Cycle B: Autumn MTP LKS2 – Mechanisms: Making a slingshot car

Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products
Y3 With growing confidence, I can generate ideas for an item, considering its purpose and the user/s. I can start to order the main stages of making a product. I can Identify a purpose and establish criteria for a successful product. I understand how well products have been designed, made, what materials have been used and the construction technique. I will learn about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products. I can start to understand whether products can be recycled or reused. I know to make drawings with labels when designing. When planning, I can explain my choice of materials and components including function and aesthetics. Y4 I can start to generate ideas, considering the purposes for which they are designing- link with Mathematics and Science. I can confidently make labelled drawings from different views showing specific features.	Y3 I can select a wider range of tools and techniques for making their product i.e. construction materials and kits, textiles, food ingredients, mechanical components and electrical components. I can explain my choice of tools and equipment in relation to the skills and techniques they will be using. Measure, mark out, cut, score and assemble components with more accuracy. I will start to work safely and accurately with a range of simple tools. Start to think about their ideas as they make progress and be willing to change things if this helps them to improve their work. Y4 I can select a wider range of tools and techniques for making their product safely. I will know how to measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques. I can start to join and combine materials and components accurately in temporary and permanent ways. I will understand how to reinforce and strengthen a 3D framework.	Y3 I can start to evaluate their product against original design criteria e.g. how well it meets its intended purpose I can disassemble and evaluate familiar products and consider the views of others to improve them. I can evaluate the key designs of individuals in design and technology has helped shape the world. Y4 I can evaluate my products carrying out appropriate tests. I can start to evaluate their work both during and at the end of the assignment. I can disassemble and evaluate familiar products and consider the views of others to improve them.

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I can develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail. I can identify the strengths and areas for development in their ideas and products. When planning, I can consider the views of others, including intended users, to improve their work. When planning, I can explain their choice of materials and components according to function and aesthetic	I am beginning to use finishing techniques to strengthen and improve the appearance of their product using a range of equipment	

Key knowledge goals for the topic

- To know that a chassis is the frame of a car on which everything else is built.
- To know how different designs reduces air resistance (To know what air resistance is).
- To know how to build based off a design, measuring accurately.
- To know how to evaluate their product based off the design criteria.

Vocabulary

Chassis
Air resistance
Kinetic energy
Design criteria
Stored energy
Evaluate

Week	Knowledge (Subject leader)	Skills (Subject leader)	Flashbacks	Key vocab	Lesson content

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1	To build a car chassis.	• I understand that car designs have developed over many years. • I know that a chassis is the frame of a car on which everything else is built. • I know that all moving things have kinetic energy. • I know that kinetic energy is the energy that something (an object or person) has by being in motion, e.g., the energy that a swing has to keep moving; any object in motion uses kinetic energy.	What is a circuit? Can you name the different components? What is 'eating seasonally'?	Chassis	Lesson 1 on Kapow.
2	To design a shape that reduces air resistance.	• I can design a suitable car body to cover my chassis by: • Drawing a net to create a structure form.	What is a battery? How do animals get nutrients?	Air resistance	Lesson 2 on Kapow.

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		• Choosing shapes that increase or decrease the speed of the car as a result of air resistance. • Adding graphics to personalise my design.	What are nutrients? What is a Chassis?		
3&4	To make a model based on a chosen design.	• Remembering that nets are flat shapes that can be turned into 3D structures. • Measuring, marking and cutting the panels (nets) against the dimensions of my chassis. • Including tabs on my net so I can secure them to the panels of my chassis • Decorating the panels.	What are the tertiary colours? How are they made? What is air resistance?	Design	Lesson 3 on Kapow. (Lesson 3&4 in Teams.)
5	To assemble and test my completed product.	• I can assemble the panels of the body to the chassis correctly. • I can remember that smaller shapes create less air resistance and can move faster through the air.	What is meant by the term 'Fauvism'? What artists do you know who use this	Stored energy	Lesson 4 on Kapow. (Lesson 5 in Teams.)

		• I can evaluate the speed of my design based on the understanding that some cars are faster than others as a result of the following: • Body shape. • Stored energy in the elastic band. • Accuracy of the angle in the chassis and axle.	style? Why do we need to create a design when making something?		
6					D&T Assessment materials. KS2 Mechanical systems: Slingshot car (kapowprimary.com)