

Candidate forename						Candidate surname					
Centre number						Candidate number					

OXFORD CAMBRIDGE AND RSA EXAMINATIONS
GCSE

A562/01

DESIGN AND TECHNOLOGY

Resistant Materials
Sustainable Design

WEDNESDAY 27 JUNE 2012: Morning

DURATION: 1 hour
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.**
- **Your Quality of Written Communication is assessed in questions marked with an asterisk (*).**

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SECTION A

Answer ALL questions.

You are advised to spend 15 minutes on this section.

On questions 1–5 circle your answer.

1 Shops promoting UK products are trying to reduce their

(a) Carbon footprint

(b) Product range

(c) Costs

(d) Delivery times

[1]

2 Which of the following is an example of tertiary recycling?

(a) Making a plant pot from a plastic yoghurt pot

(b) Giving an item to a charity shop

(c) Changing plastic bottles into fleece fibres

(d) Making playground swings from car tyres

[1]

3 Which of the following is not a renewable source of energy?

(a) Oilseed rape

(b) Natural gas

(c) Straw

(d) Sawdust

[1]

4 The measurement of our actions on the environment is called

(a) Eco-footprint

(b) Eco-friendly

(c) Ecology

(d) Economy

[1]

- 5 Shape-memory alloys return to their original shape by the action of**
- (a) Light**
 - (b) Impact**
 - (c) Water**
 - (d) Heat**

[1]

- 6 The symbol shown stands for**



_____ **[1]**

- 7 _____ offsetting involves**
- financially supporting renewable energy projects. [1]**

- 8 State the term used when the design of a product takes account of its environmental impact.**

_____ **[1]**

9 State the name for the tables of data giving measurements of people.

_____ **[1]**

10 Which 6R means to mend a product?

_____ **[1]**

Decide whether each of the following statements is TRUE or FALSE.

Tick (✓) the box to show your answer.

	TRUE	FALSE	
11 Car tyres are always shredded before re-use	<input type="checkbox"/>	<input type="checkbox"/>	[1]
12 Thermoplastics cannot be recycled	<input type="checkbox"/>	<input type="checkbox"/>	[1]
13 The Ethical Trading Initiative ensures companies increase their profits	<input type="checkbox"/>	<input type="checkbox"/>	[1]
14 Biodegradable plastics will rot away	<input type="checkbox"/>	<input type="checkbox"/>	[1]
15 Risk assessments in schools are optional	<input type="checkbox"/>	<input type="checkbox"/>	[1]

Total [15]

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SECTION B BEGINS ON PAGE 10

SECTION B

Answer ALL questions.

You are advised to spend 45 minutes on this section.

16 Fig. 1 shows kettles from two different times.

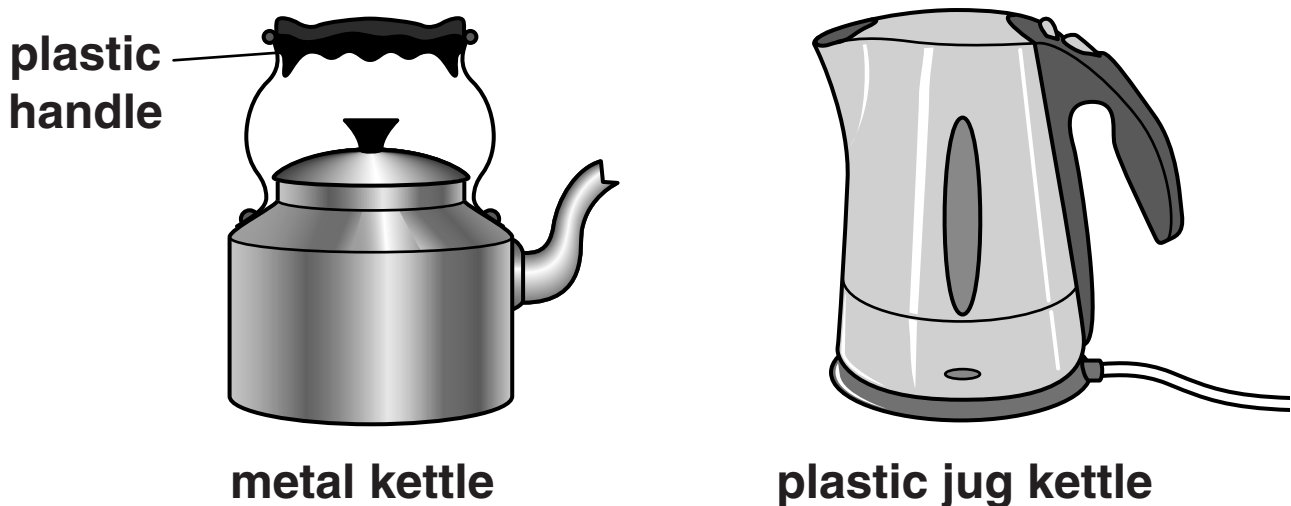


Fig. 1

(a) Describe TWO design features that make the plastic jug kettle energy efficient.

1. _____

2. _____

[4]

(b) Explain, with reference to the kettles shown in Fig. 1, what is meant by the following TWO terms.

(i) Aesthetics _____

[3]

(ii) Repair _____

[3]

(c) Describe how the kettles could be recycled at the end of their useful lives.

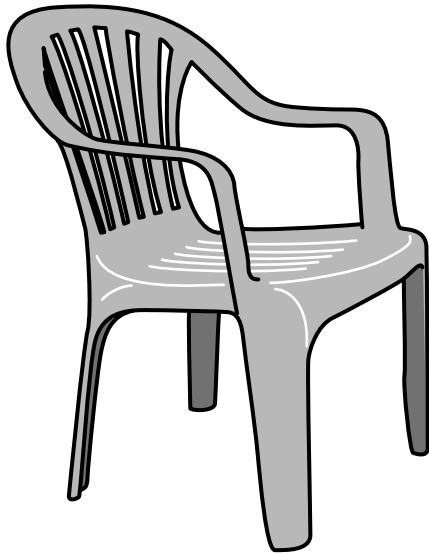
[4]

(d) Give ONE reason why the metal kettle has a plastic handle.

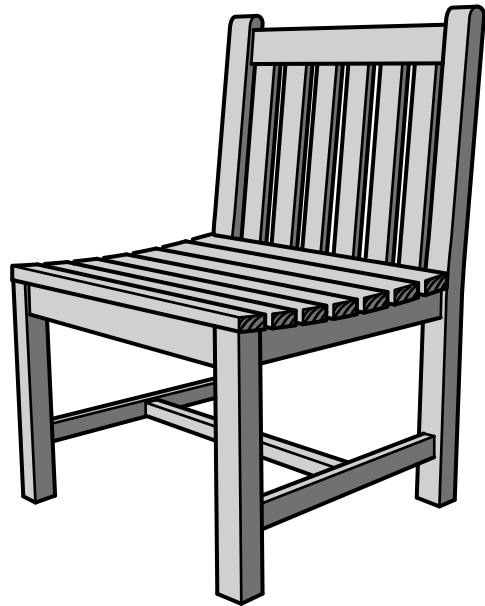
[1]

Total [15]

17 Fig. 2 shows two garden chairs.



plastic chair



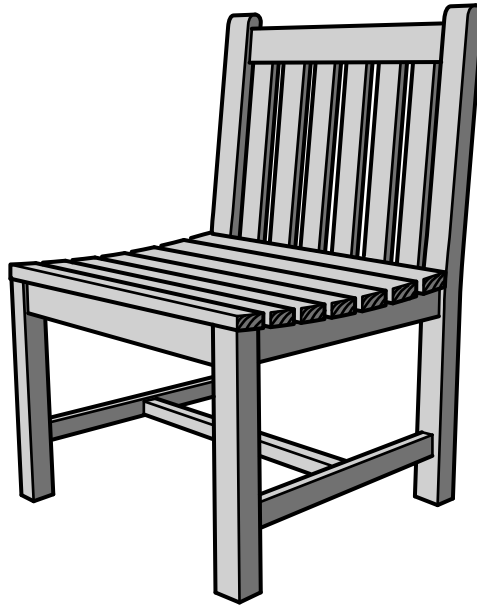
softwood chair

Fig. 2

(a)* Discuss how garden chairs could be manufactured from recycled or waste materials.

[6]

(b) Using sketches and notes, show how the softwood chair could be modified to make it more ergonomically user-friendly.



[3]

(c) State TWO environmental benefits of using preservative coatings containing low volatile organic compounds (VOCs) on the softwood chair shown in Fig. 2.

1 _____

2 _____

[2]

(d) Give TWO benefits of the plastic chair to the user.

1 _____

2 _____

[2]

- (e) The softwood chair shown in Fig. 2 is to be handmade in a less economically developed country (LEDC).
Give TWO social benefits of this.

1 _____

2 _____

_____ [2]

Total [15]

18 Fig. 3 shows a wooden rocking horse.

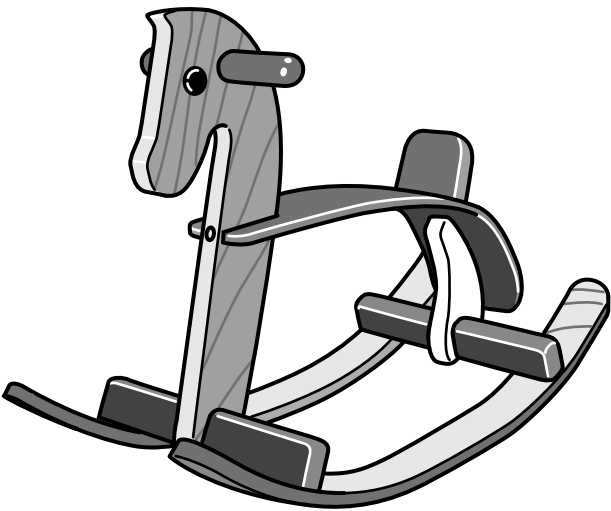
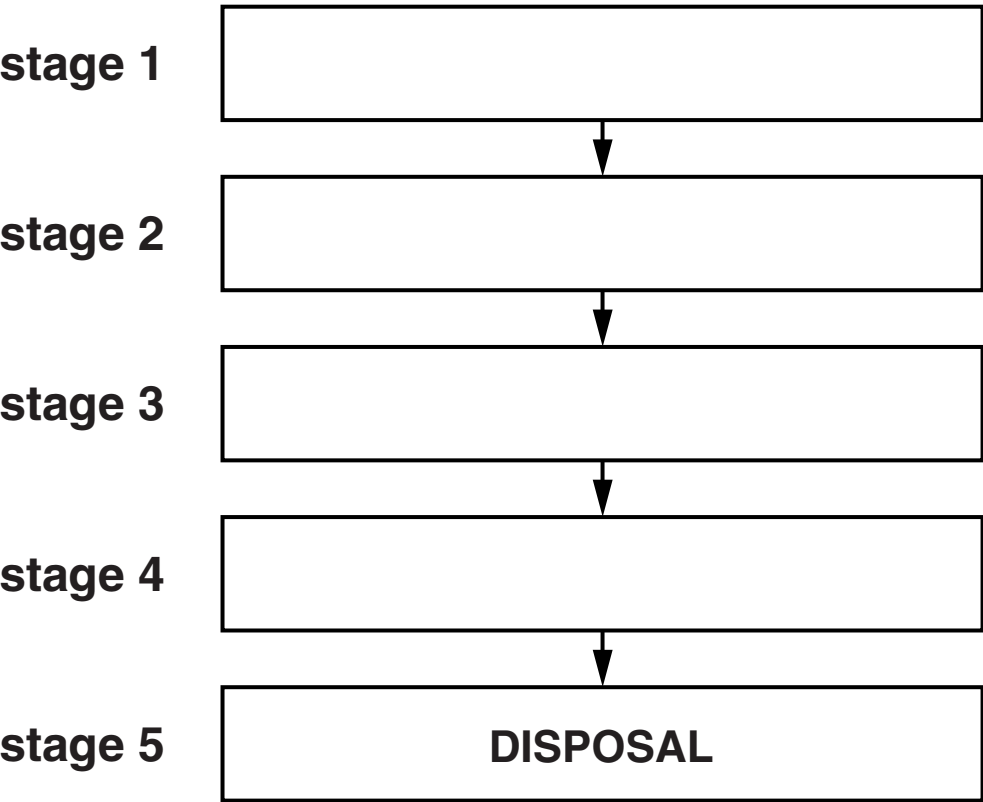


Fig. 3

(a) Complete the table below to show the stages of the Life Cycle Analysis (LCA) for the rocking horse. The final stage, Disposal, is given.



[4]

(b) Describe TWO ways that the designer of the rocking horse has considered safety of the user.

1 _____

2 _____

[4]

(c) The rocking horse must meet British safety standards.

Give FOUR safety checks which could be carried out during manufacture.

1 _____

2 _____

3 _____

4 _____

[4]

- (d) The rocking horse has been designed to have a limited product lifetime.**

Explain what is meant by the term ‘limited product lifetime’.

[3]

Total [15]



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