

Year 3	Theme	Mechanisms	Food Technology	Textiles
	Purpose/User	Pneumatics	Adapt a recipe	Cushions
	Focus	- Explore pneumatic systems. - Design and make a pneumatic toy including thumbnail sketches and exploded diagrams.	- Work in groups to adapt an existing pasta recipe. - Taking into account the expenses against a set budget.	- Learn and apply two new sewing techniques – cross-stitch and appliqué. - Utilise these new skills to design and make a cushion
	Purpose/User	To be decided by the pupils (ensuring wherever possible that their identified product user can evaluate their final product)		
	Skills and Knowledge	- Understand how pneumatic mechanisms work. - Use their knowledge to experiment with basic pneumatic mechanisms. - Cut and join a variety of construction materials (wood, card, plastic, glue, reclaimed materials)	- Use appropriate utensils for tasks. - Prepare ingredients confidently. - Know hygiene and safety rules and why they are important. - Assemble and cook ingredients. - Chop, slice and dice ingredients. - Follow a recipe independently. - Know where a variety of foods come from. - Understand what a balanced diet is.	- Understand how to securely sew two pieces of fabric together (running stitch, back stitch). - Know how to strengthen, reinforce and stiffen existing fabrics. - Understand why patterns are needed. - Know what seam allowances are.
	Technical Vocabulary	Components, fixing, attaching, plunger, syringe, compression, pressure, inflate, deflate.	Relevant sensory words (squashed, rough, smooth etc.), ingredients, slicing, peeling, taste, arrange.	Seam allowances, strengthen, reinforce, stiffen, and secure, running stitch, back stitch, measure, cut.
	Useful Resources	STEM Pneumatics & Hydraulics KAPOW Mechanical toys TES Investigating pneumatic-systems-3011818	STEM ks2-cooking-and-nutrition Public Heath England - Food Detectives	STEM Designing-and-making-textiles-lower-key-stage-two-KAPOW Textile cushions BBC VIDEOS Designing-and-making-cushion-covers/z6xxgwx
	Cross curricular	Science - Forces	Geography – The UK land use Science – food groups/nutrition	Maths – 2D / 3D Shapes; Patterns. Art - sketching.

Year 4	Theme	Mechanisms	Electronic Control	Structures
	Product	Power slings	Torches	Sun shades/ tents
	Focus	- Using a range of materials, design and make a car with a working slingshot mechanism. - House the mechanism using a range of nets.	- Identify the difference between electrical and electronic products. - Evaluate a range of existing torches and their features. - Develop a new functional torch design.	- Using a range of materials, design and make a sun shade or tent that is structurally sound. - Evaluate different structures, their materials and uses, to create a researched based design.
	Purpose/User	To be decided by the pupils (ensuring wherever possible that their identified product user can evaluate their final product)		
	Skills and Knowledge	- Experience of axles, wheels that are fixed or moving and axel holders. - Have a basic understanding of the different types of movement. - Understand why we, and how to strengthen and stiffen structures. - Be able to use a variety of cutting and joining techniques with a variety of materials (wood, plastic, cardboard)	- Construct a simple series circuits using bulbs, switches and buzzers. - Use electrical systems in their products (series circuits with switches, buzzers and bulbs) - Apply understanding of computing to program and control products.	- Use mathematical knowledge of nets to support construction. - Understand how to, and construct strong, stiff shell structures. - Use measuring and marking out, cutting, joining, shaping and finishing using a wider range of construction materials. - Understand how to and show competence in using tools safely.
	Technical Vocabulary	Fixed, moving, rotation, leverage, cab, body, strengthen, stiffen, secure.	Wires, bulbs, switches, circuit, connected, current, positive, negative, circuit, voltage, current strength.	Mathematical nets terminology, shell structures, marking out, cutting, shaping. Tool terms.
	Useful Resources	KAPOW Making-a-slingshot-car/Instructables - Slingshot-Cars/ TES - Making-a-moving-vehicle-6016536	STEM- What light will work for You Battery Operated Lights STEM Light	STEM- Stronger Structures STEM- Super Structures STEM KS2-structures
	Cross Curricular	Science - Forces	Science – Light.	Geography – Somewhere to settle

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