

Year 5 Squashed tomato challenge

What I should know.

- Experience of using measuring, marking out, cutting, joining, shaping and finishing techniques with construction materials.
- Basic understanding of what structures are and how they can be made stronger, stiffer and more stable.

Knowledge

Design

Know and use technical vocabulary relevant to the project.

Make

Understand how to strengthen, stiffen and reinforce 3-D frameworks

Evaluate

Vocabulary

frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent

design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional

DT Skills

Designing

- Carry out research into user needs and existing products, using surveys, interviews, questionnaires and web-based resources.
- Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost.
- Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches.

Making

Formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used.

Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks.

Use finishing and decorative techniques suitable for the product they are designing and making.

Evaluating

Technical knowledge and understanding

Investigate and evaluate a range of existing frame structures.

Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests.

Research key events and individuals relevant to frame structures.



Working Toward Expected	Expected Standard	Exceeding Expected Standard
<p>Processes Use knowledge of existing products to design a functional and appealing product for a particular purpose and audience</p>	<p>Processes Use his/her research into existing products and his/her market research to inform the design of his/her own innovative product</p>	<p>Processes Use research he/she has done into famous designers and inventors to inform the design of his/her own innovative products</p>
<p>Processes Create designs using exploded diagrams</p>	<p>Processes Create prototypes to show his/her ideas</p>	<p>Processes Generate, develop, model and communicate his/her ideas through discussion, annotated sketches, cross sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p>
<p>Processes Use techniques which require more accuracy to cut, shape, join and finish his/her work e.g. Cutting internal shapes, slots in frameworks</p>	<p>Processes Make careful and precise measurements so that joints, holes and openings are in exactly the right place</p>	<p>Processes Apply his/her knowledge of materials and techniques to refine and rework his/her product to improve its functional properties and aesthetic qualities</p>
<p>Processes Use his/her knowledge of techniques and the functional and aesthetic qualities of a wide range of materials to plan how to use them</p>	<p>Processes 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</p>	<p>Processes Use technical knowledge accurate skills to problem solve during the making process</p>
<p>Processes Consider how existing products and his/her own finished products might be improved and how well they meet the needs of the intended user</p>	<p>Processes Make detailed evaluations about existing products and his/her own considering the views of others to improve his/her work</p>	<p>Processes Use his/her knowledge of famous designs to further explain the effectiveness of existing products and products he/she have made</p>
<p>Processes Apply techniques he/she has learnt to strengthen structures and explore his/her own ideas</p>	<p>Processes Build more complex 3D structures and apply his/her knowledge of strengthening techniques to make them stronger or more stable</p>	<p>Processes Use a wide range of methods to strengthen, stiffen and reinforce complex structures and can use them accurately and appropriately</p>
<p>Processes Understand and use electrical systems in products</p>	<p>Processes Understand how to use more complex mechanical and electrical systems</p>	<p>Processes Apply his/her understanding of computing to program, monitor and control his/her product</p>