

Hartford Primary School

YEAR GROUP	Year 3	SUBJECT	Design and Technology	TERM	Autumn
National Curriculum STUDY links	<ul style="list-style-type: none"> Science – identify and compare the suitability of a variety of everyday materials for particular uses. When evaluating, make systematic and careful observations and take accurate measurements. Mathematics – measure, compare, add and subtract: lengths, volume and capacity. Art and design – use and develop drawing techniques. Use colour, pattern, line, shape. 				
Prior Learning (What should they already know)	<ul style="list-style-type: none"> EYFS: Threading skills Year 1: Sliders and levers Year 2: Wheels and axels – moving vehicles 				
Key themes and threads	<ul style="list-style-type: none"> Mechanisms 				
RETRIEVAL VOCABULARY	attaching, split pin, paper fastener, user, purpose, design criteria, innovative, appealing, design brief, research, evaluate, ideas, investigate		NEW VOCABULARY	components, fixing, tubing, syringe, plunger, pneumatic system, input movement, process, output movement, control, compression, pressure, inflate, deflate, pump, seal, air-tight linear, rotary, oscillating, reciprocating, function, prototype, constraints	

	Essential Learning for this lesson	Suggested teaching tasks/approaches	New Knowledge – What I’m leaving the lesson with
LESSON 1	Research and evaluate existing products I can talk about what mechanisms are needed in a pneumatic system	Provide children opportunities for children to explore a variety of moving items: Balloon pump: pumping balloons Calpol syringes: water Blow cotton wool Photos of examples to explore Pump to inflate arm bands / rubber ring Rocket shooter Party blowers Videos Question children on what makes them move.	I know that air and water can make things move. I know what the term pneumatics means and can give examples of how pneumatics works.

LESSON 2	Key Individual (optional) I can explain who Edwin Clark is and what impact he has had locally	Explore Edwin Clark and the Anderton boat lift. Ideas from: Lesson plan found DT:MTP:Y6:Autumn	I know who Edwin Clark is. I can explain the definition of hydraulics, building on the principle that a liquid is incompressible.
LESSON 3	Design criteria Focused practical tasks (skill development) I can make simple drawings of pneumatic systems and annotate them.	Construct a simple pneumatic system by joining a balloon to 5mm tubing and then to a washing-up liquid bottle. What happens to the air when you squeeze the bottle? What happens when you let go? Can you lift a soft toy or a note pad using a balloon? Children construct, explore, draw and label.	I know how a pneumatic system works in practise. I know how the impact of different pressures affects movements. I know how to draw and annotate a diagram (Challenge: cross-sectional diagram.)
LESSON 4	Design and elaborate design brief (personalise their own) I can personalise a design brief for a specific purpose and user.	Develop a design brief for a moving animal. What must it include, who is for? Sketch and annotate their design. List resources.	I know what a pneumatic system must include. I know the purpose of a pneumatic system. I know what equipment and resources I will need for my design.
LESSON 5	Make I can make a moving animal for a specific purpose and user.	Children follow their designs to make moving animals, adapting where necessary.	I know how to follow my design and alter if necessary. I know how to use resources safely and purposefully. I know how to use presentation skills to make my animal look appealing. I know how to follow a process step by step, making changes if necessary.
LESSON 6	Make and evaluate I can evaluate my product against my design criteria I can explain why or why not my moving animal is suited to its purpose and user	Evaluate relating to success criteria – RAG rate.	I know how my moving animal met its design criteria. I know how to explain why my moving animal was suited to its purpose and audience. I know how I could improve my product to make it better.

Helpful resources to reference	CURRICULUM_DT_MTP_AUTUMN Plan Bee resources
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