



DESIGN AND TECHNOLOGY

0445/11

Paper 1 Product Design

October/November 2017

1 hour 15 minutes

Candidates answer on the pre-printed A3 Answer Sheets.

Additional Materials: Standard drawing equipment and coloured pencils.

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.

The total of the marks for this paper is 50.

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

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

- 1 Sports equipment has to be transported safely to a sports field.

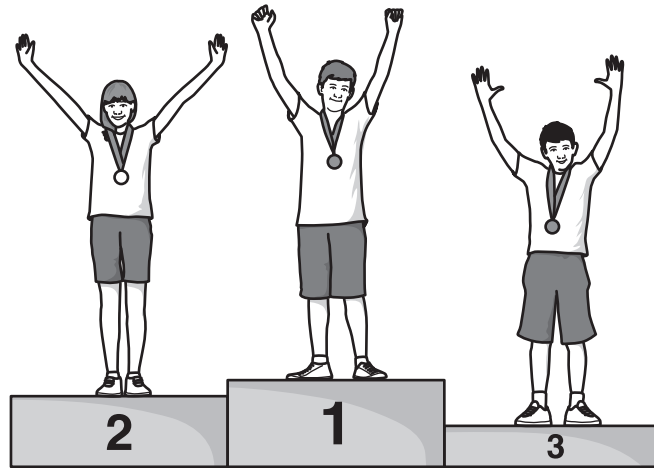
overall length 2500
maximum diameter 30



Design a holder that would transport 10 javelins from the school building to the sports field.

- (a) List **four** additional points about the function of such a holder that you consider to be important. [4]
- (b) Use sketches and notes to show **two** ways of securing round section items in place. [4]
- (c) Develop and sketch **three** ideas for the holder. [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 important dimensions. [12]
- (f) Suggest **two** 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. [6]

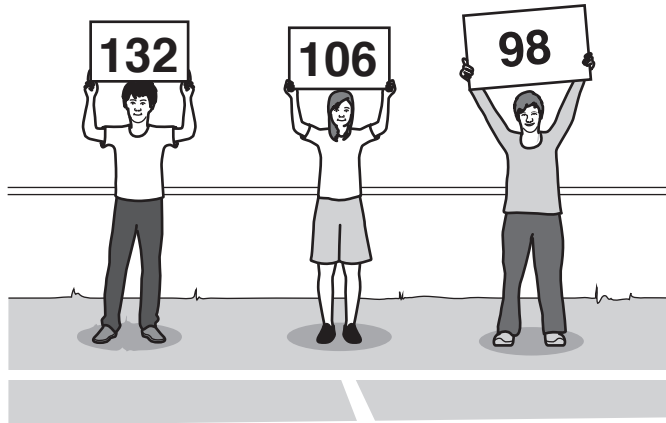
- 2 Your school is organising a sports competition for local schools and wishes to replace traditional bronze/silver/gold medals with souvenir awards which represent some aspect of your school.



Design a souvenir award, made from lightweight materials, that would represent some aspect of your school.

- (a) List **four** additional points about the function of such a souvenir award that you consider to be important. [4]
- (b) Use sketches and notes to show **two** aspects of your school that could form the basis for such a souvenir award. [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 important dimensions. [12]
- (f) Suggest **two** 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. [6]

- 3 A scoreboard is required for a sports competition between schools. The scoreboard must be able to be viewed from a distance and show the ongoing score of the top three schools.



Design a scoreboard that can be updated regularly and viewed easily.

- (a) List **four** additional points about the function of such a scoreboard that you consider to be important. [4]
- (b) Use sketches and notes to show **two** forms of number display that could be used. [4]
- (c) Develop and sketch **three** ideas for the scoreboard. [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 important dimensions. [12]
- (f) Suggest **two** 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. [6]

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