



DESIGN AND TECHNOLOGY

0445/11

Paper 1 Product Design

May/June 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.

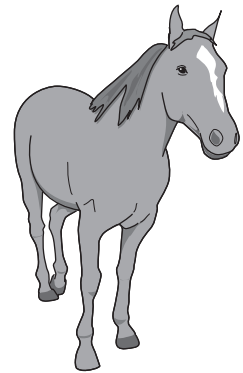
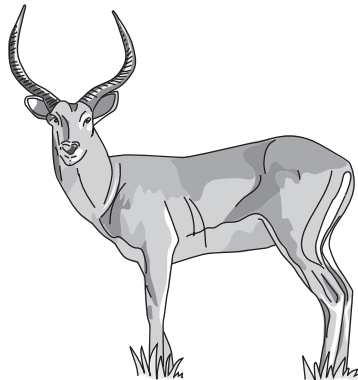
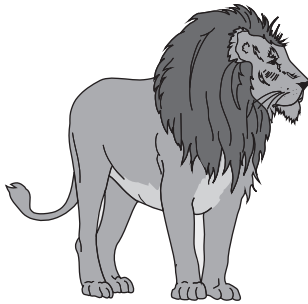
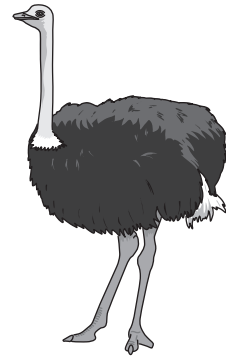
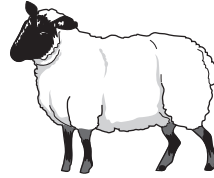
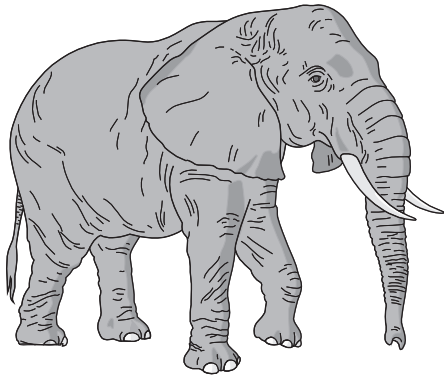
- 1 A range of equipment is used by young school children when they are having practical lessons.



Design a unit that will hold eight pencils, a pair of scissors, a rubber, a glue bottle and a 150 mm rule. The unit should be easily transported and stored when not in use.

- (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** types of carrying handle that could form part of such a unit. [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 Young children are to take part in a school play where they will each be playing a different animal.

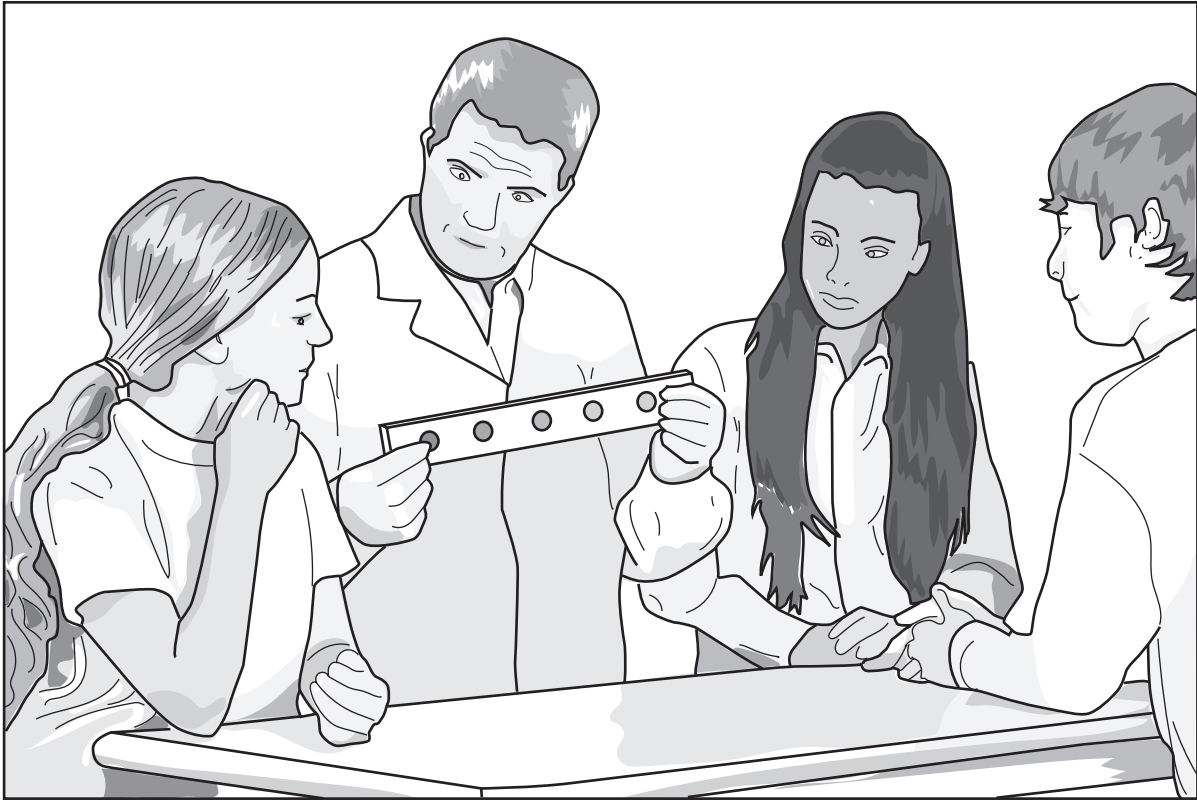


Design a mask, to represent a particular animal, that could be worn by a child.

The mask will be made from lightweight materials.

- (a) List **four** additional points about the function of such a mask that you consider to be important. [4]
- (b) Use sketches and notes to show **two** ways of securing lightweight materials that are easy to fasten and unfasten. [4]
- (c) Develop and sketch **three** different ideas for the mask. [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 quite difficult to explain to school children the difference between the three different orders (classes) of lever.



Design a teaching aid that could be used to show school children how the three orders of lever operate.

- (a) List **four** additional points about the function of such a teaching aid that you consider to be important. [4]
- (b) Use sketches and notes to show examples of **two** orders of lever. [4]
- (c) Develop and sketch **three** ideas for the teaching aid. [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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