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EBJ Knowledge Organiser

Design Technology

Year 6

Autumn 2

Structures - Playgrounds



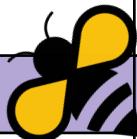
Curriculum Overview

In this unit, pupils explore how playground structures are designed and built by investigating stability and strength before designing their own equipment. They analyse real playground structures, create annotated sketches and prototypes, write a design brief with success criteria, and plan the materials and tools they need. During the making process, pupils measure, cut and join materials accurately, build strong frame structures using bracing, reinforcement and triangulation, use tools safely, and add detail to improve the overall finish. They then evaluate their models by testing how strong and stable they are, checking them against the success criteria, and identifying strengths and areas for improvement.

To make the playground structure, carefully measure and cut your materials to the correct lengths, then assemble a strong frame using secure joints and techniques such as bracing, reinforcement and triangulation. Begin by building the main base, then add upright supports and crosspieces to strengthen the structure. Use tools safely and accurately, checking that each piece fits before fixing it in place. Once the frame is stable, add any interactive features and finish the model with neat details to improve its appearance and make it look realistic.



Design Criteria



Key Definitions

Your structure must:

- Be strong and stable**, using reinforcement, bracing or triangulation.
- Use a secure frame structure** made from accurately measured and neatly cut materials.
- Be safe for the intended user group**, with no sharp edges or unsafe design features.
- Include at least one interactive or moving feature** (e.g., swing seat, slide, climbing element).
- Be visually appealing**, with thoughtful colour, shape and finishing details.
- Use appropriate joining techniques** so that all parts are firmly and neatly connected.
- Match your design brief** and meet the success criteria agreed at the start.
- Be made carefully and accurately**, showing good use of tools and materials.
- Be functional**, meaning the parts work as intended in the model.
- Be presented clearly**, with a labelled final design drawing or model explanation.

Apparatus	Equipment designed for recreation and play, such as seesaws and swings.
Bench hook	A tool which hooks onto the edge of the workbench. It's used to hold woodwork still when sawing.
Coping saw	A saw with a narrow D-shaped metal blade, used for cutting curves in woods.
Dowel	Wood in the shape of a cylinder. Dowels come in all different sizes and thicknesses.
Jelutong	A type of softwood, it is lightweight, easy to cut and shape.
Mark out	To measure and mark where a piece of material needs to be cut or shaped.
Modify	To change something to improve or fix it.
Natural materials	Materials which come from nature. (e.g. wood comes from trees)
Plan view	A two-dimensional diagram used to describe a place or object from above with annotations and other details such as measurements.
Playground	An outdoor area for children to play in. They usually have different apparatus to play on such as climbing frames and slides.
Prototype	A simple model that lets you test out your idea and how it will look and work.
Reinforce	To make a structure or material stronger, especially by adding another material or element to it.
Structure	Something which stands, usually on its own.
Tenon saw	A saw with a flat blade, used for cutting wood in straight lines or angles.
User	A person that uses something.
Vice	A piece of equipment used to hold an object still while you work on it.

Example design brief

You have been asked to design and make a model of a new piece of playground equipment for a local park. The structure should be strong, stable and safe for children aged 5-11, and it must include at least one interactive or moving feature. Your design should be visually appealing, fit within the space available, and be made using frame-structure techniques. You will need to research existing playground equipment, sketch and annotate your ideas, and choose suitable materials and tools to create an accurate and well-finished model that meets the needs of the users.

Key Vocabulary

Structure, frame structure, reinforcement, stability, strength, bracing, triangulation, load-bearing, Design brief, specification, prototype, annotation, joints, fixtures & fittings, finishing, dowel, strip wood, PVA glue, sandpaper, bench hook, hacksaw, aesthetics, durability, user group, safety features,

