



UKS2 Design Technology



Knowledge organiser – Structures

What will we be learning?

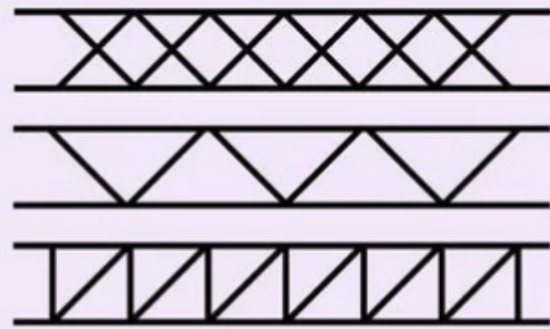
The Brief: Design and build a bridge to hold.....

Key knowledge

- * draw on market research to inform design
- * use research of user's individual needs, wants, requirements for design
- * identify features of design that will appeal to the intended user
- * create own design criteria and specification
- * come up with innovative design ideas
- * follow and refine a logical plan.
- * use annotated sketches, cross sectional planning and exploded diagrams
- * make design decisions, considering, resources and cost * clearly explain how parts of design will work, and how they are fit for purpose
- * independently model and refine design ideas by making prototypes and using pattern pieces
- * use computer-aided designs
- * use selected tools and equipment precisely * produce suitable lists of tools, equipment, materials needed, considering constraints * select appropriate materials, fit for purpose; explain choices, considering functionality and aesthetics
- * create, follow, and adapt detailed step-by-step plans
- * explain how product will appeal to audience; make changes to improve quality
- * accurately measure, mark out, cut and shape materials/components
- * accurately assemble, join and combine materials/components
- * accurately apply a range of finishing techniques
- * use techniques that involve a number of steps
- * be resourceful with practical problems
- * evaluate quality of design while designing and making; is it fit for purpose?
- * keep checking design is best it can be.
- * evaluate ideas and finished product against specification, stating if it's fit for purpose
- * test and evaluate final product; explain what would improve it and the effect different resources may have had
- * do thorough evaluations of existing products considering: how well they've been made, materials, whether they work, how they've been made, fit for purpose
- * evaluate how much products cost to make and how innovative they are
- * research and discuss how sustainable materials are * consider the impact of products beyond their intended purpose
- * discuss some key inventors/designers/ engineers/ chefs/manufacturers of ground breaking products
- * select materials carefully, considering intended use of the product, the aesthetics and functionality. * explain how product meets design criteria
- * reinforce and strengthen a 3D frame using different types of truss.



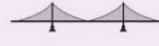
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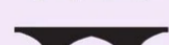
What type of bridge could you design?



A truss bridge?



A suspension bridge?



An arch bridge?



You could even combine techniques in your design!

Key Vocabulary	Possible Evidence
lattice truss, warren truss, pratt truss, suspension, strength, forces, gravity, beams, decks, construction	<ul style="list-style-type: none"> -visit and assess a local bridge. - design and build a bridge fit for purpose. - evaluate the design and make changes if needed.