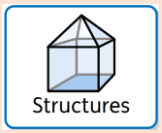
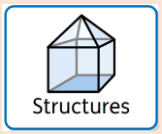
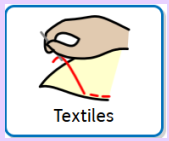
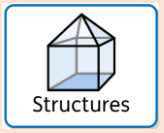
Design and Technology Progression Ladder

EYFS	Design	Make	Evaluate	Cooking and Nutrition	Technical Knowledge
Structures – Junk Modelling 	• Making verbal plans and material choices. • Developing a junk model.	• Improving fine motor/scissor skills with a variety of materials. • Joining materials in a variety of ways (temporary and permanent). • Joining different materials together. • Describing their junk model, and how they intend to put it together.	• Giving a verbal evaluation of their own and others' junk models with adult support. • Checking to see if their model matches their plan. • Considering what they would do differently if they were to do it again. • Describing their favourite and least favourite part of their model.		• To know there are a range to different materials that can be used to make a model and that they are all slightly different. • Making simple suggestions to fix their junk model.
Food Technology – Soup 	• Designing a soup recipe as a class. • Designing soup packaging.	• Chopping plasticine safely. • Chopping vegetables with support.	• Tasting the soup and giving opinions. • Describing some of the following when tasting food: look, feel, smell and taste. • Choosing their favourite packaging design and explaining why.	• Understand where food comes from.	• To know that soup is ingredients (usually vegetables and liquid) blended together. • To know that vegetables are grown. • To recognise and name some common vegetables. • To know that different vegetables taste different.

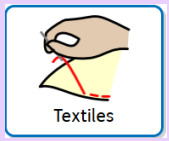
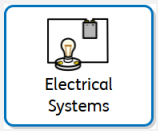
					• To know that eating vegetables is good for us. • To discuss why different packages might be used for different foods.

Year 1	Design	Make	Evaluate	Cooking and Nutrition	Technical Knowledge
Structures – 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.	• 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 own structures. • Identifying the weakest part of a structure. • Evaluating the strength, stiffness and stability of own structure		• 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.
Mechanisms – Moving Storybook	• Explaining how to adapt mechanisms, using	• Following a design to create moving models	• Testing a finished product, seeing whether it moves as planned and		• To know that a mechanism is the parts of

	bridges or guides to control the movement. • Designing a moving story book for a given audience.	that use levers and sliders.	if not, explaining why and how it can be fixed. • Reviewing the success of a product by testing it with its intended audience.		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.
Food Technology – Smoothies 	• Designing smoothie carton packaging by-hand	• Chopping fruit and vegetables safely to make a smoothie. • Juicing fruits safely to make a smoothie	• Tasting and evaluating different food combinations. • Describing appearance, smell and taste. • Suggesting information to be included on packaging. • Comparing their own smoothie with someone else's.	• Understand where food comes from.	• To know that a blender mixes ingredients together into a smooth liquid. • To know that a fruit has seeds. • To know that fruits grow on trees or vines. • To know that vegetables grow either above or below ground. • To know that vegetables are any edible part of a plant.

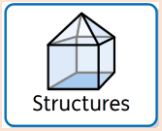
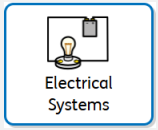
Year 2	Design	Make	Evaluate	Cooking and Nutrition	Technical Knowledge
Textiles – Christmas Gift Pouch 	• Designing a pouch.	• Selecting and cutting fabrics for sewing. • Decorating a pouch using fabric glue or running stitch. • Threading a needle. • Sewing running stitch, with evenly spaced, neat, even stitches to join fabric. • Neatly pinning and cutting fabric using a template.	• Troubleshooting scenarios posed by teacher. • Evaluating the quality of the stitching on others' work. • 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.		• To know that sewing is a method of joining fabric. • To know that different stitches can be used when sewing. • To understand the importance of tying a knot after sewing the final stitch. • To know that a thimble can be used to protect my fingers when sewing.
Structures – Castles 	• 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.	• Constructing a range of 3D geometric shapes using nets. • Creating special features for individual designs. • Making facades from a range of recycled materials.	• 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.		• To understand that wide and flat based objects are more stable. • To understand the importance of strength and stiffness in structures.
Food Technology – Balanced Diet	• Designing three wrap ideas based on a food	• Chopping foods safely to make a wrap.	• Describing the taste, texture and smell of fruit and vegetables.	• Use basic principles of a healthy and	• To know that 'diet' means the food and drink

	combination which work well together.	• Constructing a wrap that meets a design brief. • Grating foods to make a wrap. • Snipping smaller foods instead of cutting	• Taste testing food combinations and final products. • Describing the information that should be included on a label. •Evaluating food by giving a score.	varied diet to prepare dishes. • Understand where food comes from.	that a person or animal usually eats. • To understand what makes a balanced diet. • 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 'ingredients' means the items in a mixture or recipe

Year 3	Design	Make	Evaluate	Cooking and Nutrition	Technical Knowledge
Textiles – Christmas Cushion 	• Designing and making a template from an existing cushion and applying individual design criteria.	• Following design criteria to create a cushion. • 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.	• Evaluating an end product and thinking of other ways in which to create similar items.		•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. •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.
Electronics – Electronic 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.	• 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.	• 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		• 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

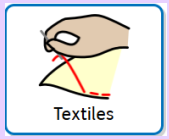
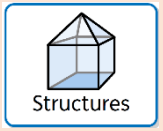
	• Design an electric poster that fits the requirements of a given brief. • Plan the positioning of the bulb (circuit component) and its purpose.	• Measure and mark materials out using a template or ruler. • Fit an electrical component (bulb). • Learn ways to give the final product a higher quality finish (e.g. framing to conceal a roughly cut edge).	client to review developing design ideas and check that they fulfil their needs.		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.
Mechanisms – Pneumatic Systems  	• 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.	• 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.	• 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.		• 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.

		• Manipulating materials to create different effects by cutting, creasing, folding and weaving.			

Year 4	Design	Make	Evaluate	Cooking and Nutrition	Technical Knowledge
Structures – 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.	• 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	• Evaluating structures made by the class. • Describing what characteristics of a design and construction made it the most effective. • Considering effective and ineffective designs.		• To understand what a frame structure is. • To know that a 'free-standing' structure is one which can stand on its own.
Electronics – Torch 	• Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas.	• 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.		• To understand that electrical conductors are materials which electricity can pass through. • To understand that electrical insulators are materials which electricity cannot pass through.

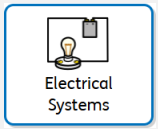
					• To know that a battery contains stored electricity that can be used to power products. • To know that an electrical circuit must be complete for electricity to flow. • To know that a switch can be used to complete and break an electrical circuit.
Food Technology – Eating Seasonally 	• Designing a recipe for a sweet crumble.	• Following the instructions within a recipe. • Tasting seasonal ingredients. • Selecting seasonal ingredients. • Peeling ingredients safely. • Cutting safely with a vegetable knife.	• 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. • Suggesting points for improvement when making a crumble.	• Understand and apply principles of a healthy and varied diet. • Prepare and cook variety of predominantly savoury dishes using a range of cooking techniques. • Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.	• 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 know that eating seasonal foods can have a positive impact on the environment. • To know that similar coloured fruits and vegetables often have similar nutritional benefits. • To know that the appearance of food is as important as taste.

Year 5	Design	Make	Evaluate	Cooking and Nutrition	Technical Knowledge
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 point for further improvements.		• 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.
Structures - Bridges 	• Designing a stable structure that is able to support weight. • Creating a frame structure with a 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.	• Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary. • Suggesting points for improvements for own		• To understand some different ways to reinforce structures. • To understand how triangles can be used to reinforce bridges.

		• 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. • Understanding basic wood functional properties	bridges and those designed by others.		• To know that properties are words that describe the form and function of materials. • To understand why material selection is important based on properties.
Mechanisms – Pop-Up Book 	• Designing a pop-up book which uses a mixture of structures and mechanisms.	• Following a design brief to make a pop-up book, neatly and with focus on accuracy. • Making mechanisms and/or structures using	• Evaluating the work of others and receiving feedback on own work. • Suggesting points for improvement.		• To know that mechanisms control movement. • To understand that mechanisms can be used

	• Naming each mechanism, input and output accurately. • Storyboarding ideas for a book.	sliders, pivots and folds to produce movement. • Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result.			to change one kind of motion into another. • To understand how to use sliders, pivots and folds to create paper-based mechanisms.

Year 6	Design	Make	Evaluate	Cooking and Nutrition	Technical Knowledge
Food Technology – Bread 	• 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, texture 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.	• Understand and apply principles of a healthy and varied diet. • Prepare and cook variety of predominantly savoury dishes using a range of cooking techniques. • Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.	• To know that 'flavour' is how a food or drink tastes. • To know that 'processed food' means food that has been put through multiple changes in a factory. • To understand what happens to a certain food before it appears on the supermarket shelf (Farm to Fork).
Electronics – Steady Hand 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.	• 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.	• 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.		• 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.

	• Modelling ideas through prototypes. • Understanding the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'.	• Incorporating a circuit into a base.			