## Real life examples

- Shell structures are structures with a solid outer surface and a hollow inner area. Frame structures can be used to provide support and shape.

- An example that uses shell and frame structures is a keepsake box. The purpose of this structure is to keep personal or significant items safe. It could also be given as a gift, so it is important to consider the external design as well as the functionality of the box.

## Steps to Success

**Designing:**
What type of shell structure shall will you make? What is the purpose of your product?
How will my product appeal to my intended user?
What equipment will you need to?
How big does your structure need to be? What will net will you use?
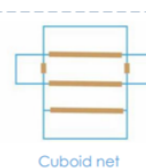
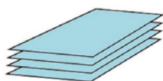**Making:**
How are you going to attach your materials together?
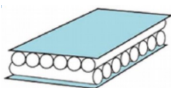Which method are you going to use to strengthen and stiffen your structure?

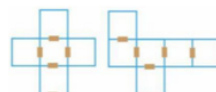- **Laminating:**
  Glue together several layers of card.

- **Ribbing:**
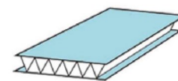  Glue together layers of straws between layers of card

- **Corrugating:**
  Zig-zag a piece of paper or card and glue in between two layers of card.

Cuboid net

Nets for cubes

**Evaluating:**
Does your keepsake box work? Does your box look appealing?
Are your items well protected? Is there anything you could improve next time?

## Vocabulary:

| corrugating | a zig-zag a piece of paper or card and glue in between two layers of card |
|---|---|
| cuboid | a solid body with rectangular sides |
| durable | able to last a long time |
| edge | where two surfaces meet at an angle |
| face | a surface of a geometric shape |
| laminating | glue together several layers of card |
| 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 |
| ribbing | glue layers of straws between layers of card |
| 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 |

## Golden Threads

| | |
|---|---|
| User | who the product is for |
| Purpose | the job your product is supposed to |
| Design Decisions | making choices about your design |
| Innovation | using your own ideas or methods |