



**GENERAL CERTIFICATE OF SECONDARY EDUCATION**  
**DESIGN AND TECHNOLOGY**  
**PRODUCT DESIGN**

**A554**

Unit 4: Designing Influences

Candidates answer on the Question Paper

**OCR Supplied Materials:**  
None

**Other Materials Required:**  
None

**Thursday 14 January 2010**  
**Afternoon**

**Duration: 1 hour 30 minutes**



Candidate Forename		Candidate Surname	
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Centre Number						Candidate Number				
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**MODIFIED LANGUAGE**

**INSTRUCTIONS TO CANDIDATES**

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Answer **all** the questions in Section A **and** Section B.
- Do **not** write in the bar codes.
- Write your answer to each question in the space provided, however additional paper may be used if necessary.

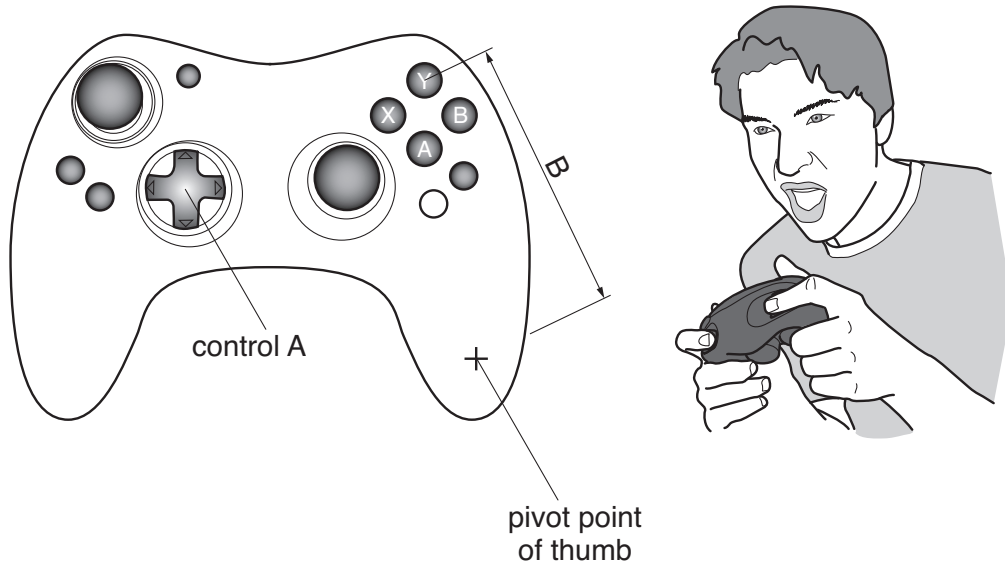
**INFORMATION FOR CANDIDATES**

- 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. 'Trend setter' and 'Iconic product' must be linked to 'Eras and movements'.
- Your Quality of Written Communication is assessed in the question marked with an asterisk (\*).
- This document consists of **16** pages. Any blank pages are indicated.

2  
SECTION A

You are advised to spend 45 minutes on this section.

1 Fig. 1 shows a computer games controller.



**Fig. 1**

(a) Give **three** design features of a computer games controller.

- Feature 1 ..... [1]
- Feature 2 ..... [1]
- Feature 3 ..... [1]

(b) The table below shows thumb sizes in millimetres.  
Use this table to answer the questions.

Dimensions	Male (Percentiles)		Female (Percentiles)	
	5%	95%	5%	95%
Thumb length	94	113	87	106
Thumb width	18	22	16	20

- (i) State an appropriate diameter for control A in Fig. 1.  
..... [1]
- (ii) Justify your answer.  
..... [1]

(iii) Explain why it might be considered a design fault to make dimension B 108 mm.

.....  
.....  
.....  
..... [2]

(c) Describe **two** ways in which the designer of the games controller has used aesthetics.

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

[Total: 10]

2 Fig. 2 shows a low energy light bulb.

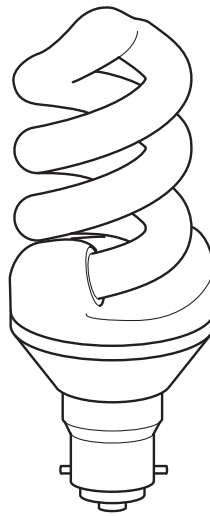


Fig. 2

(a) (i) Give **three** reasons why people use low energy light bulbs.

*Reason 1* ..... [1]

*Reason 2* ..... [1]

*Reason 3* ..... [1]

(ii) Explain **one** drawback with low energy light bulbs.

.....  
.....  
..... [2]

(b) Give **two** examples of renewable energy sources.

*Example 1* ..... [1]

*Example 2* ..... [1]

(c) Explain how life cycle energy analysis is used in the design of sustainable products.

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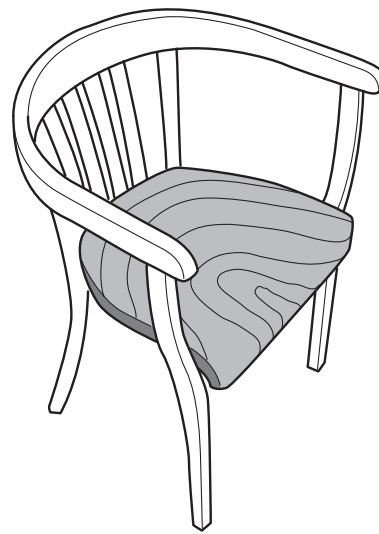
..... [3]

[Total: 10]

3 Fig. 3 shows a modern office chair and an office chair from the 1940s.



modern office chair

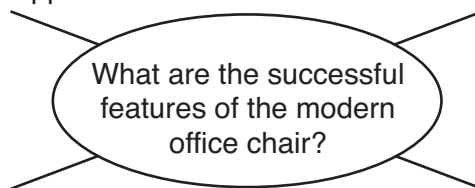


office chair from the 1940s

**Fig. 3**

(a) Complete the diagram below by adding a further **three** successful features of the modern office chair.

The modern office chair provides good support.



[3]

(b) Explain why **two** of the features you have identified have made the modern office chair successful.

An example has been done for you.

*Point 1:* The modern office chair provides good support.

*Explanation:* The use of ergonomics and anthropometric data has led to a chair design that provides good support to the user's back.

*Point 2:* .....

*Explanation:*

.....  
.....  
.....  
..... [2]

*Point 3:* .....

*Explanation:*

.....  
.....  
.....  
..... [2]

(c) Explain why the office chair from the 1940s is considered to be a more sustainable design than the modern office chair.

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..... [3]

[Total: 10]

**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, trend setters and iconic products for this examination.

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

<b>Era or Movement</b>	<b>Trend setter</b>	<b>Iconic product</b>	<b>✓</b>
1960s	Alex Issigonis	Mini Cooper	
(1970s) Hippies	Yves St Laurent	Kaftan	
1950s + 1960s	Andy Warhol	Campbell's soup painting	
1980s	Infra-red light emission	TV Remote control	
1960s	Vegetarianism	Nut loaf	

**(a\*)** Trend setter chosen .....

Discuss the importance of this trend setter in the context of modern design.

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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 innovation and function.

*Reasons 1* .....  
.....  
..... [2]

*Reasons 2* .....  
.....  
..... [2]

**[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 [✓] **one** design need you are going to consider.

design need	✓
A museum requires a mechanical toy in the style of an Alex Issigonis design.	
A coat in the 1970s 'hippy' style.	
A promotional pop up card for an Andy Warhol exhibition.	
A simple electronic product that can be used to control a light remotely.	
A vegetarian product for a young child.	

**(a)** Identify **four** important design specification points for your chosen design need. These must specify key design requirements and should not include the one detailed in the design need above.

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

**(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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