

## **DESIGN AND TECHNOLOGY**

Paper 1 Product Design

0445/11 October/November 2018 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.

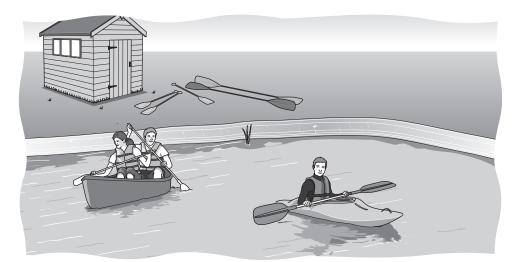
At the end of the examination, fasten all your work securely together. The number of marks is given in brackets [ ] at the end of each question or part question. The total of the marks for this paper is 50.

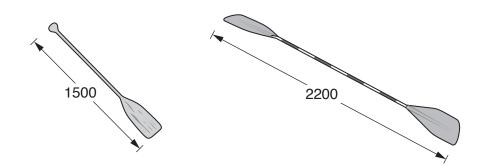
This document consists of 4 printed pages and 2 A3 Inserts.



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

1 Canoeing is a popular pastime for many people.

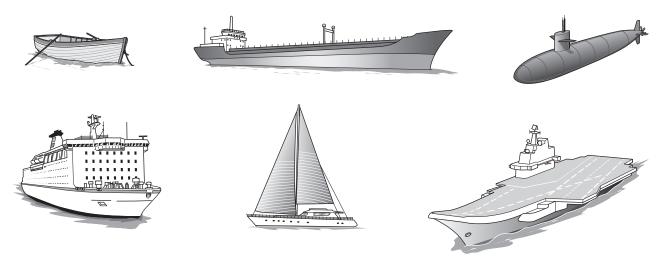




Design a rack that will hold six double paddles and six single paddles. The rack should be easy to transport from a storage hut to the edge of the water.

- (a) List four additional points about the function of such a rack that you consider to be important. [4]
- (b) Use sketches and notes to show two methods by which large items can be moved easily over flat surfaces. [4]
- (c) Develop and sketch three ideas for the rack. [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** Breakfast cereals are often promoted by offering free gifts that appeal to children.

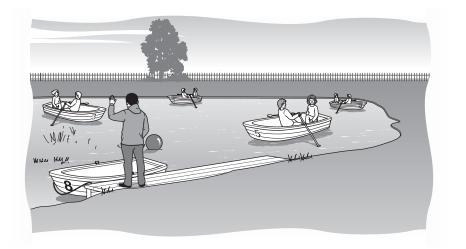


Design a model of any type of boat/ship that can be packed flat inside a cereal packet and assembled by a child.

- (a) List four additional points about the function of such a model that you consider to be important.
- (b) Use sketches and notes to show two ways by which paper or card can be made waterproof. [4]
- (c) Develop and sketch three ideas for the model. [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]

[4]

3 On park lakes, people are able to hire rowing boats for a period of time. When the time has ended, they need to be informed that they should return the boat.



Design a system of informing rowers when their time has ended and they need to return the boat to the owner. The boat owner should not have to use his voice.

- (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 methods of display that could be seen from a distance. [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 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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