



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

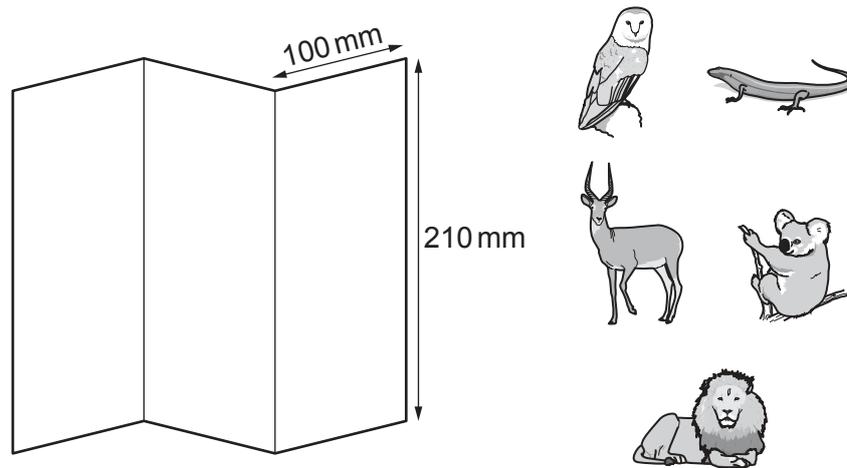
- 1 An animal sanctuary has a range of different animal enclosures that require regular cleaning.



Design a portable unit that would hold the cleaning products and equipment shown.

- (a) List **four** additional points about the function of such a portable unit that you consider to be important. [4]
- (b) Use sketches and notes to show **two** ways of securing long-handled items. [4]
- (c) Develop and sketch **three** separate ideas for the portable unit. [12]
- (d) Evaluate your three ideas. Choose **one** idea to develop further and justify your choice. [8]
- (e) Draw, using a method of your own choice, a full solution to the design problem. Include construction details and important dimensions. [12]
- (f) Suggest **two** suitable specific materials for the solution you have drawn in part (e) and give reasons for your choice. [4]
- (g) Outline a method that could be used to manufacture **one** part of your solution drawn in part (e). Include the names of the tools used. [6]

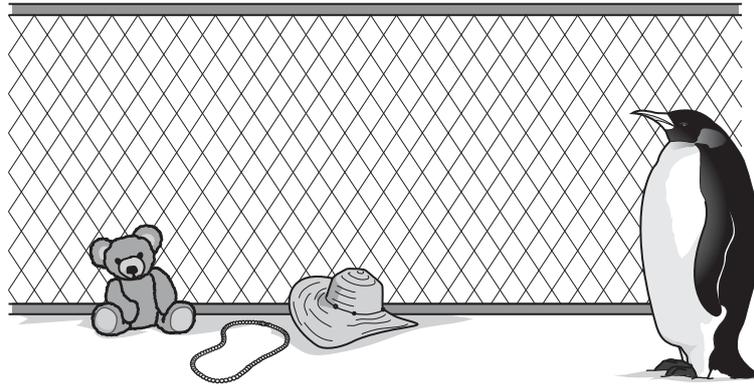
- 2 An animal sanctuary requires an eye-catching way of displaying information leaflets about different animals.



Design a 3D display unit for leaflets that features a particular type of animal.

- (a) List **four** additional points about the function of such a display unit that you consider to be important. [4]
- (b) Use sketches and notes to show **two** ways of holding leaflets. [4]
- (c) Develop and sketch **three** separate ideas for the display unit. [12]
- (d) Evaluate your three ideas. Choose **one** idea to develop further and justify your choice. [8]
- (e) Draw, using a method of your own choice, a full solution to the design problem. Include construction details and important dimensions. [12]
- (f) Suggest **two** suitable specific materials for the solution you have drawn in part (e) and give reasons for your choice. [4]
- (g) Outline a method that could be used to manufacture **one** part of your solution drawn in part (e). Include the names of the tools used. [6]

- 3 Items such as clothing, toys and jewellery are sometimes dropped accidentally into the animal enclosures.



Design a hand-operated device that can be used by the sanctuary staff to reach into the enclosure and retrieve any dropped items.

- (a) List **four** additional points about the function of such a hand-operated device that you consider to be important. [4]
- (b) Use sketches and notes to show **two** mechanisms that could be used to 'grab' items. [4]
- (c) Develop and sketch **three** separate ideas for the hand-operated device. [12]
- (d) Evaluate your three ideas. Choose **one** idea to develop further and justify your choice. [8]
- (e) Draw, using a method of your own choice, a full solution to the design problem. Include construction details and important dimensions. [12]
- (f) Suggest **two** suitable specific materials for the solution you have drawn in part (e) and give reasons for your choice. [4]
- (g) Outline a method that could be used to manufacture **one** part of your solution drawn in part (e). Include the names of the tools used. [6]

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge Assessment International Education Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at [www.cambridgeinternational.org](http://www.cambridgeinternational.org) after the live examination series.

Cambridge Assessment International Education is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of the University of Cambridge Local Examinations Syndicate (UCLES), which itself is a department of the University of Cambridge.