David French

JIGSAW PUZZLES

Simple tips for making fully interlocking puzzles easily with a scroll saw.

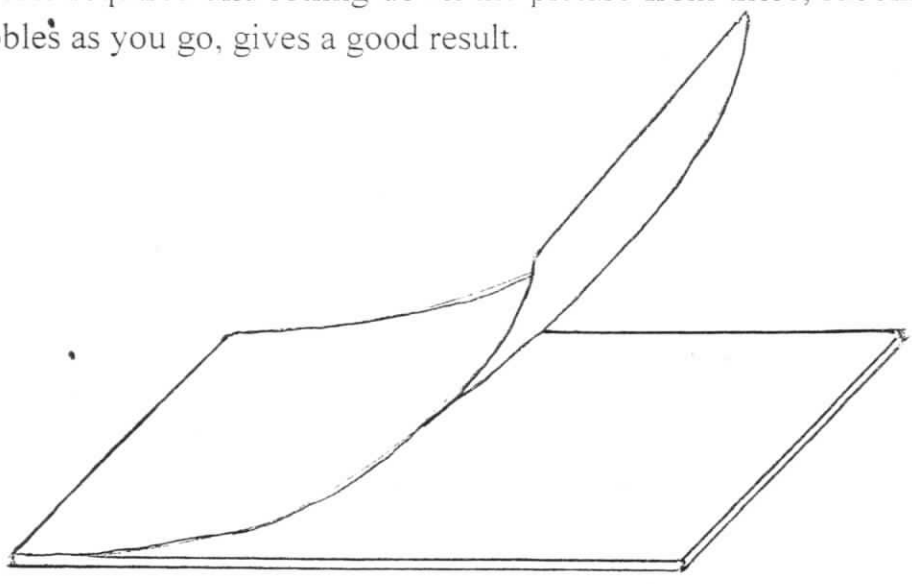
You have all no doubt seen a picture that you would have liked to be able to make into a jigsaw puzzle; perhaps a beautiful scene, a vividly coloured streetscape, an impressive animal or bird picture or even one of your own favourite photos. And there are those pictures with repeating patterns that make very challenging puzzles, a herd of zebras for example. Hopefully the following will help you get started.

1. **Preparing your picture.**

   Having chosen your picture, it must be glued to a backing. Good quality plywood or MDF craft-wood are preferable, MDF having the advantage of no grain and it doesn't splinter reducing the need for sanding. The thickness of the backing will depend on the age of those for whom the puzzles are intended.

   PVA glue is suitable for most paper or light card, but be aware that these usually swell when wet. This will cause buckling and bubbling when a dry picture is applied to a glue-coated surface. To overcome this problem pictures can be pre-wet, or a light coat of glue applied. The surface should be wet enough to allow the picture, when rolled into place, to be slid to adjust its position, and for bubbles and wrinkles to be smoothed out using a hand, a soft cloth or a roller. Bubbles that can't be smoothed to the edge to expel the trapped air may be pin pricked and air pressed out. As the picture dries it will shrink to form a smooth tight fitting surface eliminating most small irregularities.

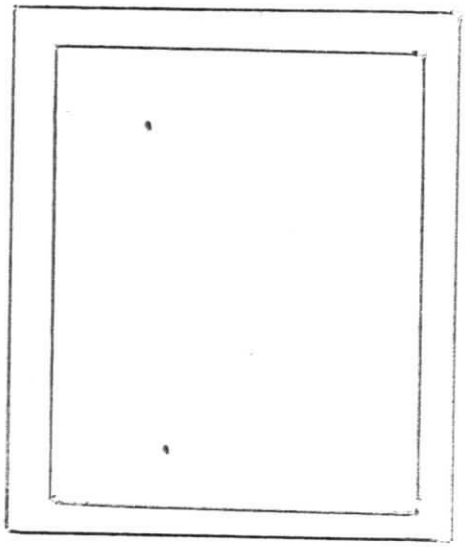
   Most photographs are now printed on a plasticised material which doesn't have the above problem. However, most woodcraft glues won't successfully attach them to the backing. A spray-on adhesive applied evenly to both surfaces until touch dry is usually best, but extra care is needed to ensure the picture is correctly positioned. Placing one edge on the line required and rolling down the picture from there, rubbing out air bubbles as you go, gives a good result.

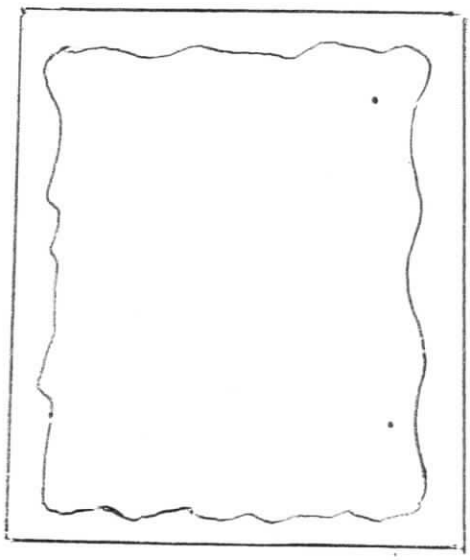


2. A Tray for your puzzle? (If not, go to step 3)

A border is helpful when putting puzzle pieces into place. Your picture may have a border that can be cut off. If not, the edge of the picture can be cut off up to 1cm in with either straight or waving lines. This will make placing edge puzzle pieces easier especially for younger children.

The cut-off border when glued to a light ply or MDF makes a tray into which to both make and store the puzzle. A tray can of course be made to the outside measurements of the picture using other edging materials. This method allows you to measure the picture once it has been cut out and assembled eliminateing the slack due to the width of each cut.





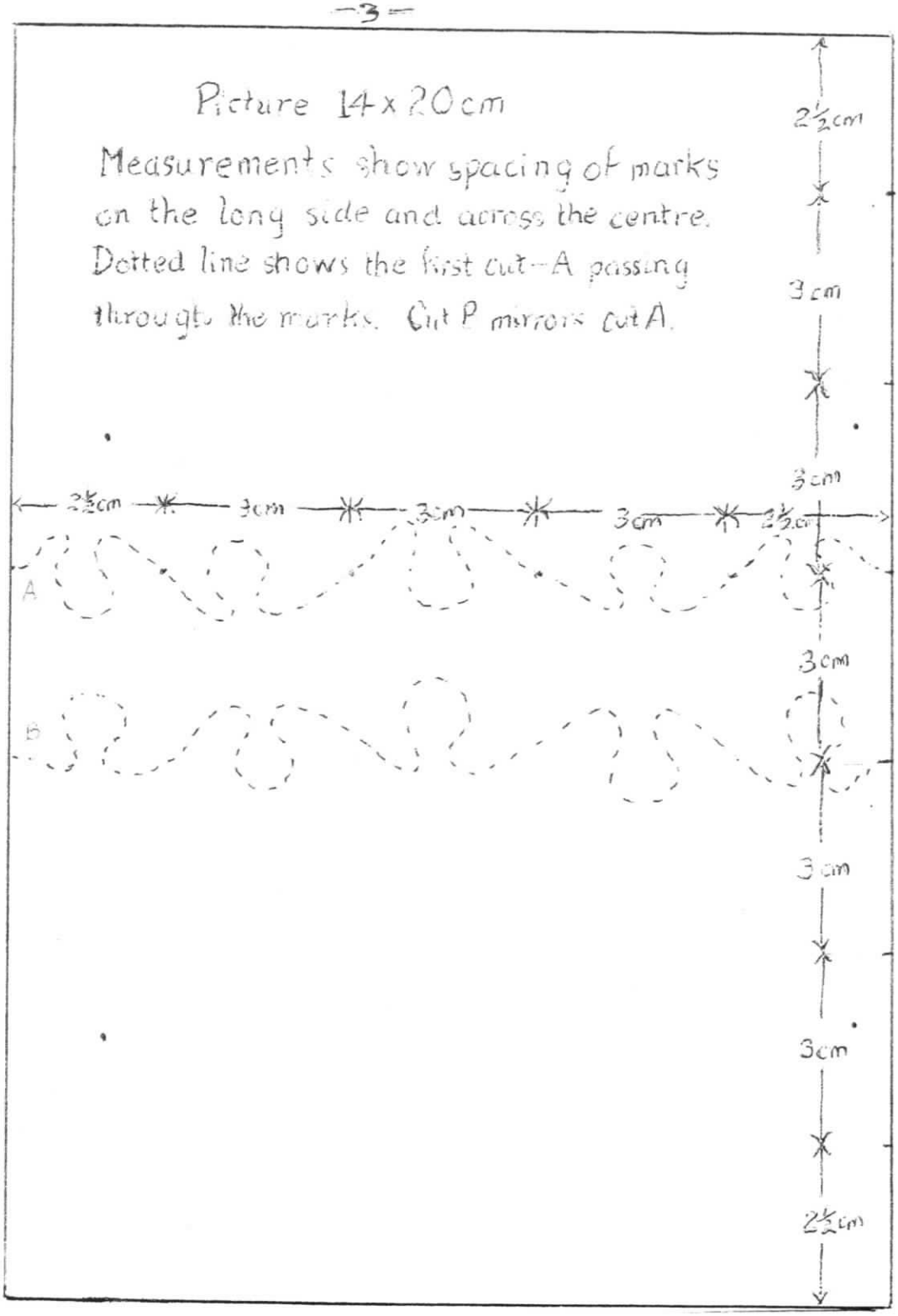
3. How many pieces?

Measure the sides of your picture and divide them both as near as possible by the same number. For example, a picture measuring 20cm x 14cm could be cut into 2cm pieces, giving you 70 pieces. You may want them larger, perhaps 3cm pieces. To do this the pieces at the corners will be a 2.5cm size, and the edges 2.5 x3cm. You will now have 35 pieces. Until you are well practiced do not make the pieces too small.

4. The measurements are set out on your picture as follows:-

Put a small pencil mark at each measurement point along one longer side. From the middle point put a pencil mark at the measured points across the picture.

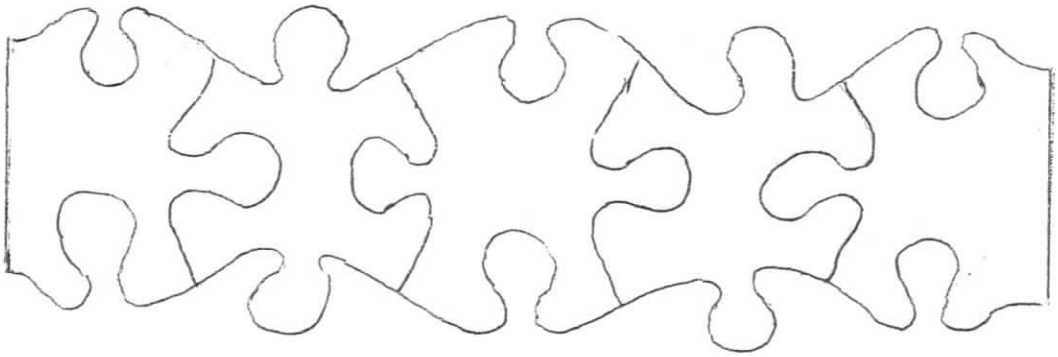
These are the only marks you need to be able to cut out your puzzle. *Do not draw lines to follow.* Following lines inhibits the free flowing cuts that make nicer pieces.



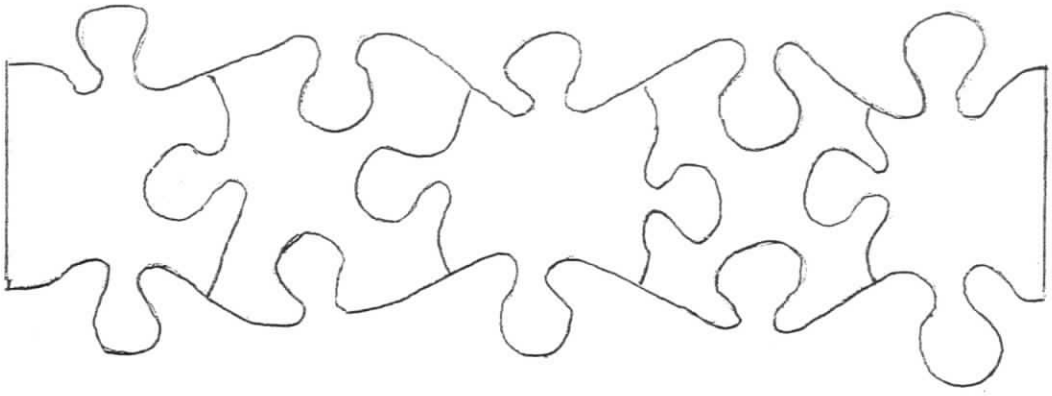
5. **Cutting the pieces.** *NB. All cuts should start and finish at an oblique angle to avoid pointed corners.* Use a thin blade to allow pieces to be close fitting. For younger children a thicker cut may be used for easier fitting together of pieces by small fingers.
   a. Cut the picture in half using the dots through the centre as a guide. The line of cut follows an imagined line that curves from left to right ***through*** each point. Each curve should bulge from 5mm to 1cm from the centre line.
   b. At the approximate centre of each curve a knob is cut ***inwards***. Knobs should be at least 1cm long with the neck narrower than the rounded end so that pieces will hold together. However do not make the neck too narrow or it will break off too easily.

c. Now cut from one of the halves starting at the edge point next to the first one cut. This cut is a mirror image of the first one and will give you a strip with inward holes and outward knobs (or vice-versa) in alternating pairs. Continue this process until the whole picture is cut into strips.

d. Each strip is now cut into individual pieces. Start at 90 degrees approximately half way between a knob and a hole. Decide which way the knob will point allowing sufficient room to avoid cutting close to previous cuts. Traditional jigsaw pieces have two knobs and two holes.



However, with practice it is possible to vary this with any combination; three knobs and one hole, four knobs, etc. To give each knob room, curve away from the direction of the proposed knob before cutting it.



6. Finishing.

The back edges of pieces usually need light sanding to clean them for easier assembly. Holding pieces flat on a sanding surface and rubbing briefly is usually all that is necessary.

For younger children and with thicker backings the back edges can be rounded. A small tubular sanding wheel in a drill press is an easy way to do this. Even close cut pieces drop easily into place when the backs are rounded.