

**Friday 25 May 2012 – Morning**

**GCSE DESIGN AND TECHNOLOGY Product Design**

**A554/01** Designing Influences

Candidates answer on the Question Paper.

**OCR supplied materials:**

None

**Other materials required:**

None

**Duration:** 1 hour 30 minutes



Candidate forename		Candidate surname	
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Centre number						Candidate number				
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**INSTRUCTIONS TO CANDIDATES**

- Write your name, centre number and candidate number in the boxes above. 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).
- Do **not** write in the bar codes.

**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 (\*).
- This document consists of **16** pages. Any blank pages are indicated.

SECTION A

You are advised to spend 45 minutes on this section.

1 Fig. 1 shows a hole punch.

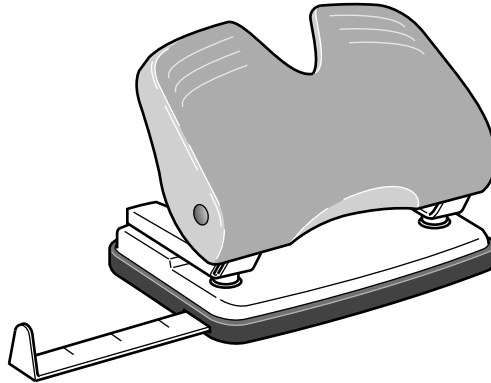


Fig. 1

(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.

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..... [3]

**[Total: 10]**

2 Fig. 2 shows an electric kettle.

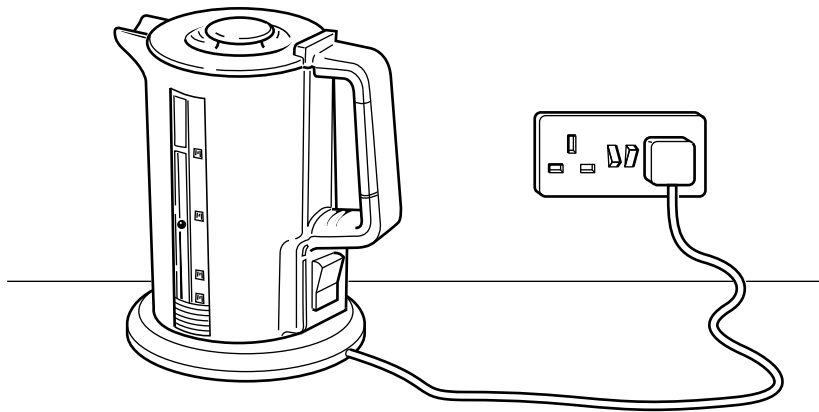


Fig. 2

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

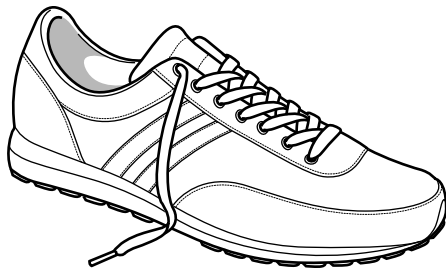
- 1 .....
- 2 .....
- 3 .....
- 4 ..... [4]

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

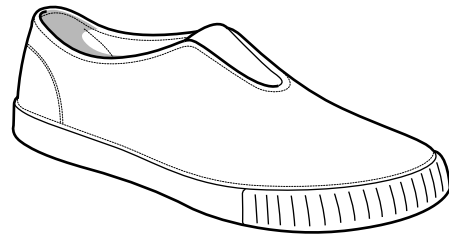
- .....
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- .....
- ..... [3]



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



modern trainer

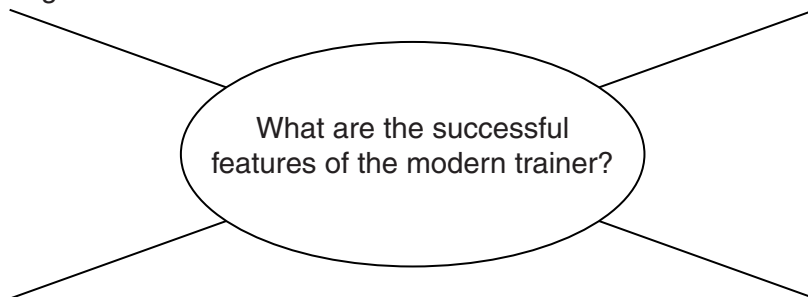


gym shoe from the 1950s

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*

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.....  
..... [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.

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.....  
..... [3]

[Total: 10]

**8**  
**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.

<b>Era or Movement</b>	<b>Trendsetter</b>	<b>Iconic product</b>	<b>✓</b>
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.

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..... [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.

<b>design need</b>	✓
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 .....

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2 .....

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3 .....

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4 .....

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**[4]**

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

**[5]**

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

- (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]

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