

Bomere and the XI Towns Federation Knowledge Organiser—DT

Topic: Structures

Class/Year Groups: Y1

Term: Autumn 2024

What you already know?

Experience of using construction kits to build walls, towers and frameworks.

- Experience of using of basic tools e.g. scissors or hole punches with construction materials e.g. plastic, card.
- Experience of different methods of joining card and paper.

Techniques for assembling freestanding structures

Swing, Pipe cleaner joint, Slide, Half of card tube, Straws, Matches, Card, Plasticine, Masking tape, Cut and glued.

Show children how to join sheet materials and reclaimed boxes together using different tapes and glues.

What you will learn:

Designing • Generate ideas based on simple design criteria and their own experiences, explaining what they could make. • Develop, model and communicate their ideas through talking, mock-ups and drawings.

Making

- Plan by suggesting what to do next. • Select and use tools, skills and techniques, explaining their choices. • Select new and reclaimed materials and construction kits to build their structures. • Use simple finishing techniques suitable for the structure they are creating.

Evaluating

- Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings. • Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria.

Technical knowledge and understanding

- Know how to make freestanding structures stronger, stiffer and more stable. • Know and use technical vocabulary relevant to the project.

Vocabulary

cut, fold, join, fix

structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved

metal, wood, plastic

circle, triangle, square, rectangle, cuboid, cube, cylinder

design, make, evaluate, user, purpose, ideas, design criteria, product, function

Glossary

- **Freestanding structure** – a structure that stands on its own foundation or base without attachment to anything else.
- **Frame structure** – a structure made from thin components e.g. tent frame.
- **Shell structure** – a hollow structure with a thin outer covering.
- **Stability** – in relation to a freestanding structure, the extent to which it is likely to fall over if a force is applied.
- **Buttress** – a structure added to a wall, tower or framework to make it more stable and/or reinforce it.
- **Brick bonding** – arranging bricks in a wall to improve the performance of the structure or improve its appearance.
- **Mock-up** – 3-D representation of a product.



National Curriculum Objectives:

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- build structures, exploring how they can be made stronger, stiffer and more stable

