

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

DESIGN AND TECHNOLOGY

0445/11

Paper 1 Design

October/November 2010

1 hour 15 minutes

Candidates answer on the pre-printed A3 Answer Sheets.

Additional Materials: Standard drawing equipment

To be taken together with the optional paper for which you have been entered in one session of 2 hours and 15 minutes.

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 a soft pencil for any diagrams, graphs or rough working.

Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **one** question.

Write/draw your answers in the spaces provided on the Answer Sheets.

You may use a calculator.

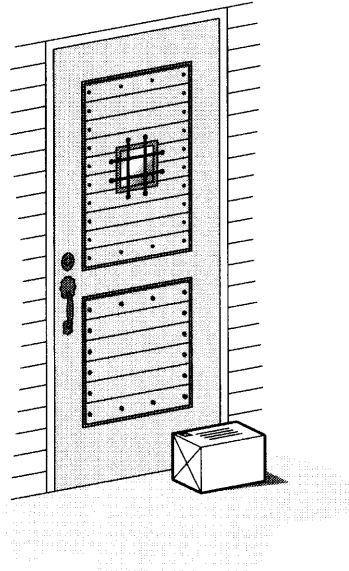
At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [] at the end of each question or part question.

This document consists of 4 printed A4 pages and an Insert.

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

- 1 Many people buy products that are posted to them and there is often nobody at home when the parcel is delivered to their house.

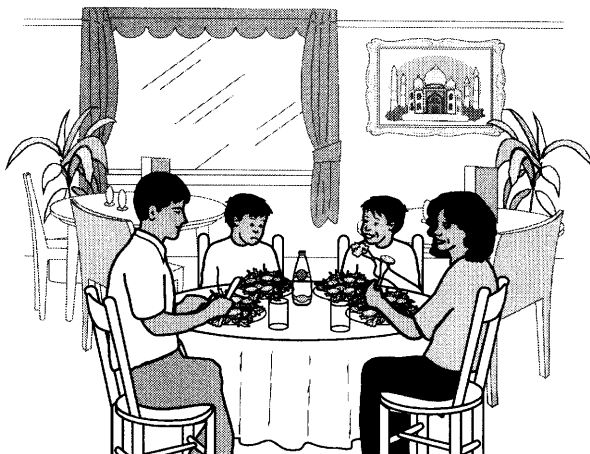


Design a storage unit in which parcels could be left by the postman. The unit should have some kind of locking system to make the unit secure.

Maximum parcel size – 400 × 300 × 200

- (a) List **four** additional points about the function of such a secure storage unit that you consider to be important. [4]
- (b) Draw **two** different locking devices. [4]
- (c) Develop and sketch ideas for the secure storage 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 major dimensions. [12]
- (f) Suggest 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 in the school workshop. [6]

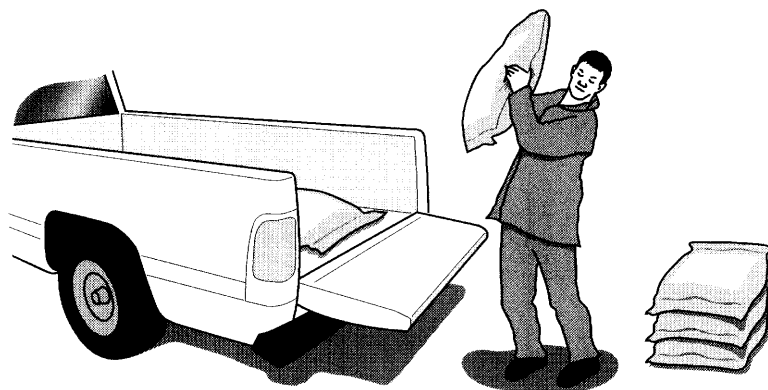
- 2 Many small children are fussy about what they eat and it is often difficult to persuade them to try different foods.



Design a children's menu that will encourage them to try different foods. The menu should include some form of novelty or movement that focuses on a particular type of food.

- (a) List **four** additional points about the function of such a menu that you consider to be important. [4]
- (b) Draw **two** types of mechanism that could be made in card materials. [4]
- (c) Develop and sketch ideas for the menu. [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 major dimensions. [12]
- (f) Suggest suitable specific materials for your solution and give reasons for your choice. [4]
- (g) Outline the method of producing a prototype of the children's menu in the school graphics studio. [6]

3 Loading sacks onto vehicles can be very difficult.



Design a simple lifting device that could be stored in a shed or garage at home, when not in use.

- (a) List **four** additional points about the function of such a lifting device that you consider to be important. [4]
- (b) Draw **two** different mechanisms that might form part of a simple lifting device. [4]
- (c) Develop and sketch ideas for the lifting 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 major dimensions. [12]
- (f) Suggest 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 in the school workshop. [6]

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

University of Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.