

DT curriculum in Y4 - Processes

Rationale

A range of opportunities and experiences are provided in Y4 to ensure that all pupils can see their designs in different ways such as through exploded diagrams. Children will be helped to understand how this can help develop better thinking skills and focus on smaller details. The children are going to be encouraged to evaluate an existing product and then go on to use their knowledge of this in their design project of a similar product. They will also be helped to build structures with increasing independence and accuracy whilst showing how models can be made stronger and more stable.

Prior Knowledge	Learning	Future Learning
<p>In Y3 pupils are taught to:</p> <ul style="list-style-type: none"> • Use knowledge of existing products to design his/her own functional product. • Create designs using annotated sketches, cross-sectional diagrams and simple computer programmes. • Safely measure, mark out, cut, assemble and join with some accuracy. • Make suitable choices from a wider range of tools and unfamiliar materials and plan out the main stages of using them. • Investigate and analyse existing products and those he/she has made, considering a wide range of factors. • Strengthen frames using diagonal struts. 	<p>In Y4 pupils are taught to:</p> <ul style="list-style-type: none"> • Use knowledge of existing products to design a functional and appealing product for a particular purpose and audience. • Create designs using exploded diagrams. • Use techniques which require more accuracy to cut, shape, join and finish his/her work e.g. Cutting internal shapes, slots in frameworks. • Consider how existing products and his/her own finished products might be improved and how well they meet the needs of the intended user. • Apply techniques he/she has learnt to strengthen structures and explore his/her own ideas. • Understand and use electrical systems in products. 	<p>In Y5 pupils are taught to:</p> <ul style="list-style-type: none"> • Use his/her research into existing products and his/her market research to inform the design of his/her own innovative product. • Create prototypes to show his/her ideas. • Make careful and precise measurements so that joins, holes and openings are in exactly the right place. • Produce step by step plans to guide his/her making, demonstrating that he/she can apply his/her knowledge of different materials, tools and techniques. • Make detailed evaluations about existing products and his/her own considering the views of others to improve his/her work. • Build more complex 3D structures and apply his/her knowledge of strengthening techniques to make them stronger or more stable. • Understand how to use more complex mechanical and electrical systems.

Understand how mechanical systems such as levers and linkages or pneumatic systems create movement

In **Y6** pupils are taught to:

- Use research he/she has done into famous designers and inventors to inform the design of his/her own innovative products.
- Generate, develop, model and communicate his/her ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.
- Apply his/her knowledge of materials and techniques to refine and rework his/her product to improve its functional properties and aesthetic qualities.
- Use technical knowledge accurate skills to problem solve during the making process.
- Use his/her knowledge of famous designs to further explain the effectiveness of existing products and products he/she have made.
- Use a wide range of methods to strengthen, stiffen and reinforce complex structures and can use them accurately and appropriately.
- Apply his/her understanding of computing to program, monitor and control his/her product.

Key Vocabulary

*design, template, fabric, annotated sketches, cross-section, diagram
winding, mechanism, wheels, axles, winder, slider, levers, linkage girder, rafter, strut
strengthen, structure, stronger, stiffer, stable, rigid
measure, mark out, cut, assemble, join, diagonal, exploded diagram, internal
mechanical, pneumatic, electrical
evaluate,
product*

