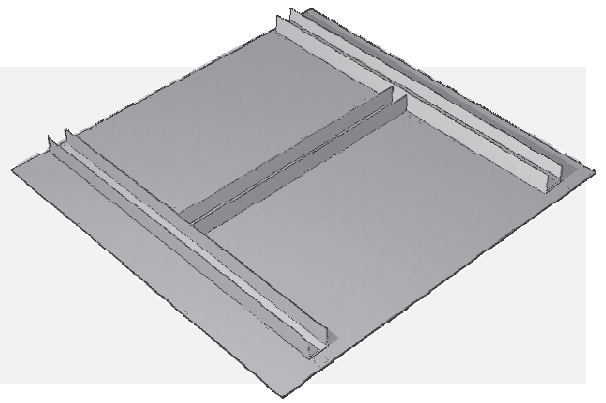


You can stiffen a flat sheet of card by folding up the edges (see left) or by gluing on 'girder' type stiffeners as shown here. The arrangement will vary according to the likely stresses, it might be a frame or, for maximum effect, a zigzag pattern.



When you're folding card don't forget to really crease it. Even if the angle is going to be 90° fold the card right over and press something hard along the fold so that the fold is sharp. I often use my thumb nail, but you can use the edge of a ruler, a spare piece of wood, edge of the scissors - whatever's at hand. Then when you open it out it will stay where you put it - if you don't crease it properly the fold will gradually 'unfold'.

Handle card and paper carefully, especially larger pieces. If you accidental damage or 'bruise' the card it will be weakened at that point. One common cause of damage is carrying card horizontally while holding it with one hand. Carry sheets of card in two hands or, if you only have one hand spare, let it hang vertically.

Try not to wet card. Too much glue will allow the card to absorb too much water. The fibres will swell and the card will 'cockle'. For the same reason we would advise against unnecessary painting, particularly when using thin card. Sadly, when the water eventually evaporates the card doesn't return to a flat state.

If you're needing a symmetrical shape cut from card, don't fold the card to achieve the symmetry. The fold will weaken it and look unsightly. Cut a piece of paper the same size as the card - fold the paper - cut the shape - unfold the paper - lay the paper on the card and draw round it. The same applies if you need to find the centre of a piece of card.

A lot of card, including that used to make card discs, is faced with matt (not glossy) white paper on one side only. If you're fastening the card to something else, and it's important that the join is strong, then glue the white side. If you glue to the grey side you may find that a thin layer of grey card pulls away from the surface, particularly when the glue has left it damp. If the white side is glossy then it's probably coated with something that won't absorb the glue properly, so use the grey side. It's also difficult to glue to the side of the card that's been colour printed. The printing ink makes the card less porous and the glue takes longer to dry.

CARD DISCS

Do not try to cut out your own card discs unless you really have to! Cutting accurate circles from stiff card with scissors is exceptionally difficult. Save that experience for when there's no option - when you need an extra large disc for example. Suppliers' catalogues contain pre-cut card discs in a range of diameters and thicknesses, and they have a hole punched exactly in the centre (usually!). If someone needs four wheels the same size then it's easy - and instant - four identical discs, no fuss and no waste.

You may notice that card discs come in an unusual range of diameters. 25mm, 34mm, 51mm, 63mm and so on. It's yet another relic of history; the true yet hidden identities of these diameters being, 1 inch, 1½", 2", 2½" etc. (Links to the Strand, 'People and the Past - change and continuity' perhaps!)

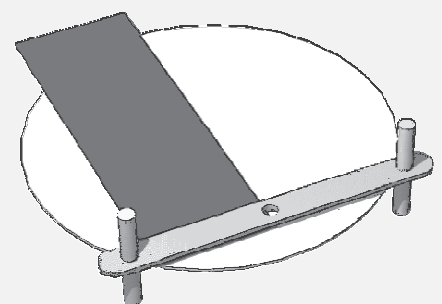
Drawing and cutting large discs isn't easy, but here are a couple of tips.

Children find using a pair of compasses difficult. The easy way to draw a fairly large circle is to start with a square of card, a little oversize. Draw the diagonals to find the centre and place the point of the compasses there.

Then **HOLD THE COMPASSES STILL AND ROTATE THE CARD.**

If a circular object has been drawn round to obtain the shape, then you haven't got a centre point. It's very easy to make a centre finder. The one shown here consists of a punched lolly stick, two short dowels and a rectangle of stiff card. One edge of the card is carefully lined up with the centre of the lolly stick. The two holes are equidistant from the centre.

To find the centre of a disc place the two dowels against the edge and draw a line along the rectangle's edge. Repeat this around the circle several times. The lines should cross at the centre. If your centre finder isn't accurate you'll get a small clear area at the centre. Estimate the middle of that area.



a simple centre finder