Design and Technology Knowledge Progression 'At Worthington We Will Know……'

	Mechanisms	Food
Nursery	How can I make Jack climb up the beanstalk?	What do people eat at Chinese New Year?
	I know scissors are used to cut paper I know I can fold paper in different ways I can use glue to join paper together. I know how to make Jack move up the beanstalk with a folder mechanism	I can taste different foods I can talk about different foods I can say which foods I like and don't like
	Vocabulary Draw, design, move, connect, paint, join, mechanism	**Vocabulary** Taste, fortune cookies, like, dislike, sour, sweet, bitter
Reception	**How can I help the baby owl get back to his mum?**	**How do we make vegetable soup?**
	I know what a simple pulley is. I know that a pulley can be used to move objects.	I know vegetables are a plant we can eat. I know vegetables can be grown. I know the names the vegetables and equipment used - carrot, potato, leek, onion, knife chopping board, peeler.
	Vocabulary Pulley, pull and split pin	**Vocabulary** carrot, potato, leek, onion, knife chopping board and peeler
Year One	How can we make a picture move?	Which fruit make the best fruit kebabs?
	I know books and pictures can have moving parts. I know a slider mechanism can move the part in a horizontal or vertical straight line. I know a lever mechanism moves around a pivot and can move in a curved line.	I know fruits are a plant we can eat. I know we can grow fruits on a farm or at home. I know the names of the fruits – strawberry, melon, apple, banana. I know the equipment, we will need to use – knife, skewer, colander, chopping board.
	Vocabulary moving parts, mechanism, split pin, lever, slide, join, design, evaluate, movement, horizontal, vertical, circular, arc, hinge and pivot.	**Vocabulary** Fruit, strawberry, melon, apple, banana, knife, skewer, colander and chopping board.
Year Two	**How do wheels and axles make a vehicle move?**	**What makes a healthy snack?**
	I know that motorbikes, cars, lorries are types of vehicle. I know that windows, doors, wipers, mirrors, engines and seats are the main features of a vehicle.	I know about foods from different food groups (Fruit and vegetables, Carbohydrates, Proteins, Dairy and Fats and oils). I know how to select and use kitchen equipment (knife, chopping board, spoon, scoop and fork) to suit a task.

	I know that buggies transport babies, cars transport people and lorries transport goods/objects. I know what wheels, axles and chassis are. I know that wheels, axles and chassis the parts that make a vehicle move. I know 2 ways of attaching wheels to axles	I know how to safely prepare ingredients.
	Vocabulary: Vehicle, bus, wheels, axles, chassis, evaluate and design.	**Vocabulary** Ingredients, dips, evaluate, senses, taste, texture, smell, appearance, dippers, food groups, healthy, Fruit and vegetables, Carbohydrates, Proteins, Dairy and Fats and oils, plan, design and criteria
Year Three	**How can moving mechanisms make a poster more appealing?**	**Which foods need to be included to make a healthy sandwich?**
	I know why it is important to investigate and evaluate mechanical systems. I know how to make mechanical systems which use levers and linkages. I know how to develop design criteria to help me design innovative product. I know I need to use prototypes to develop my ideas. I know to Accurately measure and cut materials such a cardboard, paper and corrugated card. I know how to following instructions to join mechanisms accurately.	I know that food can be divided into different groups and that sandwiches can form part of a healthy diet. I know a range of healthy sandwiches to appeal to a wide target audience. I know how to develop a design criterion to help me design a product I know to use prototypes to develop my ideas. I know the correct tools and equipment to use to make my finished product I know how to evaluate a finished product.
	Vocabulary mechanism, levers, linkages, input, output, split-pins, design brief, design criteria and prototypes.	**Vocabulary** food groups, carbohydrates, protein, fats, fruit, vegetables, vitamins, minerals, design brief, design criteria and evaluate.
Year Four	Electronics Unit: **Can you make an alarm system to guard a treasure?**	**Can you plan and make a Mexican dish?**
	I know what an alarm system is and what they are used for. I know the components needed to make an alarm work successfully (wire, battery, bulb, buzzer and motor) I know how different types of switches are activated. I know how to create an alarm system. I know how to use the key vocabulary to evaluate a product.	I know ways in which America's diverse climate regions affect the food they grow (the West has a cooler, drier climate. The west coast has a Mediterranean climate, mid-west has a cool continental climate, the north-east has a temperate climate). I know the ways in which indigenous Americans grew, caught, gathered, prepared, and cooked, food (American Indians were primarily hunter-gatherers. Most of the food they ate was found living and growing wild on the land and in the water.

		They gathered edible plants growing wild, including rice, berries and nuts. They fished, and hunted wild turkey, deer, buffalo and other animals.) I know about important, traditional staple foods in America, and how the slave trade influenced American cuisine (Today, Americans use the phrase 'soul food' to describe food that originated in the kitchens of slaves, and grew to become very popular in Black American and Deep South communities.) I know about the cultural significance of chillies in Mexican cooking (Chillies have been used in cooking in Central and Southern America for thousands of years. The Incas and the Mayans used chillies in their cooking. They believed the sensation of heat from chillies made it very special, and that it was important for digesting food. Chillies were used in almost every meal, as they are in Mexican and Tex-Mex cooking today.), and about how American food is heavily influenced by food from other cultures. I know how to use the key vocabulary to evaluate a product.
	Vocabulary Switches, components, activated	**Vocabulary** Diverse, climates, indigenous, staple foods, cultural, influenced, cuisine, regions, traditional, trade and significance.
Year Five	**What features do I need to make a motorised moving vehicle?**	**Can you alter ingredients when making bread?**
	I know a motorised vehicle needs to have a circuit and a pulley mechanism. I know a motorised vehicle must have: Motor Driving pulley Drive belt Driven pulley Wheels Axles Bearings I know circuits contain a motor, switch, battery and wires.	I know the names of some bread and their origins – Bagels (polish) soda bread (Ireland) Baguette (France) Naan and Chapatti (India) Pitta Bread (Middle East). I know why I need to wash my hands and have a clean area before handling food. I know that bread is a carbohydrate. I know Carbohydrates give us energy and are an important part of our diet. I know many people eat bread as part of a balanced diet. I know which is different ingredients are needed to make bread and how ingredients can be altered and mixed to create different effects.

		I know that flour, yeast, salt, warm water, butter are the ingredients to make a bread dough. I know that yeast makes the dough rise, a bread product without yeast is unleavened bread. I know that you can add sweet and savoury ingredients to alter to taste and texture.
	Vocabulary Prototype, motorised, circuit, design criteria, pulley, electric, Driving pulley, Drive belt, Driven pulley ,Wheels, Axles,Bearings, motor, switch, battery and wires.	**Vocabulary** safety, hygiene, evaluate, origin, balanced diet, carbohydrate, ingredients, aesthetics, texture, yeast, energy, alter and knead
Year Six		**Can burgers be a healthy option?**
	See Structures Unit.	I know what constitutes a burger (bread, protein, vegetables, sauce) and understand the origins. I know what are appropriate alternatives for various ingredients (meat replacement). I know what is meant by 'healthy' food and give reasons why. I know what nutrients and food groups are. I know how varying the cooking technique (SUCH AS) can alter nutritional value.
	Vocabulary	**Vocabulary** Carbohydrates, protein, vitamins, nutrients, adapt, alternative, nutrition, calories and joules.

	Structures	Textiles
Nursery	**How are boats made?**	**What is a Diva lamp and how is it used?**
	I can name the main features of a pirate ship such as mast, sail, deck. I know how choose the right materials to make a pirate ship. I can join materials together using junk modelling to create a pirate ship.	I can say what a Diva lamp is I can model clay into a ball I can use a simple tool to make a pattern I know how to mould a Diva lamp out of clay and make patterns in it using a modelling tool
	Vocabulary draw, paint, illustrator, Axel Scheffler, make, design, float, sink, join, stick	**Vocabulary** Diwali, Diva lamp, clay, mould, squeeze, poke, pattern, paint
Reception	**How can I make a model of my house?**	**How can I make a clay poppy ?**
	I know a house needs a roof, windows and a door.	I can talk about the colours and materials needed to make a poppy I can model clay into a ball of the right size I know how to mould a poppy out of clay and attach to a stick
	Vocabulary Roof, window, door, glue, scissors and tape	**Vocabulary** Poppy, mould, attach,
KS1 **Year One** **Year Two**	How can we make our photo frames stable?	**How can we join fabric?**
	I know how to make a freestanding structure stable. I know different attachment techniques – Flange, L-Brace, Tabs, Slot. I know that using different materials (feathers, sequins, ribbon, buttons, paper and stick with glue) can decorate a picture frame.	I know there are different types of puppets (sock, hand, rod and finger). I know that puppets are controlled by someone. I know puppets can be made from different materials. I know that simple 3-D textile products are made, using a template to create two identical shapes. I know that fabrics are joined together using different techniques - running stitch, glue, over stitch, stapling.
	Vocabulary Stable, stiff, stiffer, stiffest, strong, stronger, strongest build, structure, stable, rigid, flange, LBrace, tabs, slot, feathers, sequins, ribbon, buttons and felt-tips.	**Vocabulary** sock puppet, hand puppet, rod puppet, finger puppet, template, sew, stitch, join, thread, needle, running stitch, cutting, measure, over stitch.
LKS2 **Year Three** **Year Four**	**What materials would be used to build a mini greenhouse?**	**Is appearance more important than function?**
	I know that a greenhouse is used for creating a microclimate, controlling the temperature and humidity to help plants grow. I know how to how a greenhouse helps plants to grow. I know the different types of greenhouses (lean to, free-standing, gothic, dome, hoop house and saw tooth). I know how explain what a stable structure is.	I know how to name and identify the materials such as felt, fleece, cotton, hessian and cotton. I know the design features of different Christmas stockings such as sequins, shapes cut from felt and stitching. I know how to thread a needle, tie a knot and do a running stitch/over stitch.

	I know that the word stable means - an object or structure not likely to give way or overturn; firmly fixed. I know how to identify factors that make a structure stable. I know how to discuss how to make a structure more/less stable by adding art straws, triangular corner pieces and adding card to weaker sections of a structure. I know how to investigate materials for making a mini greenhouse. I know how to identify suitable materials for the frame and the sections within the frame.	I know that adding different materials to my stocking will add decoration. I know how to use the key vocabulary to evaluate a product.
	Vocabulary Ventilate, stable, structure, transparent	**Vocabulary** cross stitch, running stitch, felt, fabric, function, visual appeal and trim.
UKS2 **Year Five** **Year Six**	**How can you build a bridge and how make it move?**	**What type of stitching is suitable for a phone case?**
	I know the difference between a pillar and beam (a pillar refers to any isolated, vertical structural member such as a pier, column, or post. A beam is a structural element that is capable of bearing load principally by resisting against bending). I know how to explore ways in which pillars and beams are used. I know what a span gap is (a gap is a space between two things or a hole in the middle of something solid how to span gaps). I know how to use span gaps. I know what a truss is (an assembly of members such as beams, connected by nodes, that creates a rigid structure). I know ways in which trusses can be used I know how to strengthen bridges. I know what an arch is (a curved symmetrical structure spanning an opening that supports the weight of the bridge above). I know how to explore ways in which arches are used I know how to strengthen bridges. I know what a suspension bridge is (a bridge in which the weight of the deck is supported by vertical cables suspended from further cables that run between towers and are anchored in abutments at each end).	I know the purpose of a phone case is to protect a phone and to make it aesthetically pleasing. I know a phone case must be durable A seam is when two pieces of fabric are joined together and then folded apart. I know that a back stitch makes a join stronger. I know a blanket stitch is a decorative stitching.

	I know how to understand how suspension bridges are able I know how to span long distances. I know how to use the key vocabulary to evaluate a product.	
	Vocabulary Pillar, beam, span, truss, arch, suspension, prototype, deck, pier, abutment, compression and tension.	**Vocabulary** Needle, thread, seam, blanket stitch, back stitch, durable,