

It's difficult to begin to say anything about card. We all know what it is, we come across it every day, but it's not easy to define particular qualities. Take stiffness for example. Is 250 micron card stiffer than 250gsm? Is it thicker? Who knows! Microns are the unit of thickness, 250 microns being a quarter of a millimetre. Gsm (grams per square metre) is a unit of weight. They are not directly comparable. You really need to get your hands on it and decide whether or not it's suitable for the job you have in mind.

**COPY CARD 160gsm** This really represents the thinnest acceptable card - any less and it's paper. Having said that, several projects in the book are constructed using copy card. The secret is not to try to make large objects with thin card. Copy card is available in a wide range of colours, both pastel and deep colours, and apart from providing an attractive appearance the colours mask misplaced glue and fingermarks. Look in the office suppliers' catalogue for copy card.

*You can buy copier paper with exactly matching colours.*

**GREYBOARD 1200microns** The other end of the scale. Greyboard is thick and very stiff. Unfortunately this makes it very difficult for children to cut, other than with the rotary trimmer, which can just about cope. Good for bases and machine frame sides though. We would recommend cutting the larger sheets into one or two 'standard' rectangles. Children can then use these rectangles as the 'resource' rather than the card.

**ALL THE REST ?** Here we're thinking of card that's like cereal box card. Fairly stiff when the pieces are small - very bendy when they're large. There are literally tons of card like this thrown away every day - off-cuts from box and carton making. Check in your area for a business that uses card and if you ask nicely there's a very good chance you'll get some. Flatten empty boxes to help with storage, and to encourage the children to see them as raw material rather than boxes. You can turn printed boxes inside out - this hides the printing and gives a good surface for gluing etc. - but you already know that, don't you!

If you need to stiffen a large area of card you can either fold the edges or glue 'girder' sections onto the surface as stiffeners, (*see illustrations on opposite page*). There's no real reason why stiffeners couldn't be positioned inside a box if you wanted to retain a flat-sided appearance.

Avoid corrugated card, other than in exceptional circumstances such as when making very large models. It stays wonderfully flat until it gets bent, and it usually gets bent very early during construction when someone tries to cut a hole in it!

#### While on the subject of bending . . .

Almost all card (and paper) is strongly directional. It's a result of high speed manufacture which tends to align the fibres in the pulp. You will have discovered this characteristic if you have ever torn up paper strips when making papier mâché. Tear one way and you get long strips; try tearing at right angles and you don't.

If you take a rectangle or square of card and, holding opposite sides, bend it gently you will feel a resistance to bending. Now try the same with the other two sides and compare the resistance. The two will be noticeably different.

If the card is going to be bent or rolled as part of a model then choose the direction that offers the least resistance. That way the card will curve smoothly, the other way it will tend to bend unevenly and 'crack'.

#### and folding . . .

When you need an accurate fold you will need to score along the fold line. Scoring weakens the structure of the card along this line causing it to fold only along the scored line. Traditionally we have used the point of a fully open pair of scissors as a scoring tool, drawing it along a rule or straight edge. Other options include the point of a pair of compasses, the end of a small screwdriver, a blunt table knife and the proper tool for the job, the **bone folder**. Rarely seen nowadays, the bone folders always used to be kept in a jamjar on a classroom shelf. This, however, was in the days when school children often made simple books as a 'useful craft'. They are still available - and, as one might expect, they work perfectly.

You will find in this book instructions for making a simple jig for scoring 1cm tabs along the edges of card - see 'tabscorer'.

The **SCOREBOARD** is a simple tool for scoring straight lines. It uses a steel edge that engages in a shallow slot and is operated by pressure. Young children can stand on the bar to exert the pressure. This mimics the way folds are made in industry, where a press is used to both cut and score at the same time. The one shown takes an A4 long side.

The **Scoreboard** is a 'Rude Mechanicals' product.

