

# Preston Primary School Knowledge Organiser

Topic: Design and Technology

Term: Autumn 2

Year: Unit 3

Duration: 5 Weeks



**Shell Structures: Design, make and evaluate a shell structure to package a product.**

*In this Long Enquiry, the children will be making a shell structure to package a product.*

The Powerful Knowledge we will take away from this Learning Enquiry (what will be learning):



- I will learn what the many purposes of shell structures are (protecting, containing, and/or presenting).
- I will learn to explore existing shell structures and use this to deconstruct and assemble the net of basic 3D shapes.



- I will discuss the properties of shell structured package.
- I will learn how to design and make shell structure packaging to contain and/or protect a product, which is appealing to users.



- I will use a variety of tools and materials to make shell structure packing and joints.
- I will evaluate my product both during the making process and after against the design criteria.

Our Key Vocabulary:

Word	Meaning
Structure	A building or other object constructed from several parts.
Shell structure	A structure built without a frame. An example of this could be a cereal box.
Packaging	Materials used to wrap or protect goods.
Recycling	The action or process of converting waste into reusable material.
Stronger	Able to withstand force, pressure, or wear
Stiffer	Not easily bent or changed in shape
Stable	Not likely to give way or overturn; firmly fixed.
Joining	Become linked or connected to.
Rolling	Moving by turning over and over.
Folding	Able to be bent or rearranged into a flatter or more compact shape
Measure	The size or amount of something.
Products	A thing or person that is the result of an action or process.

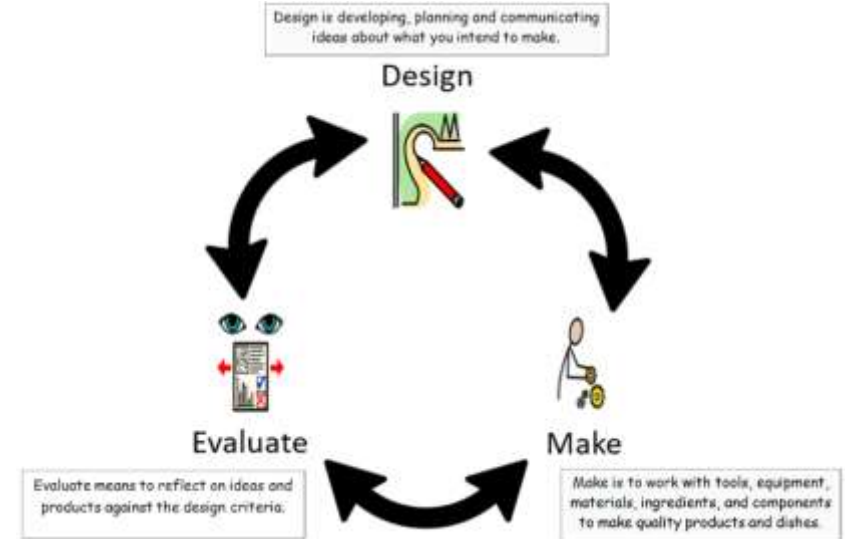
### What I already know:

Previously, the children should have learnt about the following bullet points. Have a discussion with your child about the following bullet points and what they could mean. You could explore different shell structures that you have at home. You could explore different shell structures that you have at home and discuss how they have been made.

- Explore a variety of materials and describe their properties [soft, hard, strong, flimsy etc.] and their similarities and differences.
- Discuss similarities and differences between existing structures [houses, buildings].
- Begin to measure and join materials.
- Discuss ways to make material/product stronger.
- Use joining, rolling, or folding to make structure stronger.
- Design and make a structure that is can be made stronger, stiffer, and more stable.
- Evaluate their ideas and products against design the criteria.
- Begin using materials to make simple joints [using glue, tape, and paper clips among other materials].
- Investigate and explore a variety of different material and discuss which materials are stronger and more stable

### The Design, Make and Evaluate Model of Design and Technology:

We will use the Design, Make and Evaluate continuous cycle during every Design and Technology lesson. The cycle shows how we will be constantly evaluating during the design and make stages to improve our products or dishes along our invention journey. As well as evaluating our final product or dish at the end of our long enquiry to conclude what went well, what we would improve next time and what challenges we have faced along the way.



### Examples of shell structures:

