Beech Hill Primary School Knowledge Organiser

Topic: Building structures	Year group	Term
Packaging/desk tidy	Year 4	Spring 1 6 sessions

Background knowledge

In KS1 children developed their understanding of structures through junk modelling and craft materials. Last year in their picture frame project they began to develop an understanding of the need for accuracy and planning in the building of structures. In this unit children will further develop their skills through the use of nets and CAD, and consolidate skills of joining and finishing from previous year groups.

What should I already know?

Materials can be joined using glue or tape and shaped using scissors
Different materials require different tools
We can use a range of materials to make models or structures
Working accurately and with precision leads to a more successful outcome.

National Curriculum Objectives / Key Skills

Design

- Use research and develop design criteria to inform the **design** of functional, appealing products that are fit for purpose and audience.
- Generate, develop, model and communicate their ideas through discussion, annotated sketches
- Investigate a range of existing products

Make

- Select from and use a wider range of tools and equipment to **perform practical tasks, such as cutting, shaping, joining and finishing**, with increasing accuracy.
- Select from and use a wider range of materials and components, including construction materials according to their functional properties and aesthetic qualities.
- Apply their understanding of how to strengthen, stiffen and reinforce more complex structures

Evaluate

- **Evaluate** their ideas and products against their own design criteria and consider the views of others.
- I can research existing products to help inspire my design.
- I can design a product using ideas from my research, thinking about who the product is for. (design criteria)
- I can draw an annotated sketch of my design and follow a simple step by step plan.
- I know how to work safely with new tools and materials.
- I can use tools with increasing accuracy to cut, shape, join and finish.
- I can explain why I've chosen certain designs, tools and materials to serve a purpose

The Journey

1. WALT: Investigate existing products

Look at the different shapes and designs used to create gift boxes and packaging, unfold them to look at nets. Which are the best designs and why? What makes them appealing? Introduce Design Brief and success criteria.

2. WALT: Design my packaging

Look at key person Set the design criteria-to design a functional and appealing packaging for…….. Think about what this means for our designs. Create an annotated sketch, showing how they would like the finished product to look, labelling where they will need joining tabs etc. Think about purposeful branding for the product.

3. WALT: Make a prototype using CAD

Model how to use Microsoft word/tinkercad to create a net for their design- use existing nets as examples to build on.

4. WALT: Plan how I will make my product

• I can prove that my design meets the criteria	Model the steps needed to make the box to the children, they then write a simple flow chart or plan for their own products to follow in the following lesson. 5. WALT: Make my packaging. 6. WALT: Evaluate finished gift box- how does it meet the design criteria. Could have a visitor in to choose winning design?

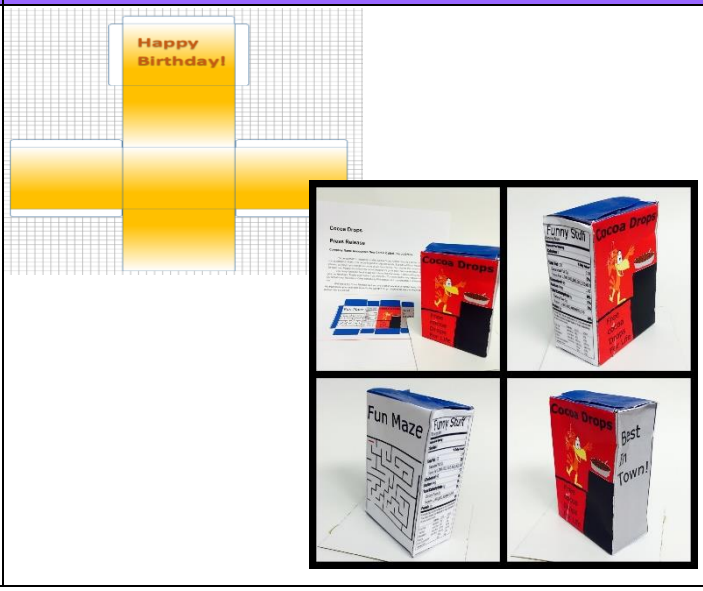
Outcomes

An overview of what children will know / can do

Working towards: I can make simple packaging design with support.

Expected: I can follow steps to make a piece of packaging successfully

Exceeding: I can make a well designed and finished piece of packaging, thinking about the audience in my design.

Key Vocabulary	Timeline / Diagrams
CAD- computer assisted design: using a computer program to help create a net or design for a product **Edge** – where two surfaces meet at an angle. **Face** – a surface of a geometric shape. **Vertex** – the corners of a geometric shape where edges meet. **Net** – the flat or opened-out shape of an object such as a box. **Cuboid** – a solid body with rectangular sides. **Prism** – a solid geometric shape with ends that are similar, equal and parallel.	

Prototype- a model version of your finished product to check it will work. **Annotated sketch-** a drawing of your design with added notes about the design or materials **Flow chart-** A set of instructions that shows the steps as boxes of various kinds, and their order by connecting the boxes with arrows.	

Key people / places

Assessment questions / outcomes
Which packaging designs did you think were the most successful? Why? How will your design match the brief? What is a net and why is it useful? Was your design successful? Why/why not? How would you improve it next time?