



DESIGN AND TECHNOLOGY

0445/11

Paper 1 Product Design

May/June 2019

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 Some people grow apples in their own garden but then have nowhere to store the apples once picked.



Design a storage unit that will be positioned in a garden shed and provide good air circulation for the apples.

- (a) List **four** additional points about the function of such a storage unit that you consider to be important. [4]
- (b) Use sketches and notes to show **two** methods that would allow good air circulation in a storage unit. [4]
- (c) Develop and sketch **three** ideas for the storage 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 Fruit is sent long distances around the world so that it can be available out of season in many countries. This increases costs and adds to air pollution.



Design a portable display to be positioned in a shop that would encourage people to buy and eat fruit grown locally.

- (a) List **four** additional points about the function of such a portable display that you consider to be important. [4]
- (b) Use sketches and notes to show **two** ways of joining lightweight materials temporarily. [4]
- (c) Develop and sketch **three** different ideas for the portable display. [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 It can be difficult to pick apples that are high in a tree.



Design a device that would allow apples high in a tree to be picked without the use of steps or ladders.

- (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** mechanical gripping methods. [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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