



DESIGN AND TECHNOLOGY

0445/13

Paper 1 Product Design

October/November 2016

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.

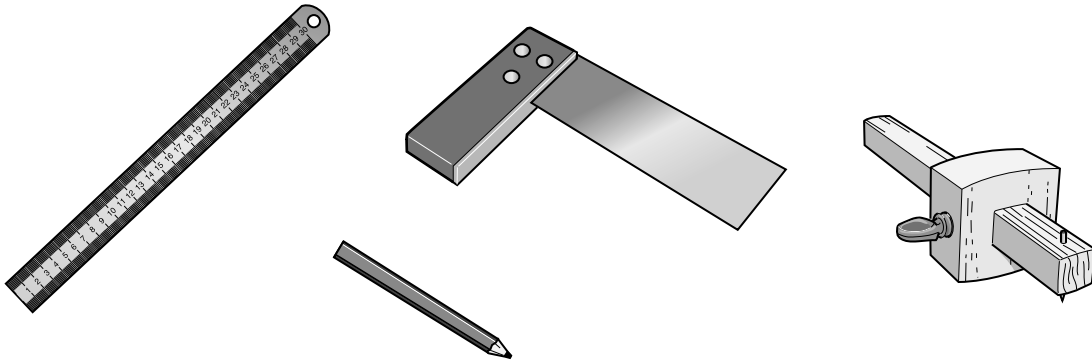
The number of marks is given in brackets [] at the end of each question or part question.

The total of the marks for this paper is 50.

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

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

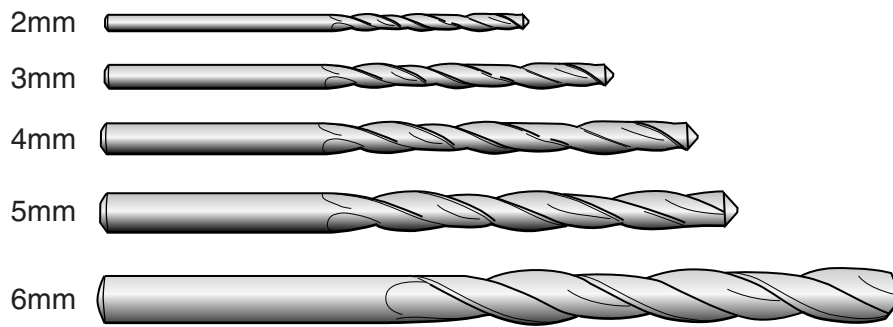
- 1 Tools need to be stored safely when not in use but be easily accessible when required.



Design a unit that will hold the above marking out tools. The unit will be stored in a cupboard when not in use and stand on a bench when required.

- (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** different ways by which tools could be held in place. [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 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]

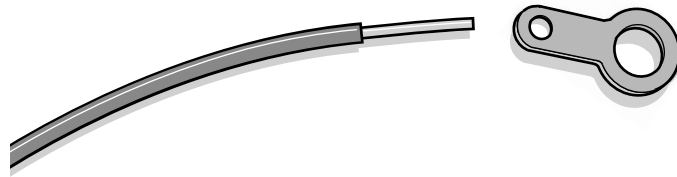
2 Packaging can play an important part in both the sale and use of products.



Design packaging for the set of five drills that will make them visible at the point of sale and also act as a stand ready for use.

- (a) List **four** additional points about the function of such packaging that you consider to be important. [4]
- (b) Use sketches and notes to show **two** ways of holding items securely inside packaging. [4]
- (c) Develop and sketch **three** ideas for the packaging. [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 Holding items when soldering them together can be quite difficult.



Design a device that would hold small items in place when soldering them together.

- (a) List **four** additional points about the function of such a device that you consider to be important. [4]
- (b) Use sketches and notes to show **two** ways of gripping small items. [4]
- (c) Develop and sketch **three** ideas for the 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 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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