



Year 6 Medium Term Planning for the Learning Challenge Curriculum

Term: Spring

DT Project: Mechanised Samaras

<u>Previous Learning</u>	<u>New Knowledge /Consolidation</u>	<u>End of Project Outcome</u>	<u>Environmental Links</u>	<u>Key Inventors/People</u>	<u>Project Vocabulary</u>
Pupils have created a less complicated wind up mechanism for a paddle boat in Y4 using different material (plastic). Wire has been cut and manipulated to create a larger structure when creating a buzz wire game in Y5.	Manipulation of wire on a smaller and more complex scale. Reapplication of a twirling mechanism using more components (4 instead of 2).	To create a leaf that can be wound up and twirls when released.	Discuss the concept of using available materials that can be repurposed (wire, hair pins, safety pins, elastic/loom bands) rather than mass produced plastic components.	N/A	Hazard Cross Section Exploded Diagram Combining Manoeuvrability Motion (force) Kinetic Analyse Sustainable Finish Fit for purpose Innovative

Section	Lesson	Key Skills	Learning Objective & Activity
Explore	1	<ul style="list-style-type: none"> Evaluate products for function, cost, and sustainability. Understand how mechanisms can be used to store & release energy in different directions. Consider the impact of products beyond intended purpose. Identify hazards and solutions in design. 	<p><u>To explore a motion and come up with ideas on how to replicate this movement using a mechanism.</u></p> <ul style="list-style-type: none"> Children explore existing twirling mechanisms (birthday card butterflies) made from plastic and analyse the key features (head, frame, wings, elastic) Children take part in a class discussion based on how they could use/ create a mechanism to replicate this movement in a different material (metal) . Children come up with ideas and share opinions. Children use existing knowledge of mechanisms to come up with ideas. Teacher demonstrate appropriate techniques.
Plan / Design	2	<ul style="list-style-type: none"> Generate and refine ideas using research and feedback. Use detailed sketches, CAD, and prototypes. 	<p><u>To create an exploded diagram to show the key features of a twirling butterfly mechanism.</u></p>

		<ul style="list-style-type: none"> Plan the entire making process, considering challenges. Use exploded diagrams to explore the key parts of products that they have created & adapted. Investigate different benefits for using sustainable materials. 	<p>Children draw the key features of an existing butterfly mechanism (made from plastic). Measurements/scale are added using a ruler. Children consider then annotate how the parts will be created using available resources (wire, hair pins, safety pins, elastic/loom bands). Pupils create their wings making choices regarding design, pattern, shape and size (wings to be refined during testing, e.g. trimming). Wings are then to be added to existing (mass produced) mechanisms.</p>
Make	3 & 4	<ul style="list-style-type: none"> Use a variety of tools and materials for robust products. Refine designs through testing and adjustments. Apply finishing techniques for function and aesthetics. Create a wind-up mechanism from strong materials (metal). 	<p><u>To manipulate wire using appropriate tools to create a twirling mechanism</u></p> <p>Manipulate wire (safety pin, hair pin, 3x paper clips) to replicate a twirling mechanism powered by an elastic band.</p> <p>Explore how seeds travel - https://www.youtube.com/watch?v=WqgVks9NViQ. Discuss how nature creates the twirling “mechanism” for a distinct purpose (link this to environment).</p> <p>Class discussion to provide solutions to any problems encountered & the reasons for these (e.g. too many variables, not robust enough, different size).</p>
Evaluate	5	<ul style="list-style-type: none"> Test (including tasting), refine and assess if the product meets their design brief. Identify strengths, weaknesses, and improvements. 	<p><u>To evaluate the success of a mechanical product.</u></p> <p>Children work in pairs to use their iPad to video their leaf flying. Children create a video of themselves talking about their work and considering WWW and EBI.</p> <p>Children compare their metal mechanisms to the mass-produced product, exploring functionality and the overall appearance of the product.</p> <p>What would you change about the project? How could we improve the way it looks/ works? Children then upload a video to seesaw as evidence.</p>
Substantive Knowledge			Disciplinary Knowledge