

Wednesday 27 June 2012 – Morning

GCSE DESIGN AND TECHNOLOGY Resistant Materials

A562/01 Sustainable Design

Candidates answer on the Question Paper.

OCR supplied materials:
None

Other materials required:
None

Duration: 1 hour



Candidate forename		Candidate surname	
--------------------	--	-------------------	--

Centre number						Candidate number				
---------------	--	--	--	--	--	------------------	--	--	--	--

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**.
- Your Quality of Written Communication is assessed in questions marked with an asterisk (*).
- This document consists of **12** pages. Any blank pages are indicated.

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]

4

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]

5
BLANK PAGE

PLEASE DO NOT WRITE ON THIS PAGE

Section B

Answer **all** questions.

You are advised to spend 45 minutes on this section.

16 Fig. 1 shows kettles from two different times.

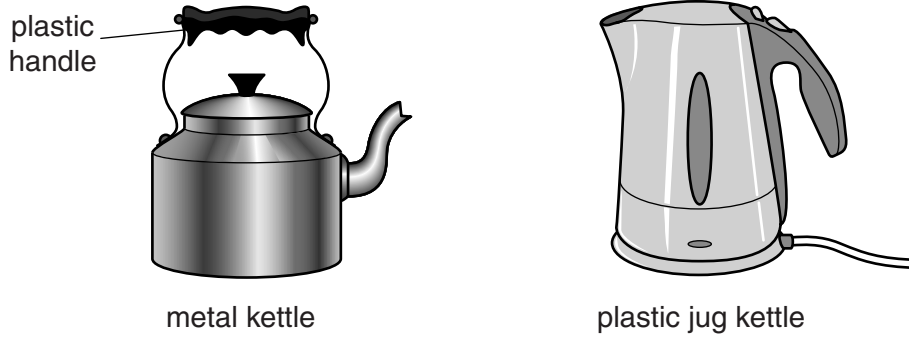


Fig. 1

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

- 1.
.....
.....
- 2.
.....
.....

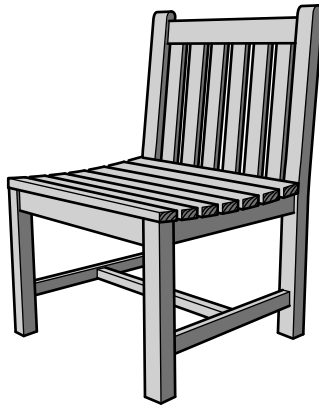
[4]

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

- (i) Aesthetics
.....
.....
.....
.....
.....

[3]

(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.

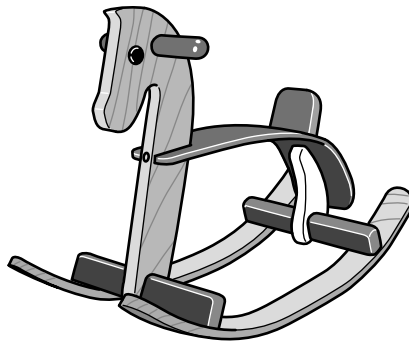
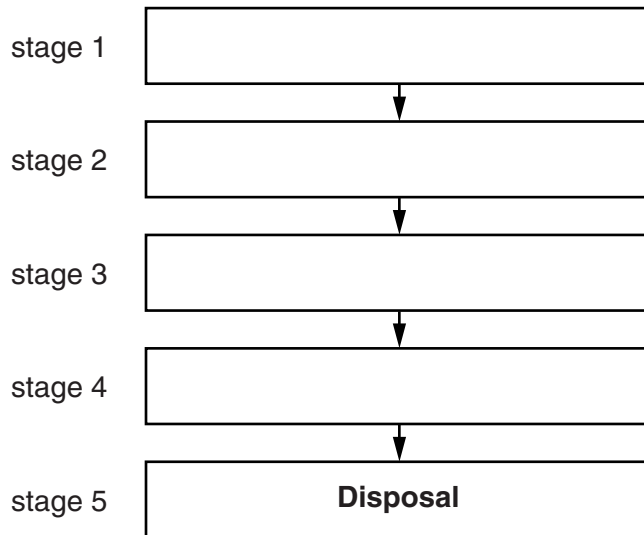


Fig. 3

(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]



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.