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Unit 1

Building Structures

Finding Out About Bridging Structures

Main Objectives

- Finding out about bridging structures
- Finding out how to build strong structures
- Finding out the about the properties of materials

Activity 1

Experimenting with Sheet Materials

Outcomes

- Forming sheet material into a strong structure
- Working co-operatively with a partner

Building Background

The beam bridge was the first type of bridge made by humans. It is the simplest form of a bridge. A log pushed into place over a stream, and a large slab of stone over a crevasse are examples of early beam bridges.

Bridges have to be strong enough to support themselves and other items such as humans or vehicles. The weight that is carried, lifted, or supported by the bridge is called a load.

Many materials are formed into sheets; this makes them useful. Sheet materials can have various properties, such as porous - when used as soft tissues for wiping kitchen surfaces; flexible - when made from thin plastic sheet; and strong - when formed from sheet steel and aluminum. Sheet materials can be constructed out of soft fiber and knitted or woven into fabrics for clothes and curtains.

We use sheet materials to fold into many structures. It is used extensively in buildings as roofing and wall cladding.

Problem Solving Task: A Paper Bridge

Using one piece of copier paper and 10cm of masking tape, design and build a bridge that will support a 100g load of modeling clay across a gap of 20cm. You must complete the task in two minutes.

Materials:

copier paper masking tape modeling clay

Tools:

scissors ruler

This task will be directed by the teacher as a whole class activity. Each pair must solve the same problem, but they cannot use the same solution as any other pair. Each pair must solve the problem in a different way. See how many different solutions there are using one sheet of copier paper.

What ideas do you have?

How many different solutions were there?

What did you learn from the activity?

Did you learn from watching other pairs solve the problem?

✚ Portfolio Work

Record your findings in your portfolio

