Design and Technology Curriculum Milestone 3			
Year 5			
Area	**Key Vocabulary**	**Sticky Knowledge**	**Essential Skills and knowledge to be covered**
Food: Making rock cakes **Earthquakes zones and volcanoes**	Ratios Scale Refine Recipe Timing Rubbing in	• Rock cakes are a light crumbly cake that can incorporate a number of different flavours. • Basic process involves mixing of ingredients until the mixture is a thick lumpy dough. • Rubbing in is a method used to combine cubed butter and flour to make a breadcrumb mix.	**Make simple rock cakes and improve with their own rock cake recipe.** • Measure accurately and calculate ratios of ingredients to scale up or down from a recipe. • Demonstrate a range of baking techniques to make their rock cakes • Create and refine recipes, including ingredients, methods, cooking times for their rock cakes.

Mechanisms
 	
Balloon Blaster
	Vehicle
	Chassis
	Axle
	Transference
	Belt drive
	Pulley Wheel
	
	Circuits and motors optional
		• A wheel and axle mechanism transfers force.
		• An axle is a shaft inserted into the centre of a wheel. For each revolution of the axle, the wheel makes one complete revolution.
		• Where using a rubber band, the force is *stored* in the rubber band when wound around the axle.
		• When winding the elastic band, it takes less force to use the wheel because it has a bigger diameter.
			• **Design and make a balloon blaster.**
			• Develop a simple mechanism to burst a balloon.
			• Use innovative mechanics in their product design.
			• Refine their product and mechanism throughout the build process with appropriate tools.
			  • Mark, measure and cut out with precision to the nearest mm.
			  • Cut materials accurately and safely using the appropriate tools.
			  • Design with the user in mind, motivated by the service a product will offer (rather than simply for profit).
			  • Make products through stages of prototypes, making continual refinements.
			  • Ensure products have a high quality finish, using art skills where appropriate
			  • Use prototypes, cross-sectional diagrams and computer aided designs to represent designs.

Mechanism, electrics **Balloon Blaster**	Rotation Spindle Drive shaft Axle Drive Belt Pulley wheel Motor Carousel	• Pulley systems are made from 2 pulley wheels attached to a drive shaft with a drive belt joining them. • A drive belt (elastic band) pulls on a pulley wheel to make it turn. • If you twist the drive belt, each pulley wheel will spin in an opposite direction to the other. • To change the speed of the turn, change the size of the pulley wheel. • A small gear will have to rotate more times to make a larger gear turn once.	• **Design and make a vehicle and flappy bird** • Develop a rotary motion using a motor, pulley wheels, a drive belt and a drive shaft. • Use innovative combinations of electrical and mechanics in their product design. • Use electrical circuits and incorporate a switch in their product. • Refine their product and mechanism throughout the build process. • Use gears to change the speed.

Year 6			
Area	**Key Vocabulary**	**Sticky Knowledge**	**Essential Skills and knowledge to be covered**
Food **North and South America** American Burger	Recipe Beef Patty Ground Minced Relish Season Seasoning Mustard Gherkin Brioche bun	• A burger is traditionally a beef patty in a bread bun. • Burgers can also be made from turkey, pork, lamb or tofu. • Store raw meat in a covered container at the bottom of the fridge. • Must always wash hands when handling raw meat as it is easy to cross contaminate other foods.	• **Make their own ultimate American Burger carefully considering type of bun, type of burger and relish.** • Understand the importance of correct storage and handling of ingredients – particularly meat (using knowledge of micro-organisms). • Measure accurately and calculate ratios of ingredients to scale up or down from a recipe. • Demonstrate a range of cooking techniques. • Create and refine recipes, including ingredients, methods, cooking times for their burgers.
Textiles: Shake things up Making a cushion	Back stitch Blanket stitch Applique Seam Allowance Swatches Tacking Wadding Pinking shears Hem	• Running stitch is best used for attaching decoration • When joining fabrics together, we could use the blanket stitch, zig-zag stitch. • Tacking is a temporary stitch which holds material in place until it can be stitched permanently. • Wadding is the padding or insulation between materials. • Applique is the layering of the fabrics.	Make a cushion • Use a range of stitching techniques (such as back stitch for seams and running stitch to attach decoration). • Cut materials with precision. • Use wadding to create a padded effect. • Tack materials together before securing with permanent stitches.
Structure **Shake things up** **Build a suspension bridge**	Vice Joint Mitre joint	• Strengthen corners of square frame with card triangles on both sides. • Cut wood safely by using a vice that will fasten it tighten to the table. • Sanding is used to take any sharp edges off materials such as wood. • Joints are where two or pieces are joined together. • A mitre joint is where the two pieces have been cut to a 45 degree angle.	Design and make a suspension bridge • Measure and mark length accurately to within 1mm. • Measure angles accurately to create mitre joints. • Hide joints to improve the look of a product. • Smooth cut materials using sanding paper.

Design Technology Project Skills		
Master Practical Skills	**Design, make, evaluate and improve**	**Inspiration from design in history**
Food • Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms). • Measure accurately and calculate ratios of ingredients to scale up or down from a recipe. • Demonstrate a range of baking and cooking techniques. • Create and refine recipes, including ingredients, methods, cooking times and temperatures. Materials • Cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape). • Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (such as the nature of fabric may require sharper scissors than would be used to cut paper). Textiles • Create objects (such as a cushion) that employ a seam allowance. • Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration). • Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles (such as a soft decoration for comfort on a cushion). Electricals and electronics • Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips). Computing • Write code to control and monitor models or products. Construction • Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding). Mechanics • Convert rotary motion to linear using cams • Use innovative combinations of electronics (or computing) and mechanics in product designs.	• Design with the user in mind, motivated by the service a product will offer (rather than simply for profit). • Make products through stages of prototypes, making continual refinements. • Ensure products have a high quality finish, using art skills where appropriate • Use prototypes, cross-sectional diagrams and computer aided designs to represent designs.	• Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices. • Create innovative designs that improve upon existing products. • Evaluate the design of products so as to suggest improvements to the user experience.