Sticky Knowledge is identified in bold

Design and Technology
Prior Knowledge and skills

	Design	Make	Evaluate	Technical Knowledge Summary
EYFS	**-Making verbal plans and material choices.**	**-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 the model, and how they intend to put it together.**	**-Giving a verbal evaluation of their own and others' 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 of different materials that can be used to make a model and that they are all slightly different.** **-Making simple suggestions to fix their model.**

Sticky Knowledge is identified in bold

Structures				
	Design	**Make**	**Evaluate**	**Technical knowledge Summary**
Y1	-Use a **template**. -Knowing the importance of a clear **design criteria**. -Include **individual preferences** and requirements in a design.	-Making **stable structures from card, tape and glue .** -Learning how to turn **2D nets into 3D structures.** -Following instructions -Making **functioning turbines and axles** which are assembled into a main supporting structure.	- Evaluating a windmill according to the design criteria, **testing whether the structure is strong and stable and altering it if it isn't.** - Suggesting **points for improvements.**	**-To know that the shape of materials can be changed to improve the strength and stiffness of structure (cylinders).** **-Axles make parts turn in a circle.**
Y2				
Y3				
Y4	-Designing a **stable structure** that is **aesthetically pleasing** and selecting materials to create a desired effect. -Building frame structures from a **given design** 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.**	-Evaluating **structures made by the class.** **-Describing what characteristics of a design and construction made it the most effective.** -Considering **effective and ineffective designs.**	**- Understand what a frame and free-standing structure is**
Y5	-Creating frame structure with focus on **triangulation** **-Designing a stable**	-Using **triangles to create truss bridges**. -Building a wooden bridge structure.	**-Adapting and improving own bridge structure** by identifying points of weakness and reinforcing	**-Understand some different ways to reinforce structures, including triangles** **- Importance of materials and their**

	structure independently that is able to support weight.	-**Independently measuring and marking wood accurately.** - Using the **correct techniques to saw safely.** - **Identifying where a structure needs reinforcement** and using card corners for support.	them as necessary. -**Suggesting points for improvements for own bridges and those designed by others.**	**properties**
Y6	Designing a playground featuring a **variety of different structures**, giving careful consideration to how the structures will be used, **considering effective and ineffective designs**.	-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.	-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.**	**-Know that structures can be strengthened by manipulating materials and shapes**

Sticky Knowledge is identified in bold

Mechanisms				
	Design	**Make**	**Evaluate**	**Technical knowledge Summary**
Y1	- 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.**	-**Adapting mechanisms**, when: ● they do not work as they should. ● to fit their vehicle design. ● to improve how they work after testing their vehicle.	-**Testing wheel and axle mechanisms, identifying what stops the wheels from turning, and recognising that a wheel needs an axle in order to move.**	**-Know that wheels need to be round and attached to an axle to rotate and move** **-The frame of a vehicle (chassis) needs to be balanced**
Y2	-Creating a **class design criteria** for a moving monster. -Designing a moving monster for a **specific audience in accordance with a design criteria.**	-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.	-**Evaluating own designs against design criteria.** -Using **peer feedback to modify** a final design.	**- Know that mechanisms are a collection of moving parts that work together as a machine to produce movement** **- There is always an input and output in a mechanism** **-Know what a lever and linkage is**
Y3	• Designing a toy which uses a **pneumatic system.** • Developing **design criteria from a design brief.** • Generating ideas using **thumbnail sketches and exploded diagrams 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**	• **Using the views of others** to improve designs. • **Testing and modifying the outcome, suggesting improvements.** • **Understanding the purpose of exploded-diagrams**.	**-Understand how pneumatic systems work**

Sticky Knowledge is identified in bold

		appealing pneumatic toy. • Selecting materials due to their **functional and aesthetic characteristics**. • Manipulating materials to create different effects by **cutting, creasing, folding and weaving.**		
Y4				
Y5				
Y6	-**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 checking the accuracy** of dowel pieces required. -**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.**	**-Understand that the mechanism in an automata uses a system of cams, axles and followers** **-Understand that different shaped cams produce different outputs**

Sticky Knowledge is identified in bold

Food and Nutrition				
	Design	**Make**	**Evaluate**	**Technical knowledge Summary**
Y1	-**Designing smoothie carton packaging by-hand.**	-**Chopping fruit and vegetables safely** to make a smoothie.	-**Tasting and evaluating different food combinations.** **-Describing appearance, smell and taste.** **- Suggesting information to be included on packaging**.	**-Understanding the difference between fruits and vegetables** **-Know that a blender is a machine which mixes ingredients together into a smooth liquid**
Y2	-Designing a healthy wrap based on a **food combination which work 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.** **-Taste testing food combinations and final products.** -**Describing the information** that should be included on a label. **-Evaluating which grip was most effective.**	**-Know that 'diet' means the food and drink that a person or animal usually eats** **-Understand what makes a balanced diet, the five main food groups and where to find nutritional information** **-Know that 'ingredients' means the items in a mixture or recipe**
Y3	-**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 work space to cook safely in, learning the basic rules to avoid food contamination.** **• Following the instructions within a**	**- Establishing and using design criteria to help test and review dishes.** **-Describing the benefits of seasonal fruits and vegetables and the impact on**	**-Know that vegetables are grown in different countries (imported and exported) due to climate, season, etc.** **-Know that cooking instructions are known as a 'recipe'** **-Know that each fruit and vegetable**

		recipe.	**the environment.** **- Suggesting points for improvement when making a seasonal tart.**	**gives us nutritional benefits because they contain vitamins, minerals and fibre** **-Know safety rules for using, storing and cleaning a knife safely**
Y4	-Designing a biscuit within a **given budget, drawing upon previous taste testing judgements**.	-**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).	-**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**	**-Know that the amount of an ingredient in a recipe is known as the 'quantity'** **-Know that it is important to use oven gloves when removing hot food from an oven** **-Know the following cooking techniques: sieving, creaming, rubbing method, cooling** **-Understand the importance of budgeting while planning ingredients for biscuits**
Y5	-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 using computer software.	-**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.	-**Identifying the nutritional differences between different products and recipes.** **-Identifying and describing healthy benefits of food groups.**	-**Understand where meat comes from, including key welfare issue** **-Know that I can adapt a recipe to make it healthier by substituting ingredients** **-Understand 'cross-contamination'**
Y6	-**Writing a recipe,**	-**Following and adapting**	-**Evaluating a recipe,**	-**Know that 'flavour' is how a food or**

Sticky Knowledge is identified in bold

	explaining the key steps, method and ingredients. -**Including facts and drawings from research undertaken**.	**their own recipe, including using the correct quantities of each ingredient.** -Working to a **given timescale.** -Working **safely and hygienically with independence.**	**considering:** taste, smell, texture and **origin of the food group.** -**Taste testing and scoring final products.** -**Suggesting and writing up points of improvements** -**Evaluating health and safety in production to minimise cross contamination.**	**drink tastes** **-Know that many countries have 'national dishes'** **-Know what processed food means** **-Understand the importance of washing fruit and vegetables before eating** **- Understand the journey of a certain food from Farm to Fork**.

Sticky Knowledge is identified in bold

Textiles				
	Design	**Make**	**Evaluate**	**Technical knowledge Summary**
Y1	-**Using a template to create a design** for a seed bag.	-**Cutting fabric neatly with scissors.** - Using **joining methods** to decorate a seed bag. -Sequencing steps for construction.	-**Reflecting on a finished product, explaining likes and dislikes.**	**-Know that 'joining technique' means connecting two pieces of material together (staples. glue or pins)** **-Know that there are various temporary methods of joining fabric** **-Understand that different techniques for joining materials can be used for different purposes**
Y2	-**Designing a pouch.**	-Selecting and cutting fabrics for sewing. -**Threading a needle.** -**Sewing running stitch, with evenly spaced, neat, even stitches to join fabric**. -Neatly **pinning and cutting fabric using a template**. -**Decorating a pouch using fabric glue** or running stitch.	-**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.**	**-Know that sewing, using different stitches, is a method of joining fabric** **- Understand importance of tying a final knot after sewing final stitch and that a thimble can be used to protect fingers when sewing**
Y3	- **Designing and making a template from an existing product and applying individual design criteria**.	-**Following design criteria** to create a passport cover. **-Selecting and cutting fabrics with ease using fabric scissors.** **-Threading needles with**	-**Evaluating an end product** and thinking of other ways in which to create similar items.	**-Know that applique is a way of mending or decorating a textile** **-Know that when two edges of fabric have been joined together it is called a seam and these are usually turned inside out to hide the**

		greater independence. - **Tying knots with greater independence.** -**Sewing cross stitch to join fabric**. -**Decorating fabric using appliqué.**		**stitching**
Y4	**-Writing design criteria for a product, articulating decisions made.** -Designing a personalised 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.**	-**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.**	**-Know that a fastening is something which holds two pieces of material together (zipper, toggle, button, press stud and velcro) and are useful for different purposes** **-Know that creating a mock up (prototype) of their design is useful for checking ideas and proportions**
Y5	-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 that are even and regular** when joining fabric. -**Threading needles**	-**Testing and evaluating an end product and giving point for further improvements.**	**-Know that blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric** **-Know that soft toys are often made by creating appendages separately and then attaching them to the main body** **-Know that small, neat stitches which are pulled taut are important**

		independently. - **Using appliqué to attach pieces of fabric decoration**.		
Y6				

Sticky Knowledge is identified in bold

Electrical Systems				
	Design	**Make**	**Evaluate**	**Technical knowledge Summary**
Y1				
Y2				
Y3				
Y4				
Y5				
Y6	-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'.**	-**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.**	-**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.**	**Know that batteries contain acid, which can be dangerous if they leak.** **Know the names of the components in a basic series circuit, including a buzzer.**