



*The aims of these sheets are to give an insight into:*

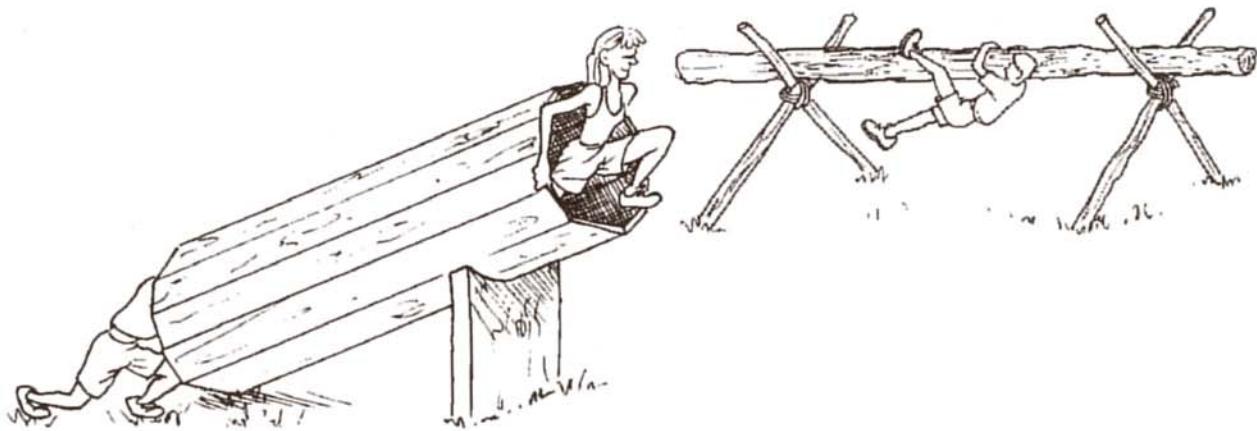
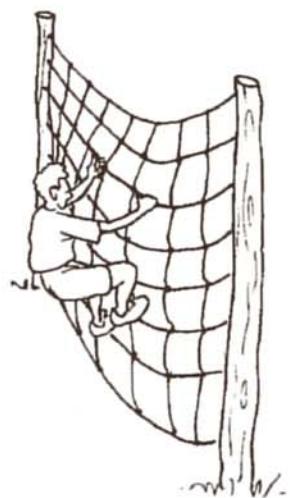
- *structure and rigidity*
- *strength and efficiency of join in creating a stable structure*

**More able children could discuss the forces which are brought to bear on different 3-D structures and how these are diffused or kept in balance (e.g. the function of the keystone in an arch; flying buttresses).**



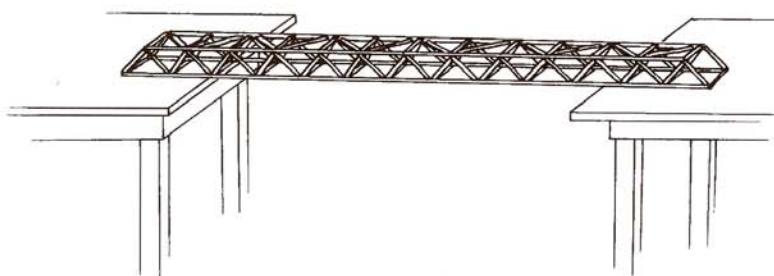
### ACTIVITY 1

An interesting mini-topic would be for children to study (from the point of view of safety/rigidity of structure) outdoor adventure play-equipment which is made mainly of wood. This would involve careful observation, sketching and discussion, and an awareness of how such structures can become unsafe or dangerous if damaged or misused. This would offer a good practical forum for safety education, and the children might draw up their own list of dos and don'ts for safe use of the equipment. Designing safe play-equipment would be an opportunity for children to bring in aspects of strength, safety and materials.

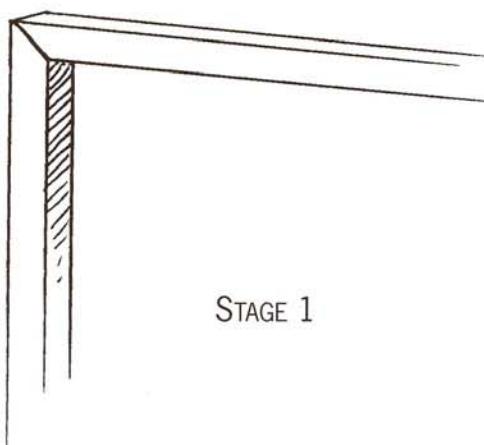


**ACTIVITY 2**

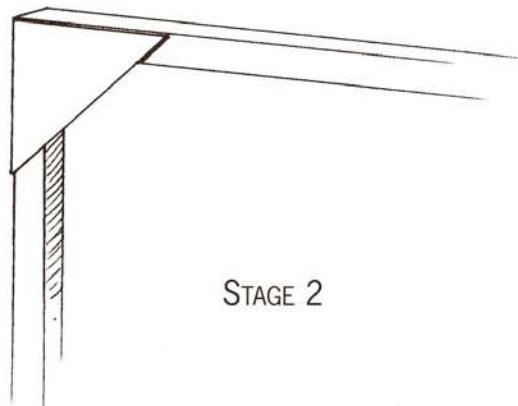
Using headless matchsticks and PVA glue (or glue guns) the children could use what they know about structure and the triangular shape to build a bridge to span the gap of about 75 cm between one desk and another. This structure should be strong enough to hold a given weight, e.g. 200 g, at its centre. The children could devise ways of testing this. They might also carry out the activity using other materials – paper etc.

**ACTIVITY 3**

Very little wood-working equipment or tools would be needed to make balsa wood strip joints, reinforced with right angles of stiff card to construct a strong cube/cuboid-based structure. After initial practice in making these joints, children could progress to designing and making their own structure. The construction of a 1m<sup>3</sup> cube would help illustrate the amount of wood each individual in the UK uses each year.



STAGE 1



STAGE 2