

DESIGN AND TECHNOLOGY

Paper 1 Product Design

0445/13 May/June 2016 1 hour 15 minutes

Candidates answer on the pre-printed A3 Answer Sheets.

Additional Materials: Standard drawing equipment and coloured pencils.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces on **both** printed Answer Sheets.Write in dark blue or black pen.You may use an HB pencil for any diagrams, graphs or rough working.Do not use staples, paper clips, glue or correction fluid.DO **NOT** WRITE IN ANY BARCODES.

Answer **one** question. Write/draw your answers in the spaces provided on the Answer Sheets. 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. The total of the marks for this paper is 50.

This document consists of 4 printed pages and 2 A3 Inserts.

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Answer **one** question only on the pre-printed A3 Answer Sheets provided.

1 Householders are now being expected to recycle waste products to help conserve raw materials.



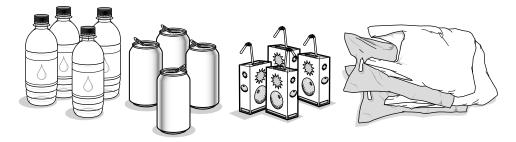
Design a unit that will fit into a space in a kitchen and store four types of waste product of different materials separately.

- (a) List **four** additional points about the function of such a unit that you consider to be important. [4]
- (b) Use sketches and notes to show two places where such a unit could be positioned in a kitchen. [4]
- (c) Develop and sketch three ideas for the unit. [12]
- (d) Evaluate your ideas and justify why you have chosen **one** idea to develop more fully. [8]
- (e) Draw, using a method of your own choice, a full solution to the problem. Include construction details and important dimensions. [12]
- (f) Suggest two suitable specific materials for your solution and give reasons for your choice. [4]

[6]

(g) Outline a method used to manufacture one part of your solution.

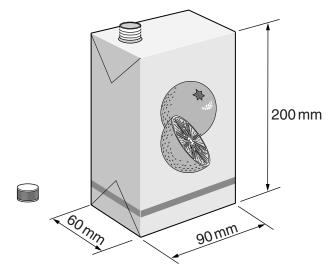
2 Schools in your area have been asked to find ways to encourage the recycling of used products.



Design a portable display stand, for use in schools, to encourage the recycling of used products.

- (a) List four additional points about the function of such a portable display stand that you consider to be important.
- (b) Use sketches and notes to show two ways of holding two recyclable products on the stand, for display purposes. [4]
- (c) Develop and sketch three ideas for the portable display stand. [12]
- (d) Evaluate your ideas and justify why you have chosen **one** idea to develop more fully. [8]
- (e) Draw, using a method of your own choice, a full solution to the problem. Include construction details and important dimensions. [12]
- (f) Suggest two suitable specific materials for your solution and give reasons for your choice. [4]
- (g) Outline a method used to manufacture **one** part of your solution. [6]

3 Many liquids are sold in cardboard containers similar to that shown below.



Design a device, for use in the home, that will crush empty containers of the type shown so that they take up less space for recycling.

- (a) List four additional points about the function of such a device that you consider to be important. [4]
- (b) Use sketches and notes to show two mechanisms that could be used in such a device. [4]
- (c) Develop and sketch three ideas for the device. [12]
- (d) Evaluate your ideas and justify why you have chosen one idea to develop more fully. [8]
- (e) Draw, using a method of your own choice, a full solution to the problem. Include construction details and important dimensions. [12]
- (f) Suggest two suitable specific materials for your solution and give reasons for your choice. [4]
- (g) Outline a method used to manufacture **one** part of your solution. [6]

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