



Year 6 Medium Term Planning for the Learning Challenge Curriculum

Term: Spring

DT Project: Mechanised Butterflies

<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>
<p>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.</p>	<p>Manipulation of wire on a smaller and more complex scale. Reapplication of a twirling mechanism using more components (4 instead of 2).</p>	<p>To create a butterfly that can be wound up and twirls when released.</p>	<p>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.</p>	<p>N/A</p>	<p>Hazard Cross Section Exploded Diagram Combining Manoeuvrability Motion (force) Kinetic Analyse Sustainable Finish Fit for purpose Innovative</p>

Section	Lesson	Key Skills	Learning Objective & Activity
Explore	1	<ul style="list-style-type: none"> • Use observation techniques to identify the way a butterfly fly's and use creative thinking 	<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 visit butterfly word and research and observe the way a butterfly flies. • Children explore existing twirling mechanisms 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. • YouTube video demonstration to set expectation

Plan / Design	2	<ul style="list-style-type: none"> • Create their own design criteria and specification • Follow and refine a logical plan. • Use annotated sketches, cross-sectional planning and exploded diagrams • Clearly explain how parts of design will work, and how they are fit for purpose 	<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"> • 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.
Make	3 & 4	<ul style="list-style-type: none"> • Use selected tools and equipment precisely • Follow, and adapt detailed step-by-step plans (how to video) • Accurately measure, mark out, cut and shape materials and components • Accurately assemble, join and combine materials and components • Be resourceful with practical problems 	<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>DIY video - https://www.youtube.com/watch?v=-h3dFZntpnk</p> <p>Class discussion to provide solutions to any problems encountered.</p> <p>Discuss why these DIY mechanisms are unsuitable for our wings (e.g. too many variables, not robust enough, different size).</p>
Evaluate	5	<ul style="list-style-type: none"> • Test and evaluate final product • Evaluate ideas and finished product against specification (planning), considering purpose and appearance. 	<p><u>To evaluate the success of a mechanical product.</u></p> <p>Children work in pairs to use their iPad to video their butterfly 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?</p> <p>Children then upload a video to seesaw as evidence.</p>

