



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
International General Certificate of Secondary Education

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**DESIGN AND TECHNOLOGY**

**0445/11**

Paper 1 Design

**October/November 2012**

**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.**

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**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.



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This document consists of **4** printed A4 pages and **2** A3 Inserts.



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

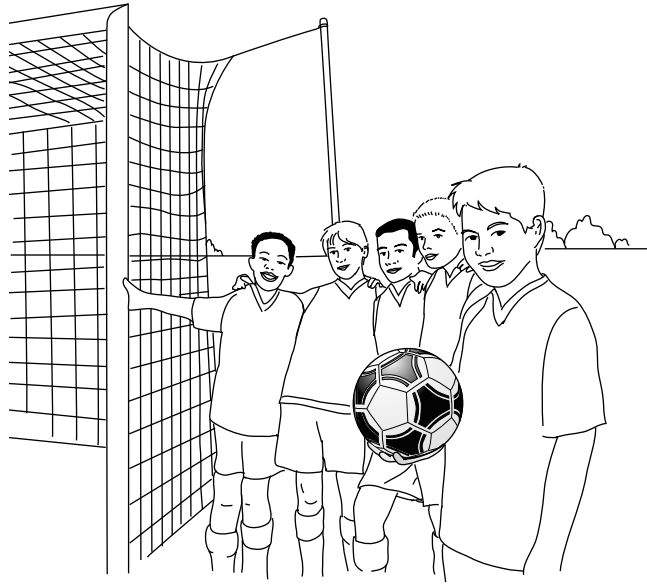
- 1 Many students have nowhere in their bedroom to do their homework comfortably.



Design a folding unit that could be used by a student when doing homework in a bedroom.

- (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** ways by which furniture could be made to fold. [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 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 Your school football (soccer) team is going on tour and needs souvenirs to be given away to opposing team members.



Design a lightweight folding souvenir that would act as a desk tidy and include the name of your school.

- (a) List **four** additional points about the function of such a souvenir that you consider to be important. [4]
- (b) Use sketches and notes to show **two** methods by which joints can be made in card and other lightweight materials. [4]
- (c) Develop and sketch **three** ideas for the souvenir. [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 your solution in the school graphics studio. [6]

- 3 It is difficult to control a bicycle when attempting to give hand signals at a junction.



Design a direction-indicating system that could be attached to a bicycle.

- (a) List **four** additional points about the function of such an indicating system that you consider to be important. [4]
- (b) Use sketches and notes to show **one** mechanical device and **one** electronic system that could be used to indicate direction. [4]
- (c) Develop and sketch **three** ideas for the indicating system. [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]

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