YEAR 3

MECHANICAL SYSTEMS – PNEUMATIC TOYS

	EYFS	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
DESIGNING	**The three Prime ELGS of Communication and Language, PSED and Physical Development provide the foundations of which all other learning is built upon.** **Specific:** **Creating with Materials ELG** Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form, and function. Share their creations, explaining the process they have used. **People Culture and Communities ELG** Describe their immediate environment using knowledge from observation, discussion, stories,	Use own ideas to design something Describe how their own idea works Design a product which moves Explain to someone else how they want to make their product Make a simple plan before making.	Think of an idea and plan what to do next Explain why they have chosen specific criteria	Prove that a design meets a set criteria Design a product and make sure that it looks attractive Choose a material for both its suitability and its appearance	Use ideas from other people when designing Produce a plan and explain it Persevere and adapt when original ideas do not work Communicate ideas in a range of ways, including by sketches and drawings which are annotated	Come up with a range of ideas after collecting information from different sources Produce a detailed step-by-step plan Explain how a product will appeal to a specific audience Design a product that requires pulleys or gears	Use market research to inform plans and ideas Follow and refine original plans Justify planning in a convincing way Show that culture and society is considered in plans and designs

	non-fiction texts, and maps.						
MAKING	**The three Prime ELGS of Communication and Language, PSED and Physical Development provide the foundations of which all other learning is built upon.** **Specific:** **Creating with Materials ELG** Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form, and function. Share their creations, explaining the process they have used.	Use own ideas to make something Make a product which moves Choose appropriate resources and tools	Choose tools and materials and explain why they have chosen them Join materials and components in different ways Measure materials to use in a model or structure	Follow a step-by-step plan, choosing the right equipment and materials Select the most appropriate tools and techniques for a given task Make a product which uses both electrical and mechanical components Work accurately to measure, make cuts and make holes	Know which tools to use for a particular task and show knowledge of handling the tool Know which material is likely to give the best outcome Measure accurately	Use a range of tools and equipment competently Make a prototype before making a final version Make a product that relies on pulleys or gears	Know which tool to use for a specific practical task Know how to use any tool correctly and safely Know what each tool is used for Explain why a specific tool is best for specific action
EVALUATING	**The three Prime ELGS of Communication and Language, PSED and Physical Development provide the foundations of which all other**	Describe how something works Explain what works well and not so well in the model they have made	Explain what went well with their work	Explain how to improve a finished model Know why a model has or has not been successful	Evaluate and suggest improvements for designs Evaluate products for both their purpose and appearance	Suggest alternative plans; outlining the positive features and draw backs Evaluate appearance and function against original criteria	Know how to test and evaluate designed products Explain how products should be stored and give reasons

	learning is built upon. **Specific:** **Creating with Materials ELG** Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form, and function. Share their creations, explaining the process they have used.				Explain how the design has been improved Use IT where appropriate to add to the quality of the product		Evaluate product against clear criteria
TECHNICAL KNOWLEDGE		Make their own model stronger Make a model stronger and more stable Use wheels and axles, when appropriate to do so		Know how to strengthen a product by stiffening a given part or reinforce a part of the structure Use a simple IT program within the design Know how to be hygienic and safe when using food Bring a creative element to the food product being designed		Link scientific knowledge to design by using pulleys or gears Use more complex IT program to help enhance the quality of the product produced Use electrical systems correctly and accurately to enhance a given product Know which IT product would enhance a specific product Use knowledge to improve a made product by strengthening, stiffening or reinforcing	
FOOD TECHNOLOGY		Cut food safely Weigh ingredients to use in a recipe Describe the ingredients used when making a dish or cake		Describe how food ingredients come together Weigh out ingredients and follow a given recipe to create a dish Talk about which food is healthy and which food is not Know when food is ready for harvesting Describe how food ingredients come together Weigh out ingredients and follow a given recipe to create a dish		Be both hygienic and safe in the kitchen Know how to prepare a meal by collecting the ingredients in the first place Know which season various foods are available for harvesting Explain how food ingredients should be stored and give reasons Work within a budget to create a meal Understand the difference between a savoury dish and sweet dish.	

			Talk about which food is healthy and which food is not Know when food is ready for harvesting	

MECHANICAL SYSTEMS – PNEUMATIC TOYS

COMPOSITES

COMPONENTS

	1	2	End Point
	What is a pneumatic system? **How do pneumatic systems work?**	**How can I design a toy using a pneumatic system?**	**Children will be able to use tools and equipment safely.** **Children can choose and join different materials.** **Children will test a pneumatic system to understand pneumatics.** **Children will design and evaluate their pneumatic toy against the design criteria.**
CONCEPTS **Link to concept map**	Design	Design	Children will have used their knowledge and understanding of pneumatic mechanisms to carefully design an attractive pneumatic toy that meets a set design criteria.
	Purpose	Purpose	Children will have used their knowledge and understanding of pneumatic mechanisms to carefully design an

			attractive pneumatic toy that meets a set design criteria.
	Technique	Technique	Children will have used their knowledge and understanding of pneumatic mechanisms to carefully design an attractive pneumatic toy that meets a set design criteria.
SKILLS	Follow a step-by-step plan, choosing the right equipment and materials Work accurately to measure.	Prove that a design meets a set criteria Design a product and make sure that it looks attractive	Children will be able to follow a step by step plan in order to participate in the syringe and air experiment. Children will be able to design and draw the materials they need for their pneumatic toy. Children will design their product using a thumbnail sketch and an exploded drawing to ensure the product looks attractive.
KNOWLEDGE **Z:\Hubs\Science and DT\DT\2023-2024\KAPOW\YEAR 3\MECHANICAL SYSTEMS - Pneeumatic Toys - LESSON 1 ONLY\Pneumatic Toys - Knowledge Organiser.pdf**	Know how to accurately measure the distance that syringes moved. Know how to follow a plan and select the correct equipment to undertake an experiment.	Know what pneumatic mechanical system they will include in their design. Know what each part of their design represents.	Children will know what a pencil case is and how it is made and used. Children will know how to sketch and label their designs. Children will be able to use knowledge of materials to add to their designs so it is aesthetically pleasing and functional. Children will be able to measure the distance of movement during their experiment.
LESSON LINK	KAPOW PNEUMATIC TOYS	KAPOW PNEUMATIC TOYS	

PROGRESSIVE VOCABULARY	mechanism lever pivot linkage system pneumatic system input output component	mechanism lever pivot linkage system pneumatic system input output component thumbnail sketch research adapt	Articulate and recognise subject specific vocabulary
CURRICULUM EXPERIENCES	Experiment with syringes and air.		
END POINT	Children will understand what the word pneumatic means. They will understand that pneumatic systems can be used as a mechanism and also create movement.	Children will have designed a pneumatic toy using a mechanical system using a thumbnail sketch and an exploded drawing.	