Design Technology Matrix

Year	Autumn 1	Spring 1	Summer 1
1	**Structures: Constructing windmills** Designing, decorating and building a windmill for their mouse client to live in, developing an understanding of different types of windmill, how they work and their key features.	**Textiles: Puppets** Textiles: Puppets (4 lessons) Exploring different ways of joining fabrics before creating their own hand puppets based upon characters from a well-known fairy-tale. Children work to develop their technical skills of cutting, gluing, stapling and pinning..	**Fruits and Vegetables: Make a fruit and vegetable smoothie** Handling and exploring fruits and vegetables and learning how to identify which category they fall into, before undertaking taste testing to establish their chosen ingredients for the smoothie they will make a design packaging for.
	Autumn 2	**Spring 2**	**Summer 2**
2	**Structures: Baby bear's chair** Using the tale of Goldilocks and the Three Bears as inspiration, children help Baby Bear by making him a brand new chair. When designing the chair, they consider his needs and what he likes and explore ways of building it so that it is strong.	**Mechanisms: Fairground wheel** Designing and creating their own Ferris wheels, considering how the different components fit together so that the wheels rotate and the structures stand freely. Pupils select appropriate materials and develop their cutting and joining skills.	**Mechanisms: Making a moving monster** After learning the terms; pivot, lever and linkage, children design a monster which will move using a linkage mechanism. Children practise making linkages of different types and varying the materials they use to bring their monsters to life.
	Autumn 1	**Spring 1**	**Summer 1**
3	**Food: Eating seasonally** Discovering when and where fruits and vegetables are grown. Learning about seasonality in the UK and the relationship between the colour of fruits and vegetables and their health benefits by making three dishes.	**Digit world: Electronic charm** Designing, coding, making and promoting a Micro:bit electronic charm to use in low-light conditions. Children develop their understanding of programming to monitor and control their products.	**Structures: Constructing a castle** Learning about the features of a castle, children design and make one of their own. Using configurations of handmade nets and recycled materials to make towers and turrets and constructing a base to secure them..
	Autumn 2	**Spring 2**	**Summer 2**
4	**Structure: Pavilions** Exploring pavilion structures, children learn about what they are used for and investigate how to create strong and stable structures before designing and creating their own pavilions, complete with cladding.	**Mechanical systems: Making a slingshot car** Transforming lollipop sticks, wheels, dowels and straws into a moving car. Using a glue gun to, making a launch mechanism, designing and making the body of the vehicle using nets and assembling these to the chassis.	**Electrical systems: Torches** Applying their scientific understanding of electrical circuits, children create a torch, designing and evaluating their product against set design criteria.
	Autumn 1	**Spring 1**	**Summer 1**
5	**Structure: Bridges** Test and analyse various types if bridge.to determine their strength and stability. Explore material properties and sources, before marking, sawing and assembling a wooden truss bridge.	**Mechanical systems: Making a pop-up book** Creating a four-page pop-up storybook design incorporating a range of mechanisms and decorative features, including: structures, levers, sliders, layers and spacers.	**Food: What could be healthier?** Researching and modifying a traditional bolognese sauce recipe to make it healthier. Children cook their healthier versions, making appropriate packaging and learn about farming cattle.
	Autumn 2	**Spring 2**	**Summer 2**
6	**Textiles: Waistcoats** Selecting suitable fabrics, using templates, pinning, decorating and stitching to create a waistcoat for a person or purpose of their choice.	**Electrical systems: Steady hand game** Understand what is meant by fit for purpose design and form follows function. Design and develop a steady hand game using a series circuit, including housing and backboard.	**Digital world: Navigating the world** Programming a navigation tool to produce a multifunctional device for trekkers. Combining 3D objects to form a complete product in CAD 3D modelling software and presenting a pitch to 'sell' their product.