



Year 4 DT Knowledge Organiser: How can I transport a biscuit safely?



Subject Specific Skills

- Investigate a collection of different shell structures including packaging.
- Evaluate existing products to determine which designs children think are the most effective.
- Practise making nets out of card, joining flat faces with masking tape to create 3-D shapes. Experiment with assembling in nets in numerous ways.
- Demonstrate skills and techniques of scoring, cutting out and assembling.
- Demonstrate how to use different ways of stiffening and strengthening their shell structures e.g. folding and shaping, corrugating, ribbing, laminating.
- Discuss and explore the graphics techniques and media that could be used to achieve the desired appearance of their products.
- Use annotated sketches and prototypes to develop, model and communicate their ideas for the product
- Evaluate throughout and the final products against the intended purpose and with the intended user, drawing on the design criteria previously agreed.

Prior Learning

- Experience of using different joining, cutting and finishing techniques with paper and card.
- A basic understanding of 2-D and 3-D shapes in mathematics and the physical properties and everyday uses of materials in science.

Key Vocabulary

shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating
font, lettering, text, graphics, decision, evaluating, design brief design criteria, innovative, prototype

Design: Design a package that a biscuit

- Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and purpose of the product.
- Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas

Make:

- Order the main stages of making.
- Select and use appropriate tools to measure, mark out, cut, score, shape and assemble with some accuracy.
- Explain their choice of materials according to functional properties and aesthetic qualities.
- Use finishing techniques suitable for the product they are creating

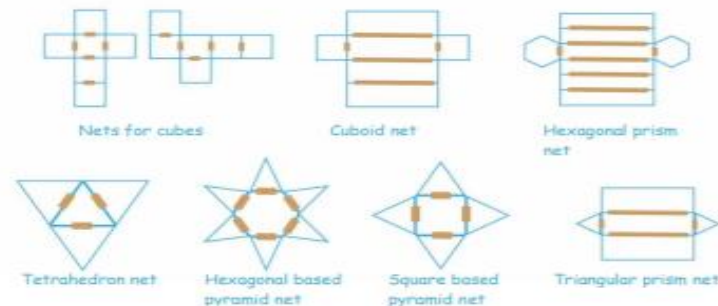
Evaluate:

- Investigate and evaluate a range of existing shell structures including the materials, components and techniques that have been used.
- Test and evaluate their own products against design criteria and the intended user and purpose.

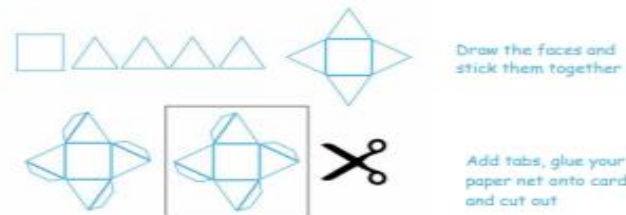
Technical Knowledge:

- Develop and use knowledge of how to construct strong, stiff shell structures.
- Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes.
- Know and use technical vocabulary relevant to the project.

Assemble and evaluate 3-D shapes using standard sized card squares, rectangles, equilateral triangles, isosceles triangles and hexagons, joined with masking tape.



Creating the net for the product you are designing and making without using computer-aided design:



Stiffening and strengthening sheet materials:

