



Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

DESIGN AND TECHNOLOGY

0445/12

Paper 1 Design

October/November 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.

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.

DO NOT WRITE IN ANY BARCODES.

Answer **one** question.

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

You may use a calculator.

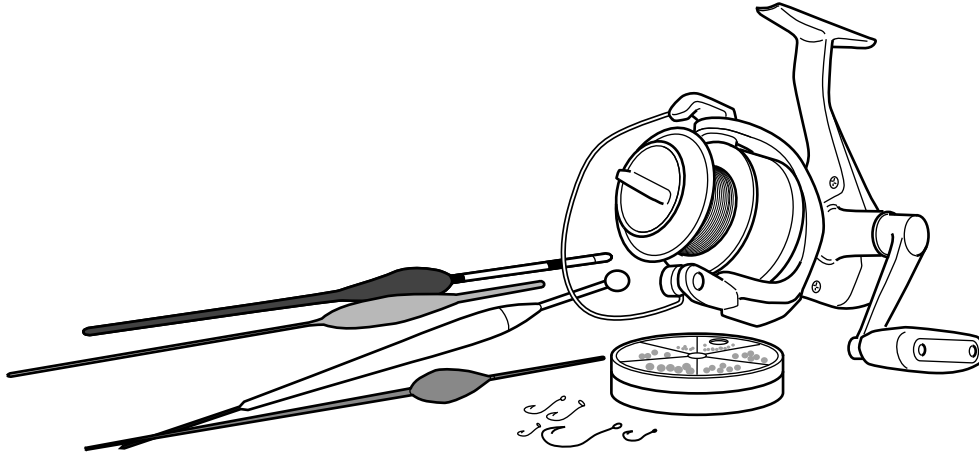
At the end of the examination, fasten all your work securely together.

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 **2** A3 Inserts.

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

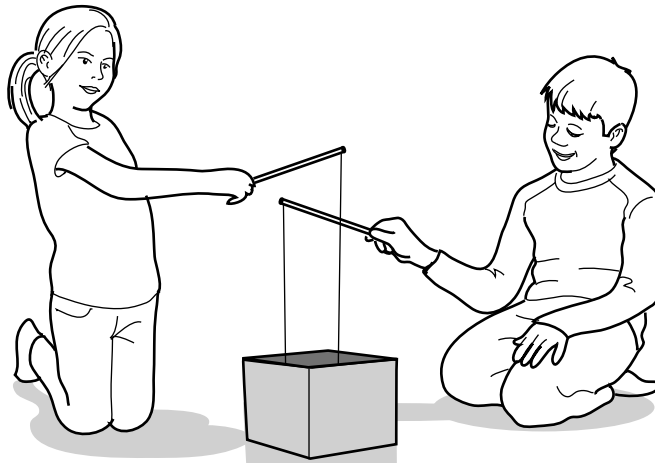
- 1 People going fishing often have to carry their equipment a long way when walking to the nearest river.



Design a unit that would hold the fishing items shown so that they could be carried a long way to a river.

- (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 such a unit could be carried by a person. [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 Children enjoy playing games especially when skill and competition is involved.



Design a game that involves young children catching fish shapes.

- (a) List **four** additional points about the function of such a game that you consider to be important. [4]
- (b) Use sketches and notes to show **two** ways by which the fish shapes could be caught. [4]
- (c) Develop and sketch **three** different ideas for the 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 solution in the school graphics studio. [6]

- 3 Fishermen sometimes fall asleep by the riverside, but they need to know when a fish is pulling on the line.



Design a system that would sense that a fish is pulling on the line and inform the sleeping fisherman that this is happening.

- (a) List **four** additional points about the function of such a system that you consider to be important. [4]
- (b) Use sketches and notes to show **two** sensing devices that could be used in a system of this type. [4]
- (c) Develop and sketch **three** ideas for the 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 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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