



Year group: Year 5

Term: Summer

Subject: Design Technology – Structures –
Bird Hide

Prior learning

EYFS

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

Year 4 Autumn Term – Gift Boxes

The children will practise making nets out of card, joining flat faces with masking tape to create 3-D shapes which will create gift boxes.

Notes and guidance

Use a construction kit consisting of plastic strips and paper fasteners to build 2-D frameworks.

Compare the strength of square frameworks with triangular frameworks.

Ask the children to reinforce square frameworks using diagonals to help develop an understanding of using triangulation to add strength to a structure.

Demonstrate how paper tubes can be made from rolling sheets of newspaper diagonally around pieces of e.g. dowel.

Ask children to use these tubes and masking tape or paper straws with pipe cleaners to build 3-D frameworks such as cubes, cuboids and pyramids. How could each of the frameworks be reinforced and strengthened?

Demonstrate the accurate use of tools and equipment.

Develop skills and techniques using junior hacksaws, G-clamps, bench hooks, square section wood, card triangles and hand drills to construct wooden frames, as appropriate.

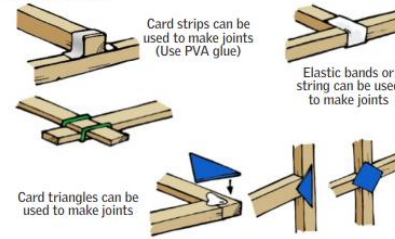
Demonstrate skills and techniques for accurately joining framework materials together e.g. paper straws, square sectioned wood.

Ask children to practise these, mounting their joints onto card for future reference

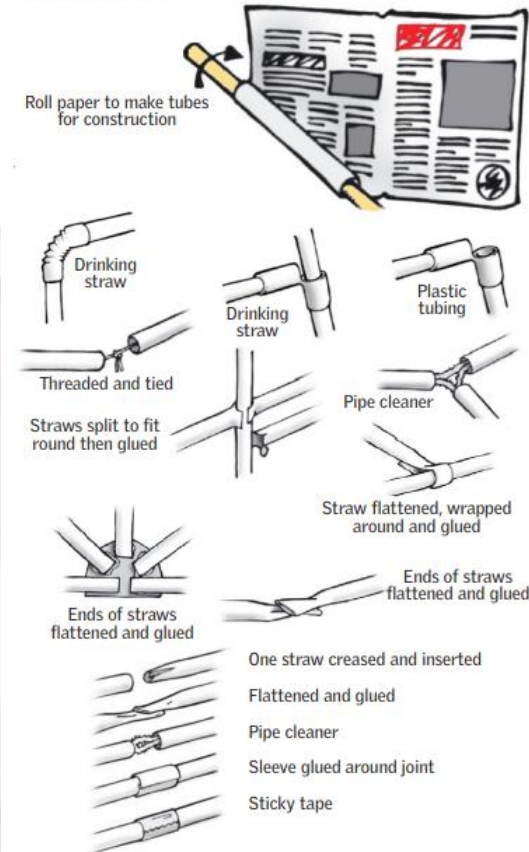
Key vocabulary

Frame Structure Triangulation Strut Reinforce

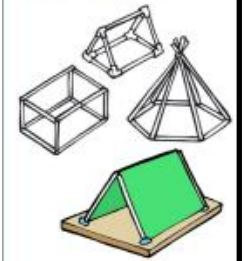
Joining thin sectioned pieces of wood



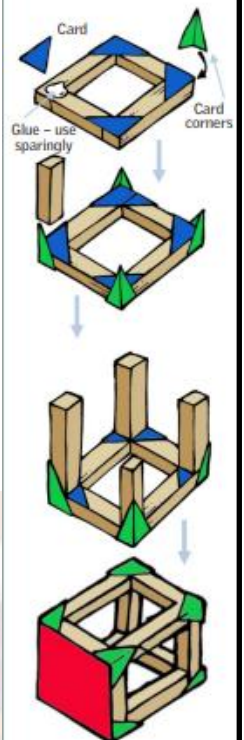
Techniques for building frame structures



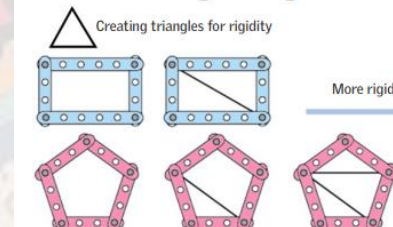
Using straws



Using square section wood



Understanding triangulation



Substantive Knowledge

I know and understand how to strengthen, stiffen and reinforce 3D frameworks.
I know and can use technical vocabulary such as: strut reinforce frame structure and triangulation.

Disciplinary Knowledge

I know that designers generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches.
I know that designers critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests

Procedural Knowledge

I know how to formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used.
I can competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks.
I can use finishing and decorative techniques suitable for the product I am designing and making.

Links to other curriculum areas

Maths – 2D nets 3D shapes
Science – Materials – Living Things

End Points

- To be able to use creativity and imagination to create high quality products.
- To master the use of a range of design technology tools and techniques.
- To be able to design, make and evaluate their products referring to whether it is fit for purpose and meets the design criteria.



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Key vocabulary definitions

- **Frame Structure** — A structure made from parts that hold it up and give it shape, like a skeleton of a building or bridge.
- **Triangulation** — Using triangles in a structure to make it stronger and more stable.
- **Strut** — A support piece that helps hold parts of a structure in place.
- **Reinforce** — To make something stronger by adding extra support or material.

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