

Line Bending Project: Leaflet Stand

Objectives

Students will develop their D&T capability by designing and making an original product of good quality that satisfies the requirements of the design brief.

By the end of the assignment, students will know that:

- Shapes can be formed by bending
- Thermoplastics soften and may be bent when heated
- Thermoplastics remain bent / deformed after cooling
- A strip heater / line bender is used to heat thermoplastic sheet materials along a straight line
- Jigs may be used to aid bending thermoplastics
- Jigs may be used to hold heated thermoplastics after line bending
- Hot parts of strip heaters and heated plastics will burn skin so:
 - risk assessments of the hazards should be carried out
 - safe working practices should be adopted.

Success criteria

Each student:

- Has designed and made an original product that satisfies the given design brief and specification
- Has used tools safely and has strived to achieve quality in marking out, cutting, shaping, finishing and joining their chosen materials
- Knows that thermoplastics can be softened by heating
- Knows that line benders are used to heat (relatively) narrow areas of thermoplastic sheet materials
- Knows that thermoplastics soften and can be bent when heated and become rigid again when cooled.
- Knows that jigs may be used to:
 - aid bending thermoplastics
 - hold heated thermoplastics after line bending until the plastic is cool
- Has assessed the risks associated with working with strip heaters and hot thermoplastics and has worked safely throughout the assignment
- Shows evidence of having evaluated his/her work.

Situation

Leaflets, pamphlets and guide books are often put on display to attract people's attention to them.

The Design and Technology department has decided to produce a D&T information leaflet for the school open day.

From their experience of displaying A4 sized D&T homework sheets, they have decided that a tri-folded A4 sheet would be more convenient way of carrying the leaflet.

Design brief

Design a stand for 30 tri-folded leaflets.

Specification

The leaflet stand must:

- Be made from plastic sheet materials that have been formed by line bending
- Hold at least 30 tri-folded leaflets made from sheets of A4 paper
- Keep the leaflets tidy
- Be stylish and demonstrate quality in design and manufacture
- The quality of the stand must reflect the standards in the D&T department.

The leaflet stand must not:

- Fall apart in use
- Be dangerous to use
- Have unsightly joints.

What you must do

- Analyse the design brief and specification and pick out the essential requirements.
- Analyse ways that thermoplastic sheet materials may be used to make the leaflet stand
- Research the size of tri-folded A4 sheets of paper
- Use notes and sketches to illustrate designs for a leaflet stand that meet the requirements of the design brief and specification
- Develop your best idea into a final design. Your design should have sufficient detail so that it could be clearly understood and made by someone other than yourself
- Prepare a cutting list of the materials that are required to make your product
- Prepare a Risk Assessment of the hazards involved with making and using your product
- Make a jig that will enable the plastic sheet to be bent accurately and to be held until cool
- Make your design
- Evaluate the final product, e.g.:
 - how good the design looks
 - how well the design works
 - discover what others think about your product
- Work safely and complete the assignment on time.

