

Candidate forename						Candidate surname					
Centre number						Candidate number					

OXFORD CAMBRIDGE AND RSA EXAMINATIONS
GCSE

A554/01

DESIGN AND TECHNOLOGY

Product Design

Designing Influences

FRIDAY 25 MAY 2012: Morning

DURATION: 1 hour 30 minutes
plus your additional time allowance

MODIFIED ENLARGED

Candidates answer on the Question Paper.

OCR SUPPLIED MATERIALS:

None

OTHER MATERIALS REQUIRED:

None

READ INSTRUCTIONS OVERLEAF

INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes on the first page. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer ALL the questions in Section A AND B.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [] at the end of each question or part question.
- The total number of marks for this paper is 60.
- SECTION A is worth 30 MARKS. You are advised to spend no more than 45 minutes on it.
- SECTION B is worth 30 MARKS. You are advised to spend no more than 45 minutes on it.
- You will need to select from the tables in SECTION B when answering question 4 and question 5 of this paper. ‘Trendsetter’ and ‘Iconic product’ must be linked to ‘Eras and movements’.
- Your Quality of Written Communication will be assessed in questions marked with an asterisk (*).

BLANK PAGE

SECTION A

You are advised to spend 45 minutes on this section.

1 Fig. 1 shows a hole punch.

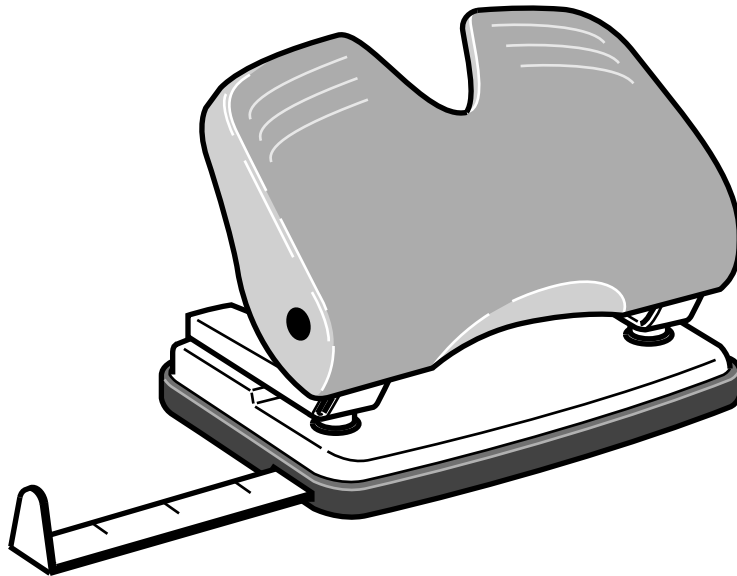


Fig. 1

(a) Give **THREE** design features of a hole punch.

Feature 1 _____

Feature 2 _____

Feature 3 _____ [3]

(b) The hole punch shown in Fig. 1 uses a simple lever in its design.

(i) Name **ONE** product, other than a hole punch, that uses this type of lever.

_____ [1]

(ii) Explain the term ‘mechanical advantage’ and how it will affect the design of a hole punch.

[3]

(c) Explain how the development of new materials has created innovative design opportunities.

[3]

[Total: 10]

2 Fig. 2 shows an electric kettle.

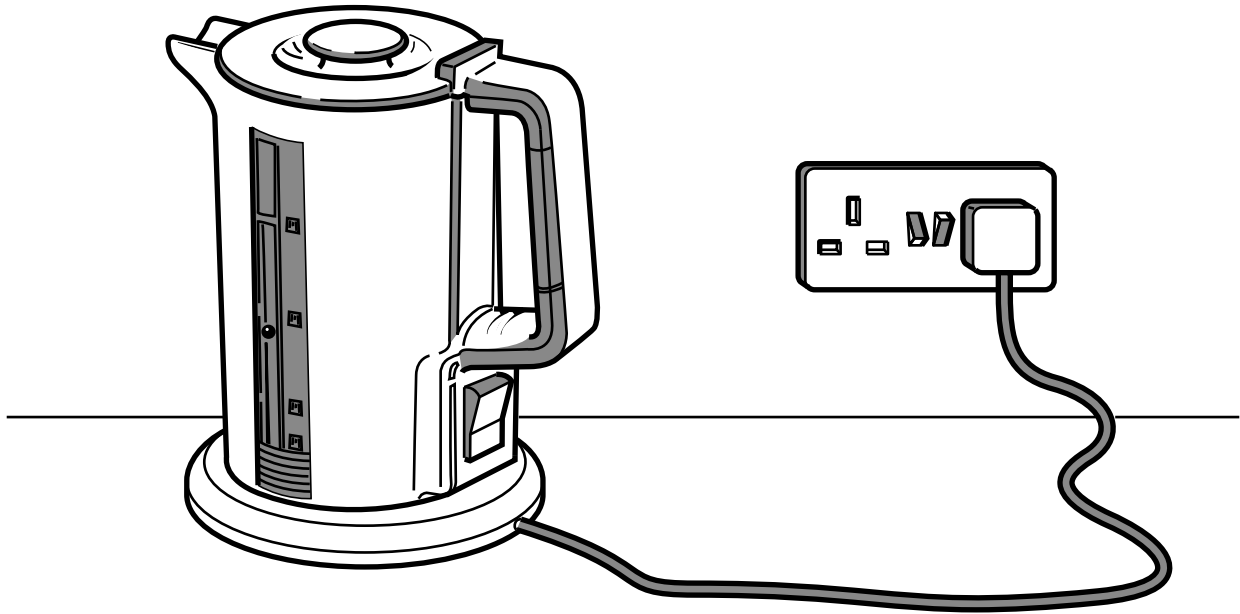


Fig. 2

(a) Give FOUR ways in which designers overcome the health and safety risks associated with kettles.

1 _____

2 _____

3 _____

4 _____ [4]

(b) Explain, using ONE example, how the designer has considered environmental issues linked to the use of the electric kettle.

[3]

(c) Discuss the importance of labels in the marketing of products.

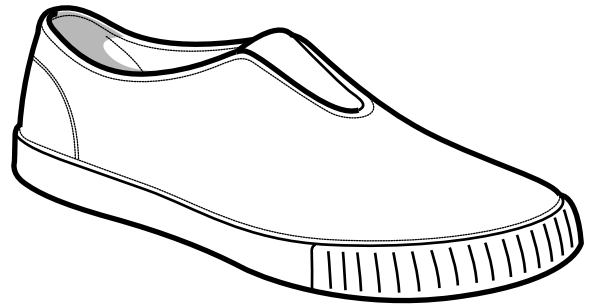
[3]

[Total: 10]

- 3 Fig. 3 shows a modern trainer and a gym shoe from the 1950s.



modern trainer

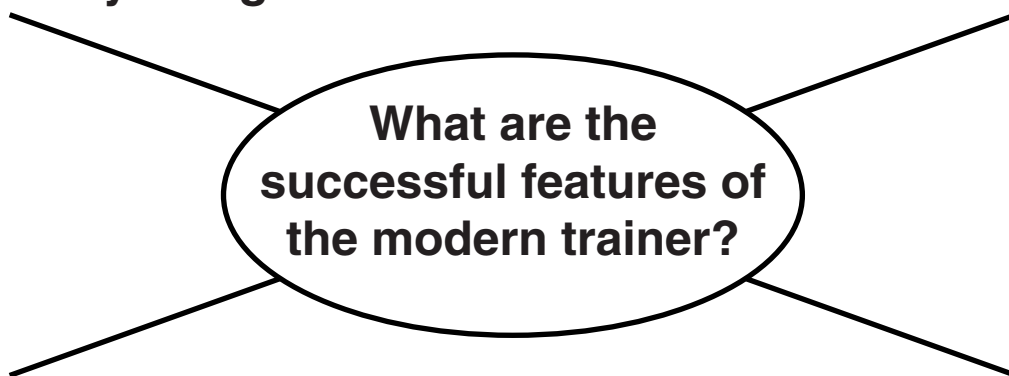


gym shoe from the 1950s

Fig. 3

- (a) Complete the diagram below by adding a further **THREE** successful features of the modern trainer.

The modern trainer is ergonomically designed.



[3]

(b) Explain why TWO of the features you have identified have made the modern trainer successful.

An example has been done for you.

Point 1 The modern trainer is ergonomically designed.

Explanation: *The modern trainer has a moulded sole designed to support the shape of the foot.*

Point 2 _____

Explanation

[2]

Point 3 _____

Explanation

[2]

- (c) The two items of footwear shown in Fig. 3 both have the same basic function but their design features are different.**

Explain why the design features of the two shoes are different.

[3]

[Total: 10]

BLANK PAGE

SECTION B

You are advised to spend 45 minutes on this section.

THIS QUESTION DRAWS UPON THE RESEARCH YOU CARRIED OUT AS PART OF YOUR EXAMINATION PREPARATION.

- 4 The table below shows the eras, trendsetters and iconic products for this examination.

Please indicate using a tick [✓] the era or movement you have studied.

ERA OR MOVEMENT	TRENDSETTER	ICONIC PRODUCT	✓
1980s	The Memphis Group	Carlton Room divider	
1970s	Abba	Lycra stage costumes	
Twentieth century	Confectionary packaging	Kit Kat	
1970–1990	Lasers	Bar code reader	
1950s and 60s	Ice cream	Knickerbocker glory	

(a)* Trendsetter chosen _____

Explain why this trendsetter has been so influential.

[illegible]

[6]

(b) Iconic product chosen _____

**Give TWO reasons why the product you have chosen has been so influential.
Make specific reference to aesthetics and/or technology.**

Reason 1 _____

Reason 2 _____

[4]

[Total: 10]

5 THIS QUESTION DRAWS UPON THE RESEARCH YOU CARRIED OUT AS PART OF YOUR EXAMINATION PREPARATION.

You will need to:

- **Write a specification**
- **Produce a range of initial ideas**
- **Develop ONE idea**
- **Give details of the final proposal**

Five different design needs are given below.

Please indicate using a tick [✓] ONE design need you are going to consider.

DESIGN NEED	✓
A home store requires a book shelf in the style of the Memphis Group.	
A lycra costume for a dancer in a musical entitled ‘Jungle Rock’.	
A wrapper for a new breakfast cereal bar called ‘Cruncher’. The dimensions of the bar are: Length 120 mm Width 30 mm Thickness 25 mm	
A room measuring device, used by surveyors, which incorporates a laser.	
An ice cream dessert for a 1950s themed party.	

- (a) Identify FOUR important design specification points for your chosen design need. These must specify key design requirements other than those detailed in the design need above.**

1 _____

2 _____

3 _____

4 _____

_____ **[4]**

(b) Use sketches and notes to produce a range of initial ideas that meet your specification.

(c) Use sketches and notes to develop ONE of your initial ideas to meet the original design need.

[5]

- (d) Give details of your final proposal showing how it meets the four design specification points you identified in part (a) of this question.**

[6]

[Total: 20]

Copyright Information

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website (www.ocr.org.uk) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact the Copyright Team, First Floor, 9 Hills Road, Cambridge CB2 1GE.

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