

Centre Number	Candidate Number	Name
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UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

DESIGN AND TECHNOLOGY

0445/03

Paper 3 Realisation

May/June 2006

1 hour

Candidates answer on the Question Paper.
No Additional Materials are required.

To be taken together with Paper 1 in one session of 2 hours 45 minutes.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen in the spaces provided on the Question Paper.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **two** questions.
You may use a calculator.
At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [] at the end of each question or part question.

FOR EXAMINER'S USE	
1	
2	
3	
4	
TOTAL	

1 Fig. 1 shows a child's desk. The desk top has been removed.

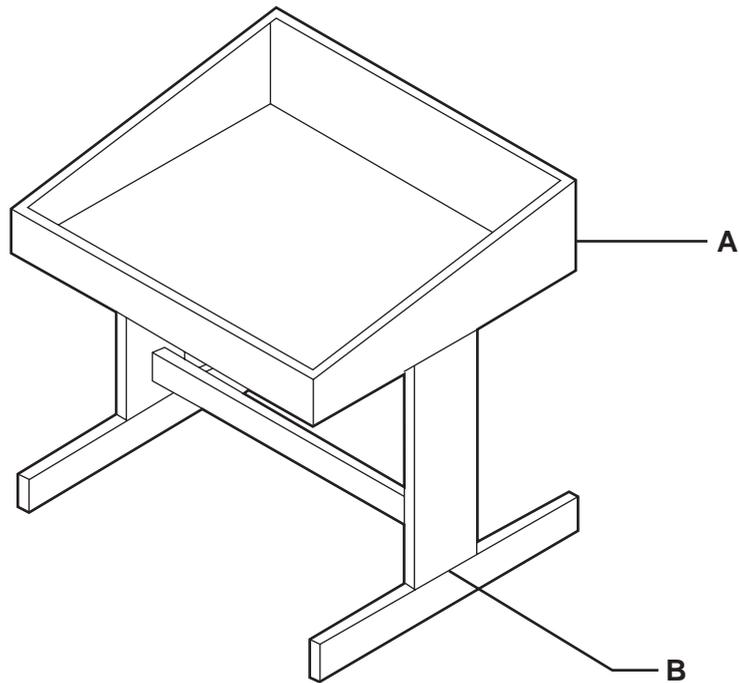


Fig. 1

(a) Give **three** design requirements for the child's desk.

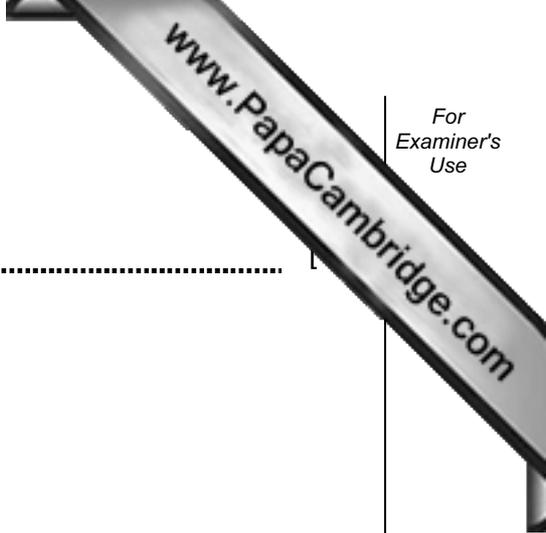
- 1
- 2
- 3 [3]

(b) (i) Name a suitable hardwood for the desk.

..... [1]

(ii) Give **two** reasons for your choice.

- 1
- 2 [2]



(c) Name and sketch a suitable joint at **A**.

Name

[4]

(d) Name **two** types of construction that could be used to join the upright to the foot at **B**.

1

2 [2]

(e) (i) List **four** tools for marking out **one** of the joints you have named in **part (d)**.

1

2

3

4 [4]

(ii) List **four** tools used for cutting and fitting the joint you have named in **part (d)**.

1

2

3

4 [4]

(f) Name the adhesive you would use for the joints you have named in **part (d)**.

..... [1]



(g) (i) Name a suitable manufactured board for the desk top.

Manufactured board

(ii) Use notes and sketches to show how the desk top could be fitted to the desk, and list all the fittings you would use.

[7]

2 Fig. 2 shows a bookend made from sheet metal 1.6 mm thick.

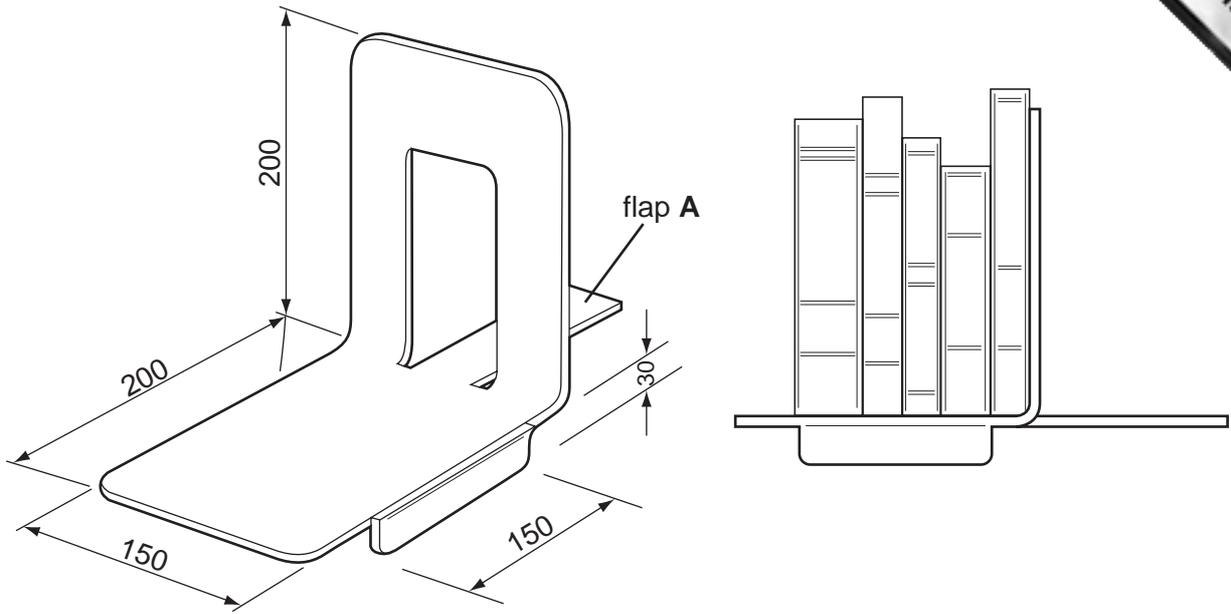


Fig. 2

(a) The bookend could be made from a ferrous or non-ferrous metal.

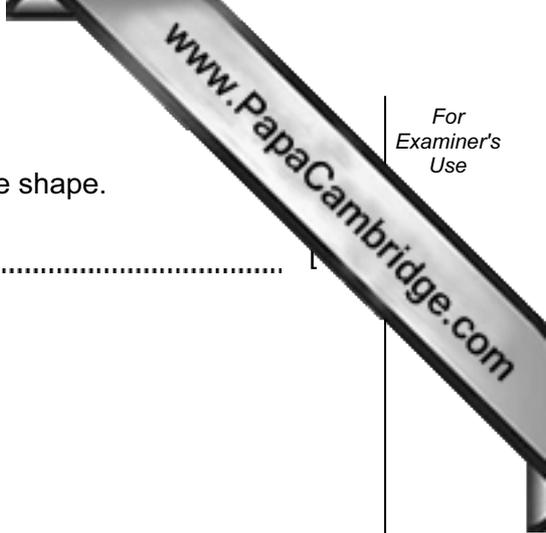
(i) Name **one** suitable ferrous metal.

..... [1]

(ii) Name **one** suitable non-ferrous metal.

..... [1]

(b) Use notes and sketches to show how the bookend could be marked out on one piece of sheet metal. Indicate the bend lines.



(c) Name and sketch **two** tools that could be used to mark out the shape.

1

[3]

2

[1]

[3]

(d) Use notes and sketches to show the following stages in producing the bookend:

(i) cut the outline shape of the bookend from the sheet metal;

[3]

(ii) make the edges of the metal safe;

[3]

(iii) bend the metal into the shape required.

[3]



(e) Use notes and sketches to show how flap **A** could be cut out of the sheet metal.

[4]

(f) Describe how you would finish the bookend made from **either** a ferrous metal **or** a non-ferrous metal.

Chosen metal

Description

.....

..... [2]

3 Fig. 3 shows views of a self-assembly table made from manufactured board.

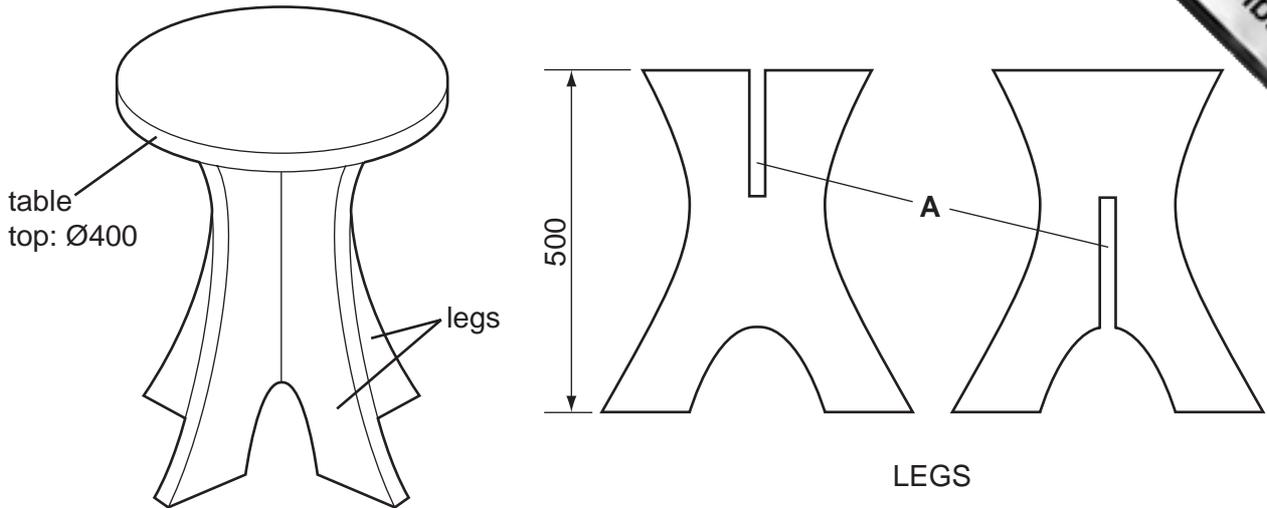


Fig. 3

(a) (i) Name a suitable manufactured board for the table.

..... [1]

(ii) Give **two** advantages of using a manufactured board rather than solid wood for the table.

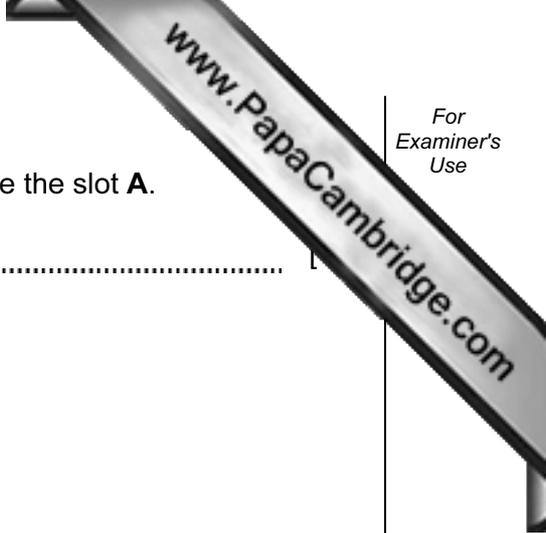
1

2 [2]

(b) Suggest suitable thicknesses of manufactured board for the top and the legs.

Top

Legs [2]



(c) Name and sketch **two** different tools you would use to produce the slot **A**.

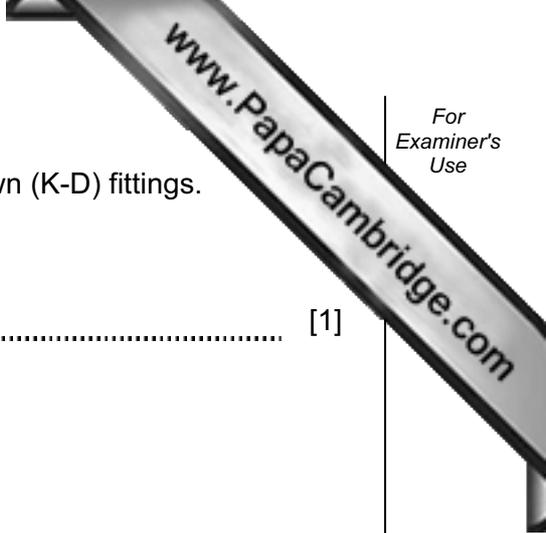
1

[3]

2

[1]

[3]



(d) The legs are to be attached to the top by means of knock-down (K-D) fittings.

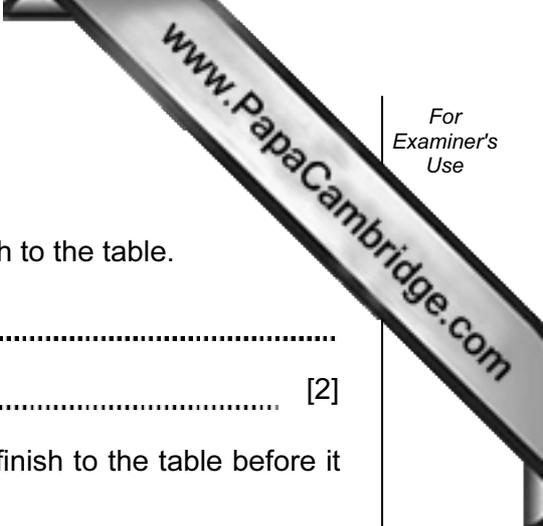
(i) Name and sketch a suitable knock-down fitting.

Name [1]

[3]

(ii) Use notes and sketches to show how the knock-down fittings are used to attach the legs to the top.

[3]



(e) The self-assembly table requires an applied finish.

(i) Give **two** reasons why manufacturers do not apply a finish to the table.

- 1
- 2 [2]

(ii) Give a reason why it would be an advantage to apply a finish to the table before it is assembled.

..... [1]

(f) The circular table top would be cut from a square piece of manufactured board.

(i) Name **one** portable power tool that could be used to cut out the shape.

..... [1]

(ii) Describe **two** safety precautions you would need to take when cutting out the shape.

- 1.
- 2. [2]

(iii) Use notes and sketches to show how the edge of the top could be made smooth and circular after it has been cut to shape.

[4]

4 Fig. 4 shows a cooking tool. The tool could be made from wood, metal or plastic.

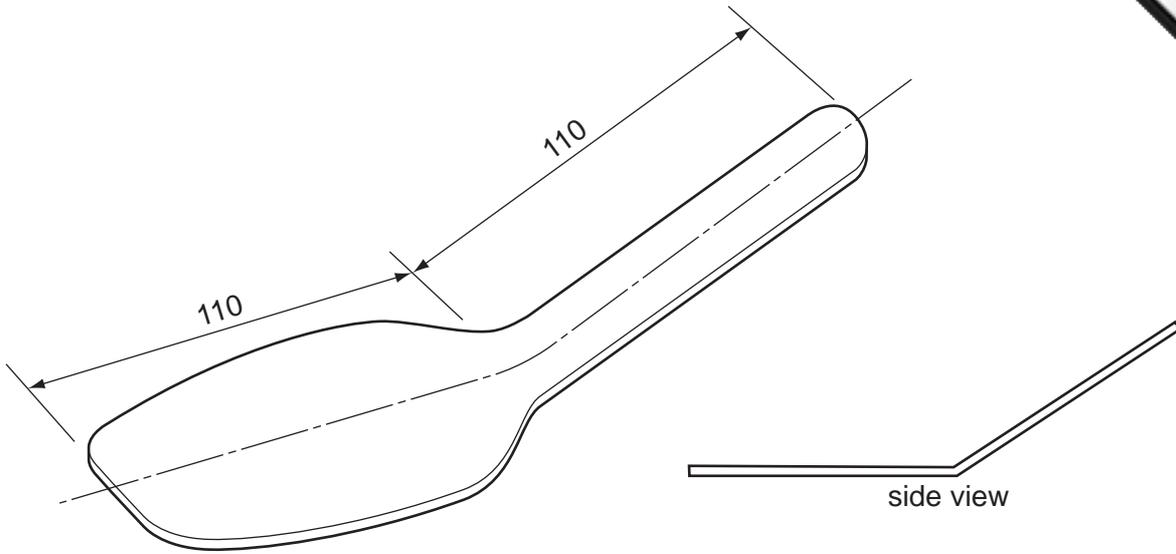


Fig. 4

(a) Name a **specific** material that could be used to make the cooking tool in each case.

(i) wood

(ii) metal

(iii) plastic [3]

(b) Give **two** reasons why plastic could be considered the best choice for the cooking tool.

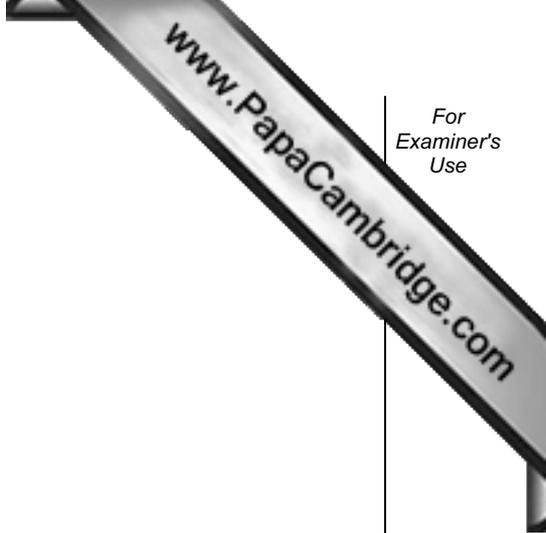
1

2 [2]

(c) Name **two** tools that could be used to mark out the shape of the cooking tool on a sheet of plastic.

1

2 [2]



(d) Use notes and sketches to show how:

(i) the plastic could be cut to shape;

[3]

(ii) the edges of the plastic are made smooth and finished;

[4]

(iii) the plastic is heated and bent to the required shape.

[4]

(e) Describe **two** safety precautions you would need to take when carrying out any operations in **part (d)**.

1

2 [2]

(f) The handle of the plastic cooking tool is difficult to grip. Use notes and sketches to design a wooden handle that could be fitted to the plastic tool to improve the grip.

[8]

(g) Recycled plastics could be used as an alternative to the wooden handle in **part (f)**.

Give **two** advantages of using recycled plastics rather than wood.

1

2 [2]

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