



**Cambridge International Examinations**  
Cambridge International General Certificate of Secondary Education

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**DESIGN AND TECHNOLOGY**

**0445/12**

Paper 1 Design

**May/June 2014**

**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 an HB pencil for any diagrams, graphs or rough working.

Do not use staples, paper clips, 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.

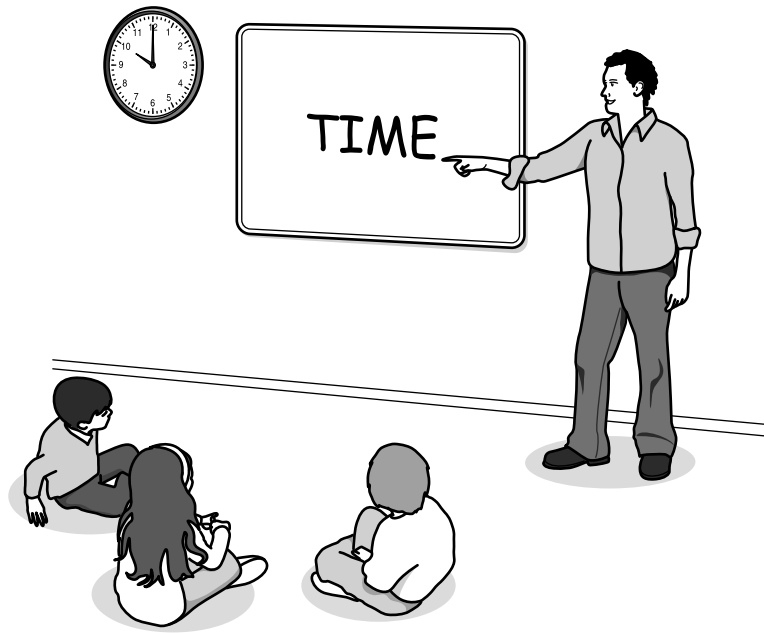
- 1 People in a garden sometimes want to know the time.



Design a wall mounted clock which will allow the time to be viewed from anywhere in the garden. Do not show details of the clock mechanism.

- (a) List **four** additional points about the function of such a clock. [4]
- (b) Use sketches and notes to show **two** different methods by which a clock could be mounted on a wall. [4]
- (c) Develop and sketch **three** ideas for the clock. [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 Young children are taught to tell the time in school.



Design an individual learning aid which would help a child to learn to tell time.

- (a) List **four** additional points about the function of such a learning aid. [4]
- (b) Use sketches and notes to show **two** different methods of attaching hands to a toy clock. [4]
- (c) Develop and sketch **three** ideas for the learning aid. [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 Shopping centres sometimes have a ‘themed’ clock with externally mounted moving mechanical features.



Design a clock with moving mechanical features based on a theme of birds and/or animals. Do not show details of the clock mechanism.

- (a) List **four** additional points about the function of such a clock. [4]
- (b) Use sketches and notes to show **two** different methods of changing rotary to linear motion. [4]
- (c) Develop and sketch **three** ideas for the clock. [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]

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