



MAMMUT chair 1

Description

A chair for children available in a range of primary colours.

Materials

All parts - polypropylene

Process of manufacture

All parts - injection moulding

Method of assembly

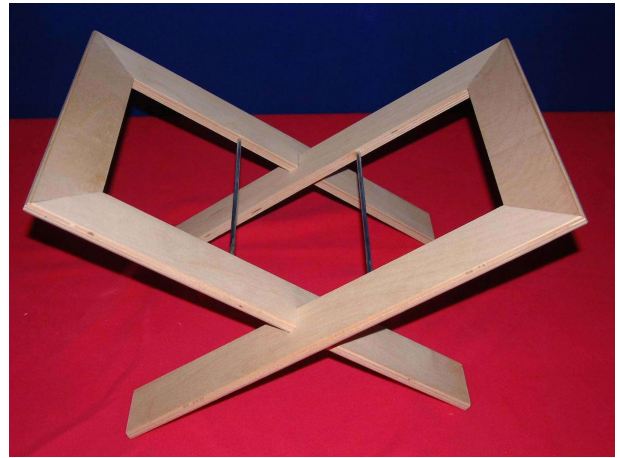
Rails to back rest and seat - push fit
Legs to seat - push fit

Questions ?

- 1 Explain why primary colours have been used in the design of the chair .
- 2 State three properties of polypropylene which make it a suitable material for this product.
- 3 Describe the process of injection moulding. Sketches should be used in your answer.
- 4 State two alternative materials which could have been used in the manufacture of the chair.
- 5 Describe two ways in which the designer could have obtained the relevant sizes required for the design of the chair.

Assignment

It is decided to produce an alternative chair of the same type but with armrests.
Produce a design solution for an identical chair but with armrests.



KANTRA rack 2

Description

A rack which could be used to hold newspapers, magazines, books etc. Supplied as two identical sides, flat packed.

Materials

Sides - birch plywood
Rods - polished steel

Process of manufacture

Sides - mitre joint / glued
Rods - extruded

Method of assembly

Rods to sides - push fit
Sides - slotted together

Questions ?

- 1 Explain the advantages of using plywood instead of solid timber for the manufacture of the sides.
- 2 Describe the processes which have been used to manufacture the rack sides.
- 3 Describe the aesthetics of the rack in terms of balance, proportion and texture.
- 4 State a suitable finish for the rack parts and explain why it may be necessary.
- 5 State an alternative material which could have been used to manufacture the rack sides and explain the process which would be used with this material.
- 6 This product has been designed as a 'magazine rack'. Describe how the rack could be used as part of another, different product. Sketches should be used in your answer.

Assignment

When built, the rack sits at a fixed angle giving it a wide vee shape.
Produce a design solution which would allow the rack to have either an adjustable angle or an option of three possible fixed angles.



PS RIVO chair 3

Description

A modern looking chair in two materials. Notice the pattern and translucent effect of the seat allows you to see the positioning of the legs underneath.

Materials

Seat - polypropylene
 Fixing plate - polypropylene
 Legs - aluminium

Process of manufacture

Seat - injection moulding
 Fixing plate - injection moulding
 Legs - extrusion / formed

Method of assembly

Legs to legs - bolts
 Legs to seat - clamped by fixing plate/screwed

Questions ?

- 1 Explain which properties of aluminium make it a suitable choice for this product.
- 2 Describe the process of extrusion. Sketches should be used in your answer.
- 3 State three ergonomic factors which the designer would have considered when designing the chair.
- 4 The two materials used in the manufacture of the chair can both be recycled. What are the benefits to society of recycling and why is it necessary?

Assignment

It has been decided to produce a version of the chair with an all aluminium seat. The 'solid' seat design however is both heavy and uses a large amount of material. Produce a design solution for the seat which will eliminate the weight and material problems.



KALL ice cube tray 4

Description

Ice cube tray in a variety of colours. Very flexible to allow for easy removal of ice cubes. Comes with a rigid holder.

Materials

Tray - SEBS
 Holder - PCCO

Process of manufacture

Tray - injection moulding
 Holder - injection moulding

Method of assembly

Tray is placed in holder.

Questions ?

- 1 Explain why SEBS was chosen as the material for this product ?
- 2 Describe the process of injection moulding. Sketches should be used in your answer.
- 3 Describe the ice cube tray in terms of its aesthetic appeal and state its possible market niche.
- 4 The tray could have been manufactured from aluminium. State and describe the process which could have been used to manufacture the tray in aluminium.

Assignment

The ice cube tray has been selected as a product for possible redesign. State and justify three aspects of the design which could be evaluated. Describe the strategies which could be used to evaluate these three aspects.



A K I S c a s t o r 5

Description

A small rotating castor which could be fixed to a variety of products by means of four screws or bolts.

Materials

Wheel - low density polyethylene
 Axle bracket - steel
 Cup - steel
 Fixing plate - steel

Process of manufacture

Wheel - injection moulding
 Axle bracket - pierced, blanked and formed
 Cup - pierced, blanked and formed
 Fixing plate - pierced, blanked and formed

Method of assembly

Wheel to axle bracket - steel pin
 Axle bracket to cup - captivated to allow rotation
 Cup to fixing plate - riveted over

Questions ?

- 1 Explain which properties of low density polyethylene make it a suitable choice for the manufacture of the wheel.
- 2 Describe the process of piercing and blanking. Sketches should be used in your answer.
- 3 State a suitable finish for steel used in the castor and explain why it is necessary.

Assignment

The castor is to be redesigned to fit onto the end of a 50mm diameter beech table leg. Produce a design solution which will allow the castor to fit securely on to the leg.



I D E A L I S K g r a t e r 6

Description

A food grater with a number of possible grating sizes.

Materials

Grater - stainless steel
 Handle - stainless steel

Process of manufacture

Grater - pierced, blanked and formed
 Handle - cut and formed

Method of assembly

Handle to grater - welded

Questions ?

- 1 Safety was an important factor in the design of the grater. State two safety aspects which would have been considered and explain why they are important for this product.
- 2 Explain three properties of stainless steel which make it a suitable choice for the manufacture of the grater.
- 3 Describe two aspects of the design where the designer will have to use anthropometric data.
- 4 State two methods the designer could use to obtain this data.
- 5 The designer would also have considered physiology in the design of the grater. Describe an aspect of the design which would require the designer to consider physiology.

Assignment

It is decided that the introduction of wood into the design of the grater will widen its appeal. Produce a design solution which will use birch plywood for the handle of the grater.



PLASTIS peeler

Description

This peeler, used for peeling foods such as potatoes and apples is available with handles in a variety of colours.

Materials

Blade - stainless steel
Handle - ABS

Process of manufacture

Blade - pierced, blanked and formed
Handle - injection moulding

Method of assembly

Blade moulded into handle.

Questions ?

1 Aesthetics and fashion are closely linked. For this product describe the aesthetic styling which prove this to be the case.

2 The blade of the peeler has been moulded into the handle. From your knowledge of injection moulding, describe how this would have been done. Use sketches in your answer.

3 User trials were conducted with the peeler before it went into production. State two aspects of the peeler where user trials would have proved useful.

4 Explain how the designer would have used the information obtained from the user trials.

Assignment

It is decided that due to the popularity of the peeler a 'set' will be produced comprising of the peeler, a bottle opener and a small hand whisk. Produce design solutions for the bottle opener and hand whisk incorporating the original peeler handle.



HARLIG bowl

Description

A mesh bowl with a variety of uses from holding fruit to acting as a waste paper bin.

Materials

Top/bottom rim - aluminium
Side/base - aluminium

Process of manufacture

Top/bottom rim - pierced, blanked and formed.
Side/base - cut and stretched

Method of assembly

Rims to side/base - crimped

Questions ?

1 Describe two advantages of the method of manufacture for the side/base over using a pierced/blanked sheet.

2 State two properties of aluminium which make it suitable for this product.

3 Aluminium can be recycled. State two advantages to the consumer of recycling products.

4 Explain the difference between the reuse and the recycling of a product.

5 This bowl is made solely from aluminium. State two other product made solely from aluminium .

6 Describe two tests which could be carried out on a product to establish whether or not it was made from aluminium.

7 Describe the bowl using four aesthetic terms.

8 Explain the effect on the cost/aesthetics of the bowl, if the rims had been manufactured in brass.

Assignment

In order to widen market appeal the bowl is to be redesigned as a basket. This will mean the addition of a carrying handle to the original design. Produce a design solution for the basket handle.



T R A L L b o x 9

Description

This small box has a lift off lid and can be used for a variety of uses from holding herbs in the kitchen to jewellery in the bedroom.

Materials

Box - hardwood
Lid - hardwood

Process of manufacture

Box - laminated then turned
Lid - turned

Method of assembly

Lid placed on box

Questions ?

1 Describe the process used to manufacture the box and lid, sketches should be used in your answer.

2 State two aspects of the design where the designer would have considered anthropometrics.

3 Explain the importance of these aspects in the design of the box and lid.

4 The box and lid could have been manufactured in aluminium. State and describe the process which would have been used.

Assignment

Market research has revealed that the loose fitting lid is not suitable for certain uses of the box. Produce a design solution which will keep the lid firmly secured to the box.



BRUKLIG pot stand 10

Description

A traditional cast pot stand used in the kitchen for protecting surfaces from hot objects such as cooking pots and tea pots.

Materials

Stand - cast iron

Process of manufacture

Stand - sand cast

Method of assembly

Non

Questions ?

1 Some products are often used in ways which the designer did not intend. Describe two ways in which this pot stand could be used apart from its intended function.

2 Describe the process of sand casting. Sketches should be used in your answer.

3 State two properties of cast iron which make it suitable for the pot stand.

4 Explain, with reference to psychology and aesthetics why black has been chosen for the finish of this product.

Assignment

The pot stand is to be redesigned with feet which will raise it 50mm from the surface it is placed on. Produce a design solution which will incorporate a number of feet and raise the stand by 50mm.