



# Year 3-D.T.-Term 4: Shell Structures

What should I already know?

- Experience in using different joining and cutting and finishing techniques with paper and card
- An understanding of 2-D and 3-D shapes.

D.T. Skills I will develop:

**Designing:**

- Generate realistic ideas through discussion and develop design criteria.
- Use annotated sketches and prototypes and analyse existing products

**Making:**

- Order the main stages of making
- Select and use appropriate tools to measure, check and assemble accurately
- Use appropriate finishing techniques.

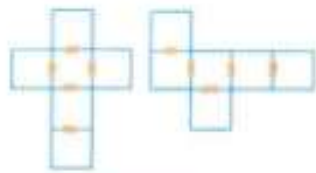
**Evaluating:**

- Evaluate a range of existing shell structures
- Test and Evaluate product from design criteria.

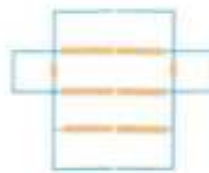
**Technical knowledge and understanding:**

- Use knowledge to construct shell structures from nets of cubes, cuboids and more complex shapes.

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



Nets for cubes



Cuboid net



Hexagonal prism net



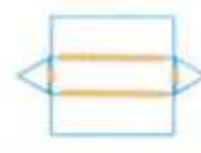
Tetrahedron net



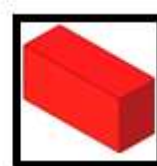
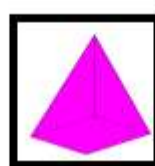
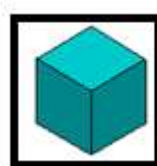
Hexagonal based pyramid net



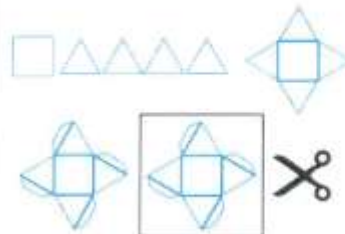
Square based pyramid net



Triangular prism net



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



Draw the faces and stick them together

Add tabs, glue your paper net onto card and cut out

**Curriculum Key Question: How can I look after myself and others?**

**Topic: The Iron Man -friend or enemy?**

**Key Vocabulary ( including definition)**

**Shell structure** – a package made from a net to hold something

**3-D** – in 3 dimensions- not flat.

**Net** – the flat sections that go together to make a 3-D shape.

**Cube/cuboid** – examples of 3-D shapes

**Face** – flat side of a 3-D shape.

**Edge** – the join where 2 faces meet.

**Design criteria-** the things you must include when you plan your shell structure.

**Scoring** – using a knife or scissors to make a line to help folding.



**Assemble** – put together

**Evaluate-** rate against the design criteria

**Marking out** – measuring and planning out your shape on paper

**Material** – what you make your shell structure out of.

**Prototype** – a practice design to test out ideas.