MTP – Design Technology – Year 3

Topic	What do rocks tell us about the way the Earth was formed? (DT Kapow: Pneumatic Toys - Mechanisms)				
N.C Learning Objectives	**Design** Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer- aided design. **Make** Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. **Evaluate** Investigate and analyse a range of existing products. Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. Understand how key events and individuals in design and technology have helped shape the world. **Technical Knowledge** Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].				
Ways of being Co-Op	Do what matters most Succeed together Be yourself, always Show you care				
British Values	Democracy Rule of Law Individual Liberty Mutual Respect Tolerance				
CRL					
Vocabulary	**Pneumatic System**	**Exploded Diagram**	**Design Brief**	**Design Criteria**	**Syringe**

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	A system that compresses air to create movement.	A diagram that shows the inside of a product.	A document which gives designers guidance on the product they will make.	The requirements a product should have in terms of its form, function and features.	A device that can be used to insert or remove air from a system by pushing it up or down.
Recap and Recall	Mechanisms: making a moving monster - Know the difference between levers, linkages and pivots - Create linkages that produce desired input and output motions - Evaluate their designs against a design criteria				
	LEARNING OBJECTIVE	**STICKY KNOWLEDGE FACT**	**CORE LEARNING**		
Lesson 1	We are learning to explore how pneumatic systems create movement within mechanisms.	A pneumatic system forces air over a distance to create movement by moving the air quickly from the input to the output mechanism.	● Technical Knowledge: Children can define a mechanism as a system of parts working together to create movement ● Children can recall that a pneumatic system can be used as part of a mechanism; ● Children can describe how a pneumatic system forces air over a distance to create movement. ● Evaluate: Children can identify pneumatic systems in a range of everyday objects.		
Lesson 2	We are learning to use different types of diagrams to summarise information.	Exploded diagrams are diagrams that show the inside of a product. These are helpful because they show the audience how to put the pieces together.	● Design: Children can recall that different types of drawings are used in design to explain ideas clearly ● Children can describe different types of diagrams ● Children can explain when one type of diagram may be more useful for a particular situation ● Children can begin to draw different types of diagrams.		
Lesson 3	We are learning to design a toy that uses a pneumatic system.	A design brief can help to create design criteria, which is then used to design an effective product for an intended user.	● Design: Children can develop design criteria from a design brief ● Children can generate suitable ideas using different types of diagrams ● Children can recall different types of pneumatic systems used to design their toy ● Children can consider sustainable resources when designing their toy.		

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Lesson 4	We are learning to create a pneumatic system for a moving toy.	Syringes and balloons can create different pneumatic systems.	● Make: Children can create a pneumatic system to create a chosen movement ● Children can build secure housing for a pneumatic system. ● Technical Knowledge: Children can recall that syringes and balloons can create different pneumatic systems ● Children can recall how to use these components to make a functional and appealing pneumatic toy.
Lesson 5	We are learning to test and finalise ideas against design criteria.	It is important to evaluate a product against the design criteria to make sure it fulfils the design brief.	● Evaluate: Children can describe why materials are chosen due to how they work and look ● Children can recall how to work with materials to create different effects by cutting, creasing, folding, etc ● Children can evaluate how well the design, materials and equipment help to achieve the design brief.
Outcome	Children will create a product that uses a pneumatic system to create movement		