



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
International General Certificate of Secondary Education

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**DESIGN AND TECHNOLOGY**

**0445/12**

Paper 1 Design

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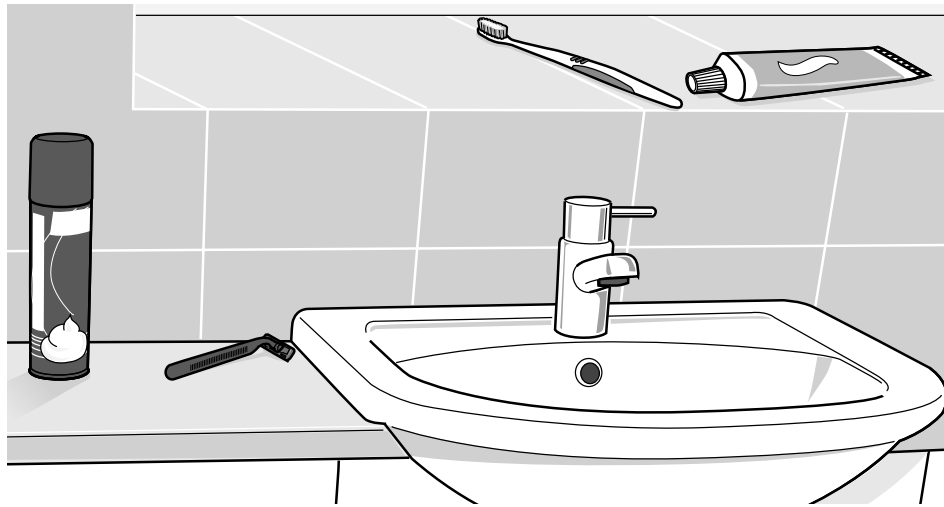
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This document consists of **4** printed A4 pages and **2** A3 Inserts.

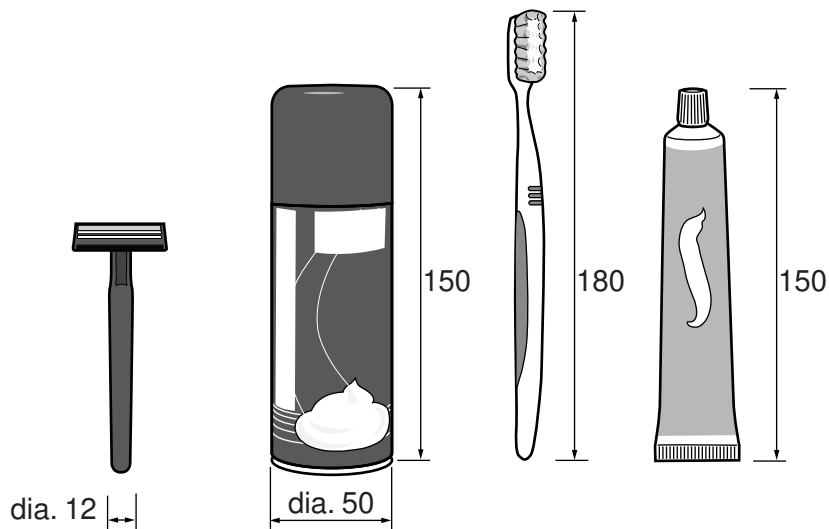


Answer **one** question only on the A3 pre-printed answer sheets provided.

- 1 Cleaning can be difficult when items are left lying around in a bathroom.



The following items need to be stored ready for daily use.



Design a unit that would hold all of the items shown above.

- (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 in a bathroom where such a unit might be positioned. [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]
- (a) Outline a method used to manufacture **one** part of your solution in the school workshop. [6]

- 2 Games are a good way of encouraging children to think about environmental issues.



Design a game called **SAVE OUR PLANET** that could be played by up to four children, 8 to 10 years old. The design should be made in lightweight materials and include the packaging.

- (a) List **four** additional points about the function of such a game that you consider to be important. [4]
- (b) List **four** environmental issues on which games could be based. [4]
- (c) Develop and sketch **three** ideas for a game. [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 game in the school graphics studio. [6]

- 3 Cooking outdoors on an open fire is very popular but it is often difficult to hold food over the fire so that all sides are cooked properly.



Design a cooking device that would hold a piece of meat or fish over an open fire so that all sides of the food are cooked.

- (a) List **four** additional points about the function of such a cooking device that you consider to be important. [4]
- (b) Use sketches and notes to show **two** mechanisms that would allow food to be turned while over the fire. [4]
- (c) Develop and sketch **three** ideas for the cooking 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]