Strong • Test • Waterproof • Weak	Climate • Dry climate • Exported • Imported • Mediterranean climate • Nationality • Nutrients • Polar climate • Recipe • Seasonal food • Seasons • Temperate climate • Tropical climate 2D shapes • 3D shapes • Castle • Design criteria • Evaluate • Facade • Feature • Flag • Net • Recyclable • Scoring • Stable • Strong • Structure • Tab • Weak • Accurate • Applique • Cross-stitch • Cushion • Decorate • Detail • Fabric • Patch • Running-stitch • Seam • Stencil • Stuffing • Target audience • Target customer • Template Battery • Bulb • Circuit • Circuit component • Crocodile wires • Electrical product • Electrical system • Final design • Information design • Initial ideas • Peer assessment • Research • Self assessment • Sketch	Aesthetic • Cladding • Design criteria • Evaluation • Frame structure • Function • Inspiration • Pavilion • Reinforce • Stable • Structure • Target audience • Target customer • Texture • Theme Adapt • Budget • Cooling rack • Creaming • Equipment • Evaluation • Flavour • Ingredients • Method • Net • Packaging • Prototype • Quantity • Recipe • Rubbing • Sieving • Target audience • Unit of measurement • Utilities Aesthetic • Assemble • Book sleeve • Design criteria • Evaluation • Fabric • Fastening • Mock-up • Net • Running-stitch • Stencil • Target audience • Target customer • Template Battery • Bulb • Buzzer • Cell • Component • Conductor •	Beef • Cross-contamination • Diet • Ethical issues • Farm • Healthy • Ingredients • Method • Nutrients • Packaging • Reared • Recipe • Research • Substitute • Supermarket • Vegan • Vegetarian • Welfare Aesthetic • Computer-aided design (CAD) • Caption • Design • Design brief • Design criteria • Exploded-diagram • Function • Input • Linkage • Mechanism • Motion • Output • Pivot • Prototype • Slider • Structure • Template Accurate • Annotate • Appendage • Blanket-stitch • Design criteria • Detail • Evaluation • Fabric • Sew • Shape • Stuffed toy • Stuffing • Template Circuit component • Configuration • Current •	Accompaniment • Collaboration • Cookbook • Cross-contamination • Equipment • Farm • Flavour • Illustration • Imperative-verb • Ingredients • Method • Nationality • Preparation • Processed • Reared • Recipe • Research • Storyboard • Target audience • Top tips Unit of measurement 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 Accurate • Adapt • Annotate • Design

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			Exploded-diagram ● Function ● Input ● Lever ● Linkage ● Mechanism ● Motion ● Net ● Output ● Pivot ● Pneumatic system ● Thumbnail sketch Analogue ● Badge ● CAD ● Control ● Design requirements ● Develop ● Digital ● Digital revolution ● Digital world ● Display ● Electronic ● Electronic products ● Fasten ● Feature ● Function ● Initiate ● Key features ● Layers ● Loops ● Micro: bit Monitor ● Net ● Point of sale ● Product ● Product design ● Program ● Sense ● Simulator ● Smart wearables ● Stand ● Technology ● Template ● Test ● User	Copper ● Design criteria ● Electrical item ● Electricity ● Electronic item ● Function ● Insulator ● Series circuit ● Switch ● Test ● Torch ● Wire Aesthetic ● Air resistance ● Chassis ● Design ● Design criteria ● Function ● Graphics ● Kinetic energy ● Mechanism ● Net ● Structure 2D ● Advantage ● Assemble ● Block ● Brand identity ● Branding ● Bug ● CAD ● Cheap ● Clipart ● Coding ● Criteria ● Debug ● Design ● Develop ● Disadvantage ● Ergonomic ● Evaluate ● Form ● Function ● Instructions ● Join ● Logo ● Loop ● Mindfulness ● Model ● Net ● Pause ● Process ● Program ● Prototype ● Research ● Sketchpad ● Template ● Test ● Timer ● User ● Variable	Develop ● DIY ● Investigate ● Motor ● Motorised ● Problem solve ● Product analysis ● Series circuit ● Stable ● Target user Abutment ● Accurate ● Arched bridge ● Beam bridge ● Coping saw ● Evaluation ● File ● Mark out ● Material properties ● Measure ● Predict ● Reinforce ● Research ● Sandpaper ● Set square ● Suspension bridge ● Tenon saw ● Test ● Truss bridge ● Wood Alert ● Ambient ● Boolean ● Consumables ● Decompose ● Development ● Device ● Duplicate ● Durable ● Electronic ● Inventor ● Lightweight ● Man-made ● Manipulate ● Manoeuvre ● Microplastics ● Model ● Monitor ● Monitoring device ● Moulded Plastic ● Plastic pollution ● Programming comment ● Programming loop ● Reformed ● Replica ● Research ● Sensor ● Strong ● Sustainability ● Synthetic ● Thermometer ● Thermoscope ● Value ● Variable ● Versatile ● Water-resistant ● Workplane	● Design criteria ● Detail ● Fabric ● Fastening ● Knot ● Properties ● Running-stitch ● Seam ● Sew ● Shape ● Target audience ● Target customer ● Template ● Thread ● Unique ● Waistcoat ● Waterproof Assemble ● Battery ● Battery pack ● Benefit ● Bulb ● Bulb holder ● Buzzer ● Circuit ● Circuit symbol ● Component ● Conductor ● Copper ● Design ● Design criteria ● Evaluation ● Fine motor skills ● Fit for purpose ● Form ● Function ● Gross motor skills Textiles: Waistcoats ● Accurate ● Adapt ● Annotate ● Design ● Design criteria ● Detail ● Fabric ● Fastening ● Knot ● Properties ● Running-stitch ● Seam ● Sew ● Shape ● Target audience ● Target customer ● Template ● Thread ● Unique ● Waistcoat ● Waterproof ● Insulator ● LED ● User Adapt ● Apparatus ● Bench hook ● Cladding ● Coping saw ● Design ● Dowel ● Evaluation ● Feedback ● Idea ● Jelutong ● Landscape ● Mark out ● Measure ● Modify ● Natural materials ● Plan view ● Playground ● Prototype ● Reinforce ● Sketch ● Strong ● Structure ● Tenon saw ● Texture ● User ● Vice ● Weak 3D CAD ● Application (apps) ● Biodegradable ● Boolean ● Cardinal compass ● Client ● Compass ● Concept ● Convince ● Corrode ● Duplicate ● Environmentally friendly ● Equipment ● Feature ● Finite ● Function ● Functional ● GPS tracker ● If

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						statement ● Infinite Investment ● Lightweight ● Loop ● Manufacture ● Materials (wood, metal, plastic etc.) ● Mouldable ● Navigation ● Non-recyclable ● Product lifecycle ● Product lifespan ● Program ● Recyclable ● Smart ● Sustainable ● Sustainable design ● Unsustainable design ● Variable ● Workplane
Design	Structures - Constructing a windmill • Learning the importance of a clear design criteria. • Including individual preferences and requirements in a design. Mechanism - 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. Mechanism – Vehicles • Designing a vehicle that includes wheels, axles and axle holders, that when combined, will allow the wheels to move. • Creating clearly labelled drawings that illustrate movement. Cookery and nutrition – Smoothie • Designing smoothie carton packaging by-hand or on ICT software. Textiles – Puppets • Using a template to create a design for a puppet.	Baby Bear's chair • Generating and communicating ideas using sketching and modelling. • Learning about different types of structures, found in the natural world and in everyday objects. Fairground wheel • Selecting a suitable linkage system to produce the desired motion. • Designing a wheel. Moving monster • Creating a class design criteria for a moving monster. • Designing a moving monster for a specific audience in accordance with a design criteria. Wrap • Designing a healthy wrap based on a food combination which work well together. Pouches • Designing a pouch.	Constructing a castle • Designing a castle with key features to appeal to a specific person/purpose. • Drawing and labelling a castle design using 2D shapes, labelling: - the 3D shapes that will create the features - materials needed and colours. • Designing and/or decorating a castle tower on CAD software. Pneumatic toys • Designing a toy which uses a pneumatic system. • Developing design criteria from a design brief. •Generating ideas using thumbnail sketches and exploded diagrams. • Learning that different types of drawings are used in design to explain ideas clearly. Electric poster • Carry out research based on a given topic (e.g. The Romans) to develop a range of initial ideas. • Generate a final design for the electric poster with consideration to the client's needs and design criteria. • Design an electric poster that fits the requirements of a given brief. • Plan the positioning of the bulb (circuit component) and its purpose. Savoury tart • Creating a healthy and nutritious recipe for a savoury tart using	Pavilions • Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect. • Building frame structures designed to support weight. Slingshot car • 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. Torches • Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas. Biscuit • Designing a biscuit within a given budget, drawing upon previous taste testing judgements. Book sleeve • Writing design criteria for a product, articulating decisions made. • Designing a personalised book sleeve.	Bridges • Designing a stable structure that is able to support weight. • Creating a frame structure with a focus on triangulation. Pop up book • Designing a pop-up book which uses a mixture of structures and mechanisms. • Naming each mechanism, input and output accurately. • Storyboarding ideas for a book. Doodlers • Identifying factors that could be changed on existing products and explaining how these would alter the form and function of the product. • Developing design criteria based on findings from investigating existing products. • Developing design criteria that clarifies the target user. Spaghetti bolognaise • Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients. • Writing an amended method for a recipe to incorporate the relevant changes to ingredients. • Designing appealing packaging to reflect a recipe.	Playgrounds • Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs. 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. Electrical buzzer game • Designing a steady hand game - identifying and naming the components required. • Drawing a design from three different perspectives. • Generating ideas through sketching and discussion. • Modelling ideas through prototypes. • Understanding the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'.

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			seasonal ingredients, considering the taste, texture, smell and appearance of the dish. Egyptian collar • Designing and making a template from an existing cushion and applying individual design criteria. Electronic charm • Problem solving by suggesting potential features on a Micro: bit and justifying my ideas. • Developing design ideas for a technology pouch. • Drawing and manipulating 2D shapes, using computer-aided design, to produce a point of sale badge.	Mindful moments timer • Writing design criteria for a programmed timer (Micro:bit). • Exploring different mindfulness strategies. • Applying the results of my research to further inform my design criteria. • Developing a prototype case for my 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.	Stuffed toy • Designing a stuffed toy, considering the main component shapes required and creating an appropriate template. • Considering the proportions of individual components. 3D medal • Researching (books, internet) for a particular (user's) needs. • Developing design criteria based on research. • Generating multiple housing ideas using building bricks. • Understanding what a virtual model is and the pros and cons of traditional and CAD modelling. • Placing and manoeuvring 3D objects, using CAD. • Changing the properties of, or combining one or more 3D objects, using CAD.	Three course meal • Writing a recipe, explaining the key steps, method and ingredients. • Including facts and drawings from research undertaken. Stocking • Designing a waistcoat in accordance to a specification linked to set of design criteria. • Annotating designs, to explain their decisions. Navigation tool • Writing a design brief from information submitted by a client. • Developing design criteria to fulfil the client's request. • Considering and suggesting additional functions for my navigation tool. • Developing a product idea through annotated sketches. • Placing and manoeuvring 3D objects, using CAD. • Changing the properties of, or combining one or more 3D objects, using CAD
Make	Structures - Constructing a windmill • Making stable structures from card, tape and glue . • Learning how to turn 2D nets into 3D structures. • Following instructions to cut and assemble the supporting structure of a windmill. • Making functioning turbines and axles which are assembled into a main supporting structure. Mechanism - Moving story book • Following a design to create moving models that use levers and sliders. Mechanism – Vehicles • Adapting mechanisms, when: ● they do not work as they should. ● to fit their vehicle design.	Baby Bear's chair • 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. Fairground wheel • Selecting materials according to their characteristics. • Following a design brief. Moving monster • Making linkages using card for levers and split pins for pivots. • Experimenting with linkages adjusting the widths, lengths and thicknesses of card used. • Cutting and assembling components neatly. Wrap • Slicing food safely using the bridge or	Constructing a castle • Constructing a range of 3D geometric shapes using nets. • Creating special features for individual designs. • Making facades from a range of recycled materials. Pneumatic toys • Creating a pneumatic system to create a desired motion. • Building secure housing for a pneumatic system. • Using syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy. • Selecting materials due to their functional and aesthetic characteristics. • Manipulating materials to create	Pavilions • Creating a range of different shaped frame structures. • Making a variety of free standing frame structures of different shapes and sizes. • Selecting appropriate materials to build a strong structure and cladding. • Reinforcing corners to strengthen a structure. • Creating a design in accordance with a plan. • Learning to create different textural effects with materials. Slingshot car • Measuring, marking, cutting and assembling with increasing accuracy.	Bridges • 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 wood accurately. • Selecting appropriate tools and equipment for particular tasks. • Using the correct techniques to saws safely. • Identifying where a structure needs reinforcement and using card corners for support. • Explaining why selecting appropriating materials is an important part of the design process.	Playgrounds • Building a range of play apparatus structures drawing upon new and prior knowledge of structures. • Measuring, marking and cutting wood to create a range of structures. • Using a range of materials to reinforce and add decoration to structures. Automata toys • Measuring, marking and checking the accuracy of the jelutong and dowel pieces required. • Measuring, marking and cutting components accurately using a ruler and scissors. • Assembling components

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	• to improve how they work after testing their vehicle. Cookery and nutrition – Smoothie • Chopping fruit and vegetables safely to make a smoothie. Textiles – Puppets • Cutting fabric neatly with scissors. • Using joining methods to decorate a puppet. • Sequencing steps for construction.	claw grip. • Constructing a wrap that meets a design brief. Pouches • Selecting and cutting fabrics for sewing. • Decorating a pouch using fabric glue or running stitch. • Threading a needle. • Sewing running stitch, with evenly spaced, neat, even stitches to join fabric. • Neatly pinning and cutting fabric using a template	different effects by cutting, creasing, folding and weaving. Electric poster • Create a final design for the electric poster. • Mount the poster onto corrugated card to improve its strength and allow it to withstand the weight of the circuit on the rear. • Measure and mark materials out using a template or ruler. • Fit an electrical component (bulb). • Learn ways to give the final product a higher quality finish (e.g. framing to conceal a roughly cut edge). Savoury tart • Knowing how to prepare themselves and a work space to cook safely in, learning the basic rules to avoid food contamination. • Following the instructions within a recipe. Egyptian collar • Following design criteria to create a cushion or Egyptian collar. • Selecting and cutting fabrics with ease using fabric scissors. • Threading needles with greater independence. • Tying knots with greater independence. • Sewing cross stitch to join fabric. • Decorating fabric using appliqué. • Completing design ideas with stuffing and sewing the edges (Cushions) or embellishing the collars based on design ideas (Egyptian collars). Electronic charm • Using a template when cutting and assembling the pouch. • Following a list of design requirements. • Selecting and using the appropriate tools and equipment for cutting, joining, shaping and decorating a	• Making a model based on a chosen design. Torches • 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. Biscuit • Following a baking recipe, from start to finish, including the preparation of ingredients. • Cooking safely, following basic hygiene rules. • Adapting a recipe to improve it or change it to meet new criteria (e.g. from savoury to sweet). Book sleeve • Making and testing a paper template with accuracy and in keeping with the design criteria. • Measuring, marking and cutting fabric using a paper template. • Selecting a stitch style to join fabric. • Working neatly by sewing small, straight stitches. • Incorporating a fastening to a design. Mindful moments timer • Developing a prototype case for my mindful moment timer. • Creating a 3D structure using a net. • Programming a micro:bit in the Microsoft micro:bit editor, to time a set number of seconds/minutes upon button press.	• Understanding basic wood functional properties. Pop up book • Following a design brief to make a pop up book, neatly and with focus on accuracy. • Making mechanisms and/or structures using sliders, pivots and folds to produce movement. • Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result. Doodlers • Altering a product's form and function by tinkering with its configuration. • Making a functional series circuit, incorporating a motor. • Constructing a product with consideration for the design criteria. • Breaking down the construction process into steps so that others can make the product. Spaghetti bolognaise • Cutting and preparing vegetables safely. • Using equipment safely, including knives, hot pans and hobs. • Knowing how to avoid cross-contamination. • Following a step by step method carefully to make a recipe. Stuffed toy • 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	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. Electrical buzzer game • Constructing a stable base for a game. • Accurately cutting, folding and assembling a net. • Decorating the base of the game to a high quality finish. • Making and testing a circuit. • Incorporating a circuit into a base. Three course meal • 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. Stocking • Using a template when cutting fabric to ensure they achieve the correct shape. • Using pins effectively to secure a template to fabric without creases or bulges. • Marking and cutting fabric accurately, in accordance with their design. • Sewing a strong running stitch, making small, neat stitches and following the edge. • Tying strong knots. • Decorating a stocking, attaching features (such as appliqué) using thread. • Finishing the waistcoat with a

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			foam pouch. • Applying functional features such as using foam to create soft buttons. • Writing a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm.		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. 3D medal • Understanding the functional and aesthetic properties of plastics.	secure fastening (such as buttons). • Learning different decorative stitches. • Sewing accurately with evenly spaced, neat stitches. Navigation tool • Considering materials and their functional properties, especially those that are sustainable and recyclable (for example, cork and bamboo). • Explaining material choices and why they were chosen as part of a product concept. • Programming an N,E, S, W cardinal compass.
Evaluate	Structures - Constructing a windmill • Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't. • Suggest points for improvements. Mechanism - Moving story book • 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. Mechanism – Vehicles • Testing wheel and axle mechanisms, identifying what stops the wheels from turning, and recognising that a wheel needs an axle in order to move. Cookery and nutrition – Smoothie • Tasting and evaluating different food combinations. • Describing appearance, smell and taste. • Suggesting information to be included on packaging. Textiles – Puppets • Reflecting on a finished product,	Baby Bear's chair • Exploring the features of structures. • Comparing the stability of different shapes. • Testing the strength of own structures. • Identifying the weakest part of a structure. • Evaluating the strength, stiffness and stability of own structure. Fairground wheel • Evaluating different designs. • Testing and adapting a design. Moving monster • Evaluating own designs against design criteria. • Using peer feedback to modify a final design. Wrap • Describing the taste, texture and smell of fruit and vegetables. • Taste testing food combinations and final products. • Describing the information that should be included on a label. • Evaluating which grip was most effective. Pouches • Troubleshooting scenarios posed by teacher. • Evaluating the quality of the stitching on others' work.	Constructing a castle • Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design. • Suggesting points for modification of the individual designs. Pneumatic toys • Using the views of others to improve designs. • Testing and modifying the outcome, suggesting improvements. • Understanding the purpose of exploded-diagrams through the eyes of a designer and their client. Electric poster • Learning to give and accept constructive criticism on own work and the work of others. • Testing the success of initial ideas against the design criteria and justifying opinions. • Revisiting the requirements of the client to review developing design ideas and check that they fulfil their needs. Savoury tart • Establishing and using design criteria to help test and review	Pavilions • Evaluating structures made by the class. • Describing what characteristics of a design and construction made it the most effective. • Considering effective and ineffective designs. Slingshot car • Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance. Torches • Evaluating electrical products. • Testing and evaluating the success of a final product. Biscuit • Evaluating a recipe, considering: taste, smell, texture and appearance. • Describing the impact of the budget on the selection of ingredients. • Evaluating and comparing a range of food products. • Suggesting modifications to a recipe (e.g. This biscuit has too	Bridges • 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. Pop up book • Evaluating the work of others and receiving feedback on own work. • Suggesting points for improvement. Doodlers • Carry out a product analysis to look at the purpose of a product along with its strengths and weaknesses. • Determining which parts of a product affect its function and which parts affect its form. • Analysing whether changes in configuration positively or negatively affect an existing product. • Peer evaluating a set of instructions to build a product.	Playgrounds • Improving a design plan based on peer evaluation. • Testing and adapting a design to improve it as it is developed. • Identifying what makes a successful structure. Automata toys • 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. Electrical buzzer game • Testing own and others finished games, identifying what went well and making suggestions for improvement. • Gathering images and information about existing children's toys. • Analysing a selection of existing children's toys. Three course meal • Evaluating a recipe, considering: taste, smell, texture

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	explaining likes and dislikes.	• Discussing as a class, the success of their stitching against the success criteria. • Identifying aspects of their peers' work that they particularly like and why.	dishes. • Describing the benefits of seasonal fruits and vegetables and the impact on the environment. • Suggesting points for improvement when making a seasonal tart. Egyptian collar • Evaluating an end product and thinking of other ways in which to create similar items. Electronic charm • Analysing and evaluating an existing product. • Identifying the key features of a pouch.	many raisins, and it is falling apart, so next time I will use less raisins). Book sleeve • Testing and evaluating an end product against the original design criteria. • Deciding how many of the criteria should be met for the product to be considered successful. • Suggesting modifications for improvement. • Articulating the advantages and disadvantages of different fastening types. Mindful moments timer • Investigating and analysing a range of timers by identifying and comparing their advantages and disadvantages. • Evaluating my Micro:bit program against points on my design criteria and amending them to include any changes I made. • Documenting and evaluating my project. • Understanding what a logo is and why they are important in the world of design and business. • Testing my program for bugs (errors in the code). • Finding and fixing the bugs (debug) in my code.	Spaghetti bolognaise • Identifying the nutritional differences between different products and recipes. • Identifying and describing healthy benefits of food groups. Stuffed toy • Testing and evaluating an end product and giving point for further improvements. 3D medal • Stating an event or fact from the last 100 years of plastic history. • Explaining how plastic is affecting planet Earth and suggesting ways to make more sustainable choices. • Explaining key functions in my program (audible alert, visuals).	and origin of the food group. • Taste testing and scoring final products. • Suggesting and writing up points of improvements when scoring others' dishes, and when evaluating their own throughout the planning, preparation and cooking process. • Evaluating health and safety in production to minimise cross contamination. Stocking • Reflecting on their work continually throughout the design, make and evaluate process. Navigation tool • Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool. • Developing an awareness of sustainable design. • Identifying key industries that utilise 3D CAD modelling and explaining why. • Describing how the product concept fits the client's request and how it will benefit the customers. • Explaining the key functions in my program, including any additions. • Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool. • Explaining the key functions and features of my navigation tool to the client as part of a product concept pitch. • Demonstrating a functional program as part of a product concept pitch.

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Technical knowledge	Structures - Constructing a windmill • To understand that the shape of materials can be changed to improve the strength and stiffness of structures. • To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses). • To understand that axles are used in structures and mechanisms to make parts turn in a circle. • To begin to understand that different structures are used for different purposes. • To know that a structure is something that has been made and put together. Mechanism - Moving story book • 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. Mechanism – Vehicles • To know that wheels need to be round to rotate and move. • To understand that for a wheel to move it must be attached to a rotating axle. • To know that an axle moves within an axle holder which is fixed to the vehicle or toy. • To know that the frame of a vehicle (chassis) needs to be balanced. Cookery and nutrition – Smoothie • Understanding the difference between fruits and vegetables. • To understand that some foods typically known as vegetables are actually fruits (e.g. cucumber).	Baby Bear's chair • 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. Fairground wheel • To know that different materials have different properties and are therefore suitable for different uses. Moving monster • To know that mechanisms are a collection of moving parts that work together as a machine to produce movement. • To know that there is always an input and output in a mechanism. • To know that an input is the energy that is used to start something working. • To know that an output is the movement that happens as a result of the input. • To know that a lever is something that turns on a pivot. • To know that a linkage mechanism is made up of a series of levers. Wrap • 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	Constructing a castle • To understand that wide and flat based objects are more stable. • To understand the importance of strength and stiffness in structures. Pneumatic toys • 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. Electric poster • To understand that an electrical system is a group of parts (components) that work together to transport electricity around a circuit. • To understand common features of an electric product (switch, battery or plug, dials, buttons etc.). • To list examples of common electric products (kettle, remote control etc.). • To understand that an electric product uses an electrical system to work (function). • To know the name and appearance of a bulb, battery, battery holder and crocodile wire to build simple circuits. Savoury tart • 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 which has been brought into the country. • To know that exported food is food which has been sent to another country. • To understand that imported foods	Pavilions • To understand what a frame structure is. • To know that a 'free-standing' structure is one which can stand on its own. Slingshot car • 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. Torches • 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. Biscuit • To know that the amount of an ingredient in a recipe is known as the 'quantity.' • To know that it is important to use oven gloves when removing hot food from an oven. Book sleeve • To know that a fastening is something which holds two pieces of material together for	Bridges • 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 properties. • To understand the material (functional and aesthetic) properties of wood. Pop up book • To know that mechanisms control movement. • To understand that mechanisms can be used to change one kind of motion into another. • To understand how to use sliders, pivots and folds to create paper-based mechanisms. Doodlers • To know that series circuits only have one direction for the electricity to flow. • To know when there is a break in a series circuit, all components turn off. • To know that an electric motor converts electrical energy into rotational movement, causing the motor's axle to spin. • To know a motorised product is one which uses a motor to function. Spaghetti bolognaise • To understand where meat comes from - learning that beef is from cattle and how beef is reared and processed, including key welfare issues. • To know that I can adapt a recipe to make it healthier by substituting ingredients.	Playgrounds • To know that structures can be strengthened by manipulating materials and shapes. Automata toys • 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. Electrical buzzer game • To know that batteries contain acid, which can be dangerous if they leak. • To know the names of the components in a basic series circuit, including a buzzer. Three course meal • To know that 'flavour' is how a food or drink tastes. • 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. Stocking • To understand that it is important to design clothing with the client/ target customer in mind. • To know that using a template (or clothing pattern) helps to accurately mark out a design on fabric. Navigation tool • To know that accelerometers can detect movement. • To understand that sensors can be useful in products as they mean the product can function without human input.

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	• To know that a blender is a machine which mixes ingredients together into a smooth liquid. Textiles – Puppets • 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.	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. Pouches • To know that sewing is a method of joining fabric. • To know that different stitches can be used when sewing.	travel from far away and this can negatively impact the environment. Egyptian collar •To know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces. •To know that when two edges of fabric have been joined together it is called a seam. Electronic charm • To understand that, in programming, a 'loop' is code that repeats something again and again until stopped. • To know that a Micro:bit is a pocket-sized, codeable computer.	example a zipper, toggle, button, press stud and velcro. • To know that different fastening types are useful for different purposes. Mindful moments timer • 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. • To know that it is important to check my code for errors (bugs). • To know that a simulator can be used as a way of checking your code works before installing it onto an electronic device.	Stuffed toy • 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. 3D medal • To know that a 'device' means equipment created for a certain purpose or job and that monitoring devices observe and record. • To know that a sensor is a tool or device that is designed to monitor, detect and respond to changes for a purpose. • To understand that conditional statements (and, or, if booleans) in programming are a set of rules which are followed if certain conditions are met.	
Additional knowledge	Structures - Constructing a windmill • To know that a client is the person I am designing for. • To know that design criteria is a list of points to ensure the product meets the clients needs and wants. • To know that a windmill harnesses the power of wind for a purpose like grinding grain, pumping water or generating electricity. • To know that windmill turbines use wind to turn and make the machines inside work. • To know that a windmill is a structure with sails that are moved by the wind. • To know the three main parts of a windmill are the turbine, axle and structure. Mechanism - Moving story book • To know that in Design and technology we call a plan a 'design'	Baby Bear's chair • To know that natural structures are those found in nature. • To know that man-made structures are those made by people. Fairground wheel • To know the features of a ferris wheel include the wheel, frame, pods, a base an axle and an axle holder. • To know that it is important to test my design as I go along so that I can solve any problems that may occur. Moving monster • To know some real-life objects that contain mechanisms. Wrap • 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'. Pouches • To understand the importance of	Constructing a castle • To know the following features of a castle: flags, towers, battlements, turrets, curtain walls, moat, drawbridge and gatehouse - and their purpose. • To know that a façade is the front of a structure. • To understand that a castle needed to be strong and stable to withstand enemy attack. • To know that a paper net is a flat 2D shape that can become a 3D shape once assembled. • To know that a design specification is a list of success criteria for a product. Pneumatic toys • To understand how sketches, drawings and diagrams can be used to communicate design ideas. • To know that exploded-diagrams are used to show how different parts of a product fit together. • To know that thumbnail sketches	Pavilions • To know that a pavilion is a a decorative building or structure for leisure activities. • To know that cladding can be applied to structures for different effects. • To know that aesthetics are how a product looks. • To know that a product's function means its purpose. • To understand that the target audience means the person or group of people a product is designed for. • To know that architects consider light, shadow and patterns when designing. Slingshot car • To understand that products change and evolve over time. • To know that aesthetics means how an object or product looks in design and technology. • To know that a template is a	Bridges • To understand the difference between arch, beam, truss and suspension bridges. • To understand how to carry and use a saw safely. Pop up book • To know that a design brief is a description of what I am going to design and make. • To know that designers often want to hide mechanisms to make a product more aesthetically pleasing. Doodlers • To know that product analysis is critiquing the strengths and weaknesses of a product. • To know that 'configuration' means how the parts of a product are arranged. Spaghetti bolognaise • To know that I can use a	Playgrounds • To understand what a 'footprint plan' is. • To understand that in the real world, design , can impact users in positive and negative ways. • To know that a prototype is a cheap model to test a design idea. Automata toys • 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. • To understand how to use a bench hook and saw safely. • To know that a set square can be used to help mark 90° angles. Electrical buzzer game •To know that 'form' means the shape and appearance of an object. •To know the difference

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	Mechanism – Vehicles • To know some real-life items that use wheels such as wheelbarrows, hamster wheels and vehicles. Cookery and nutrition – Smoothie • To know that a fruit has seeds and a vegetable does not. • To know that fruits grow on trees or vines. • To know that vegetables can grow either above or below ground. • To know that vegetables can come from different parts of the plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber). Textiles – Puppets • 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.	tying a knot after sewing the final stitch. • To know that a thimble can be used to protect my fingers when sewing.	are small drawings to get ideas down on paper quickly Electric poster • To understand the importance and purpose of information design. • To understand how material choices (such as mounting paper to corrugated card) can improve a product to serve its purpose (remain rigid without bending when the electrical circuit is attached). Savoury tart • To know that each fruit and vegetable gives us nutritional benefits because they contain vitamins, minerals and fibre. • To understand that vitamins, minerals and fibre are important for energy, growth and maintaining health. • To know safety rules for using, storing and cleaning a knife safely. • To know that similar coloured fruits and vegetables often have similar nutritional benefits. Egyptian collar •To know that it is important to leave space on the fabric for the seam. •To understand that some products are turned inside out after sewing so the stitching is hidden. Electronic charm •To know what the 'Digital Revolution' is and features of some of the products that have evolved as a result. •To know that in Design and technology the term 'smart' means a programmed product. •To know the difference between analogue and digital technologies. • To understand what is meant by 'point of sale display.' • To know that CAD stands for 'Computer-aided design'.	stencil you can use to help you draw the same shape accurately. • To know that a birds-eye view means a view from a high angle (as if a bird in flight). • To know that graphics are images which are designed to explain or advertise something. •To know that it is important to assess and evaluate design ideas and models against a list of design criteria. Torches • To know the features of a torch: case, contacts, batteries, switch, reflector, lamp, lens. • To know facts from the history and invention of the electric light bulb(s) - by Sir Joseph Swan and Thomas Edison Biscuit • To know the following cooking techniques: sieving, creaming, rubbing method, cooling. •To understand the importance of budgeting while planning ingredients for biscuits. Book sleeve • To know that creating a mock up (prototype) of their design is useful for checking ideas and proportions. Mindful moments timer •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.	nutritional calculator to see how healthy a food option is. • To understand that 'cross-contamination' means bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects. Stuffed toy • 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. 3D medal • To know events or facts that took place over the last 100 years in the history of plastic, and how this is changing our outlook on the future. • To know the 6Rs of sustainability. • To understand what a virtual model is and the pros and cons of traditional vs CAD modelling.	between 'form' and 'function'. •To understand that 'fit for purpose' means that a product works how it should and is easy to use. • To know that form over purpose means that a product looks good but does not work very well. • To know the importance of 'form follows function' when designing: the product must be designed primarily with the function in mind. • To understand the diagram perspectives 'top view', 'side view' and 'back'. Three course meal • 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). Stocking • To understand the importance of consistently sized stitches. Navigation tool • To know that designers write design briefs and develop design criteria to enable them to fulfil a client's request. • To know that 'multifunctional' means an object or product has more than one function. • To know that magnetometers are devices that measure the Earth's magnetic field to determine which direction you are facing.

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