



# Structures

## Shell Structures

Y3

In this unit, we will design, make and evaluate packaging to hold a small chocolate gift for a relative.

### Knowing More Remembering More:

#### Remembering previous learning

**What is a structure?** A structure is a 3D shape made from different materials and parts. They are made to be strong, stable and sturdy.

**What is a free-standing structure?** A free-standing structure is a structure that stands up on its own without being attached to anything else.

**What is stability?** Stability is the extent to which a structure will fall over if a force is applied.

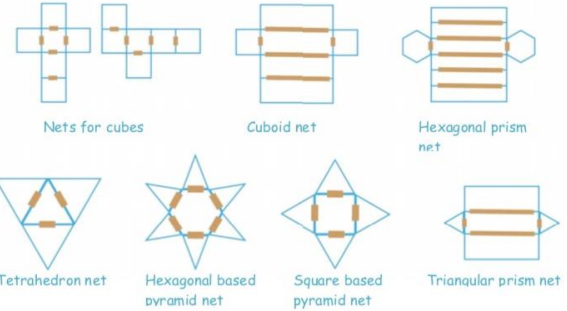
**What is a buttress?** A buttress is a structure added to a wall, tower or framework to make it more stable or stronger.

**What is brick bonding?** Brick bonding is when bricks are arranged in a wall to improve the performance of the structure or improve its appearance.

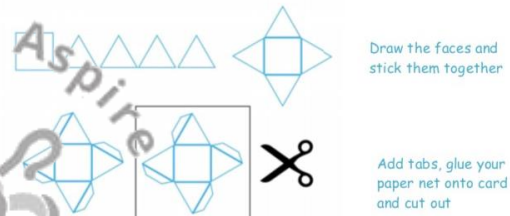
**What is a prototype?** A prototype is a model which allows children to try out ideas.

### Techniques:

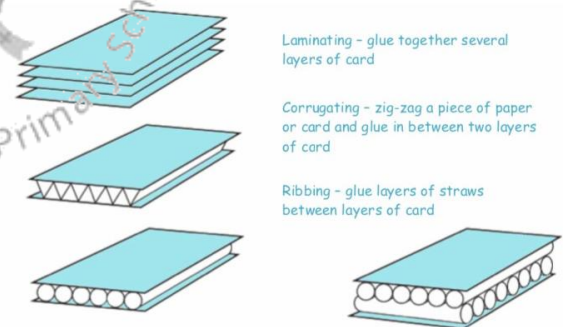
Assemble and evaluate 3-D shapes using standard sized card squares, rectangles, equilateral triangles, isosceles triangles and hexagons, joined with masking tape.



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



Strengthening and strengthening sheet materials:



### Skills

I will be able to:

#### Design:

- 3.1 Record ideas by drawing using annotated sketches.
- 3.3 Use prototypes to develop and share ideas.
- 3.5 Order the main stages of making.

#### Make:

- 3.7 Explain my choice of materials according to functional properties and aesthetic qualities.
- 3.8 Select and use appropriate tools to measure, mark, cut and assemble with some accuracy.
- 3.9 Use a range of finishing techniques with some accuracy.

#### Evaluate:

- 3.12 Research key individuals in D&T
- 3.14 Discuss how well the finished product meets the design criteria.
- 3.15 Identify the strengths and areas for development in my work.

### Inspiring Individuals



Nicholas Grimshaw



Richard Buckminster Fuller



Paula Scher

### Vocabulary

#### Technical vocabulary

Shell structure, 3-D shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity.

#### Process vocabulary

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. Names of tools, equipment and materials used.

### Knowing More Remembering More:

#### Knowing more in Y3

**What is a shell structure?** A shell structure has a thin outer layer and is hollow.

**What is a net?** A net is what a 3D shape would look like if it was unfolded.

**What is scoring?** Scoring is cutting a line or mark into sheet material to make it easier to fold.

**What is laminating?** Laminating is when several layers of card are glued together.

**What is corrugating?** Corrugating is where a zig-zag piece of paper or card is glued between two layers.

**What is ribbing?** Ribbing is where straws are layered between two pieces of paper or card.