



Knowledge and Skills Mind Map (DT)

Year 3 Spring Term

Knowledge - 
Skill - 

Before DT unit: Can I design and make a canopic jar? (History link – not DT)

***Note to Teachers: This lesson is not part of DT curriculum (shell structures). DT learning begins from lesson 2 (making structure for canopic jar)**

- **Vocab:** canopic jar, container, lid, preserve, decoration, material
- Know that canopic jars were used in Ancient Egypt to store and protect organs.
- Know that canopic jars have a container and a lid, often decorated with faces or symbols.
- Know that materials such as clay can be shaped and decorated to create objects.

Task: Show images of real canopic jars and model how to design a jar based on shape and decoration (e.g. rounded container, lid with an animal or human head), then children design their own canopic jar and make it using clay (forming a hollow container and shaping a lid), followed by painting and decorating the finished jar using Egyptian-inspired colours, patterns and symbols.

Session 1: Design and shape clay jar (form container + lid)

Session 2: Drying time + painting base colours

Session 3 (if needed): Add detail, patterns and finishing decoration

PAGE 1

Structures:

Shell Structures

'Can I design, make an evaluate a shell structure container to protect my canopic jar?'



2. Can I design a shell structure container for my canopic jar?

- **Vocab:** design brief, design criteria, net, container, structure, tabs, join, purpose
- Know that we must design a container for a specific purpose (to protect the canopic jar).
- Know that design criteria help us decide what our product must include (e.g. strong, stable, suitable size).
- Know that nets are used to create 3D shell structures from flat materials.

Task: Introduce the design instructions (design a shell structure container to protect a canopic jar) and model how to create simple design criteria (e.g. must fit the jar, must be strong, must have a secure lid, must be neatly finished), then children measure or estimate the size of their canopic jar and produce an annotated design drawing showing the shape of the container, key features (lid, tabs, joins, decoration) and how it will be constructed using a net, Children write a short explanation describing how their design will protect the jar.

Designing:

- 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.

Technical Knowledge and Understanding:

- 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.

Prior Learning (Year 1 Autumn: Making Bridges)

- Know that in Year 1, children have made simple structures (bridges) using paper and card by cutting and joining.
- Know that children have used simple joining methods (e.g. glue and tape) when making products.

1. Can I explore and evaluate shell structures? (Lesson 1 of DT topic)

- **Vocab:** shell structure, net, face, edge, vertex, tab, join, stiff, structure, container
- Know that a shell structure is a hollow 3D shape made from a flat material.
- Know that many containers (e.g. boxes, packaging) are made from nets that are folded and joined.
- Know that shell structures are designed to protect and contain objects.
- Know that shell structure is kept strong by its shape and by folding or adding extra layers to the material.

Task: Provide a range of packaging and containers (e.g. small boxes, cartons, food packaging) and model how to examine them (identifying nets, tabs, joins and shape), then children explore and take apart a simple box to identify how it is constructed (flat net, folds, tabs used for joining), discuss how the structure protects the contents, and record ideas by producing a labelled diagram of the net and key features (faces, tabs, joins).

Evaluating (Investigating): Investigate and evaluate a range of existing shell structures including the materials, components and techniques that have been used.

Technical Knowledge and Understanding:

- 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.



Knowledge and Skills Mind Map (DT)

Year 3 Spring Term

Knowledge - 
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3. Can I practise making shell structures using nets?

- **Vocab:** net, score, fold, tab, join, assemble, stiffen, structure
- Know that a net is a flat shape that can be folded to make a 3D structure.
- Know that scoring helps us fold card neatly and accurately.
- Know that tabs are used to join edges together to assemble a structure.
- Know that we can strengthen structures by folding, shaping or layering materials.

Task: Model how to use a pre-drawn net (cutting carefully along edges, scoring along fold lines, folding precisely and assembling using tabs and glue), then demonstrate how to strengthen the structure (e.g. folding edges, adding layers or reinforcing corners); children practise making a simple box from a net, test how strong it is, and record their learning by labelling a diagram (net, tabs, folds) and explaining what made their structure stronger or more accurate.

Making (Focused Tasks):

- 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.

Technical Knowledge and Understanding:

- 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.

PAGE 2:

Structures:

Shell Structures
*'Can I design, make
an evaluate a shell
structure container
to protect my cano-
pic jar?'*



4. Can I make and evaluate my shell structure container?

- **Vocab:** assemble, structure, net, tab, join, strengthen, evaluate, purpose
- Know that we can use our design and net to create a shell structure container.
- Know that a successful structure should be accurate, strong and suitable for its purpose.
- Know that we can evaluate our product by testing how well it protects the canopic jar.
- Know that we must use tools and materials safely when cutting, scoring and assembling.

Task: Model how to follow a design to construct a shell structure container (accurately cutting out a net, scoring fold lines, folding and joining using tabs, and reinforcing weak areas), then children make their container using card and selected materials, test how effectively it protects their canopic jar (fit, stability, strength), and complete a written evaluation comparing their product to the design criteria and suggesting specific improvements (e.g. stronger corners, better joins, improved size or decoration).

Making:

- 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.

Evaluating:

- Test and evaluate their own products against design criteria and the intended user and purpose.
- Technical Knowledge and Understanding:
 - Develop and use knowledge of how to construct strong, stiff shell structures.
 - Know and use technical vocabulary relevant to the project.