



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
International General Certificate of Secondary Education

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**DESIGN AND TECHNOLOGY**

**0445/13**

Paper 1 Design

**October/November 2011**

**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.

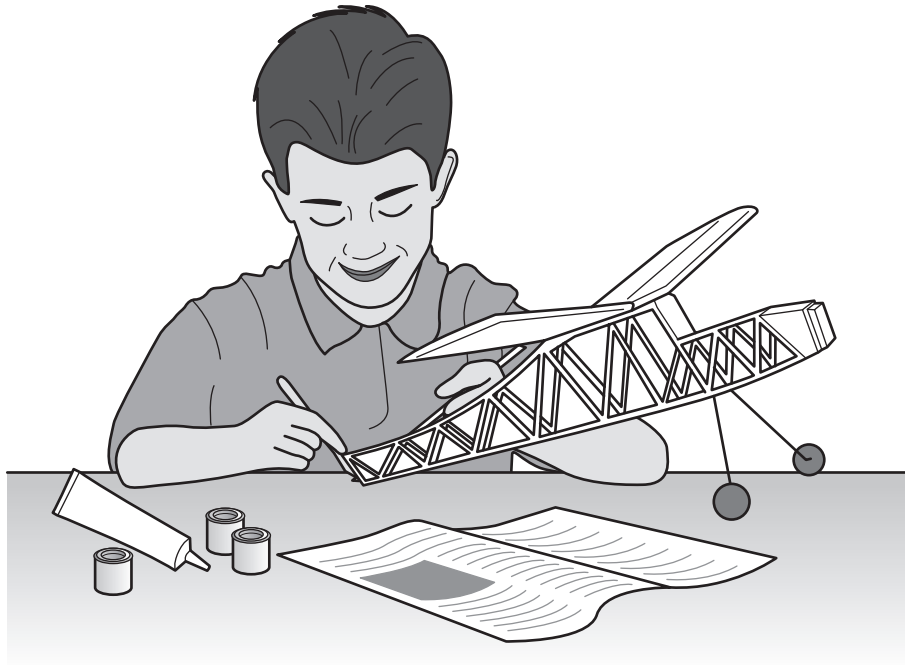
\* 2 9 1 6 6 7 8 8 6 0 \*

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



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

- 1 Model making is a popular hobby for many people but there is often nowhere to work apart from the kitchen table.



Design a work station that would be suitable for this hobby and could be easily transported and/or stored.

- (a) List **four** additional points about the function of such a work station that you consider to be important. [4]
- (b) Use sketches and notes to show **two** ways in which a work station could be made more compact for storage. [4]
- (c) Develop and sketch **three** ideas for the work station. [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]

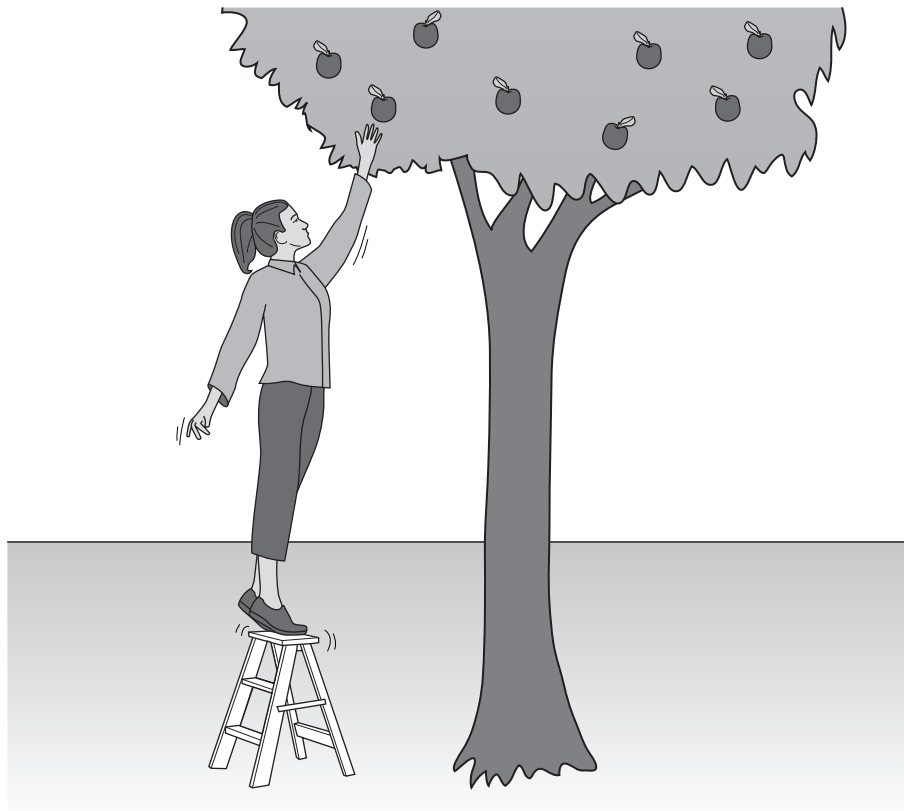
- 2 It is sometimes necessary to transport small pets from home to a veterinary surgery.



Design a low cost carrier for small pets that can be folded flat for storage when not in use.

- (a) List **four** additional points about the function of such a pet carrier that you consider to be important. [4]
- (b) Use sketches and notes to show **two** methods by which flat card can be strengthened. [4]
- (c) Develop and sketch **three** ideas for the pet carrier. [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 of producing a prototype of the pet carrier in the school graphics studio. [6]

- 3 It is often difficult and dangerous to reach fruit when it is time to pick it from the tree.



Design a device that could be used to pick fruit while standing on the ground without the need for a set of steps.

- (a) List **four** additional points about the function of such a picking device that you consider to be important. [4]
- (b) Use sketches and notes to show **two** ways of adjusting the length of long items. [4]
- (c) Develop and sketch **three** ideas for the picking 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 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]