



Year 3/4 DT Knowledge Organiser: Structures

Subject Specific Skills

- Develop a design brief within a context which is authentic and meaningful.
- Discuss the uses and purposes of their shell structures
- Use annotated sketches and prototypes to develop, model and communicate their ideas for the product

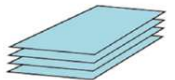
Prior Learning

- 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.

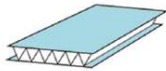
Technical Knowledge:

- 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..

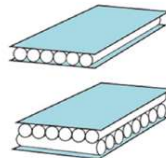
Laminating – glue together several layers of card.



Corrugating – zig-zag a piece of paper or card and glue in between two layers of card.



Ribbing – glue layers of straws between layers of card.



Design:

- 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.

Key Vocabulary

- **Cuboid** – a solid body with rectangular sides.
- **Edge** – where two surfaces meet at an angle.
- **Face** – a surface of a geometric shape.
- **Font** – a printer's term meaning the style of lettering being used.
- **Net** – the flat or opened-out shape of an object such as a box.
- **Prism** – a solid geometric shape with ends that are similar, equal and parallel.
- **Scoring** – cutting a line or mark into sheet material to make it easier to fold.
- **Shell structure** – a hollow structure with a thin outer covering.
- **Vertex** – used to refer to the corners of a solid geometric shape, where edges meet.