

Friday 7 June 2013 – Afternoon

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	
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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**.
- 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** Which of the following refers to 'Reduce'?
- (a) Product needs less material in its manufacture
 - (b) Product needs to be disposed of quickly
 - (c) Product needs to be disassembled easily
 - (d) Product needs replaceable parts **[1]**
- 2** When considering a new product, designers should
- (a) Design only for their own needs
 - (b) Ignore the influences of other cultures
 - (c) Design only for another culture
 - (d) Take account of the values of society **[1]**
- 3** Manufacturing a product that will break after a known length of time is called
- (a) Planned failure
 - (b) Intended breakage
 - (c) Planned obsolescence
 - (d) Broken promises **[1]**
- 4** The measurement of the effect of manufacturing on the environment is called
- (a) Carbon footprint
 - (b) Carbon fingerprint
 - (c) Carbon offsetting
 - (d) Carbon emissions **[1]**

5 Disassembling a product will

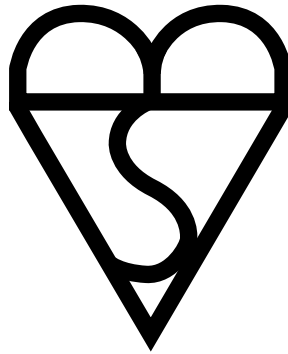
- (a) Make the product cheaper
- (b) Help to sell the product on the internet
- (c) Assist in designing a similar product that may be more eco-friendly
- (d) Make the packaging for the product bigger

[1]

6 What do the letters BSI stand for?

..... [1]

7 Name this symbol.



..... [1]

8 State the term given to products that decompose naturally.

..... [1]

9 Name the group of plastics which cannot be melted for recycling.

..... [1]

10 Name a smart material.

..... [1]

4

Decide whether each of the following statements is **true** or **false**.

Tick [✓] the box to show your answer.

	True	False	
11 A television on standby still uses electrical power	<input type="checkbox"/>	<input type="checkbox"/>	[1]
12 Manufacturers must follow COSHH regulations	<input type="checkbox"/>	<input type="checkbox"/>	[1]
13 Glass is biodegradable	<input type="checkbox"/>	<input type="checkbox"/>	[1]
14 Ethical Trading Initiative is based only in the UK	<input type="checkbox"/>	<input type="checkbox"/>	[1]
15 All hardwoods come from sustainable sources	<input type="checkbox"/>	<input type="checkbox"/>	[1]
			Total [15]

SECTION B

Answer **all** questions.

You are advised to spend 45 minutes on this section.

16 Fig. 1 shows three types of kitchen scales.

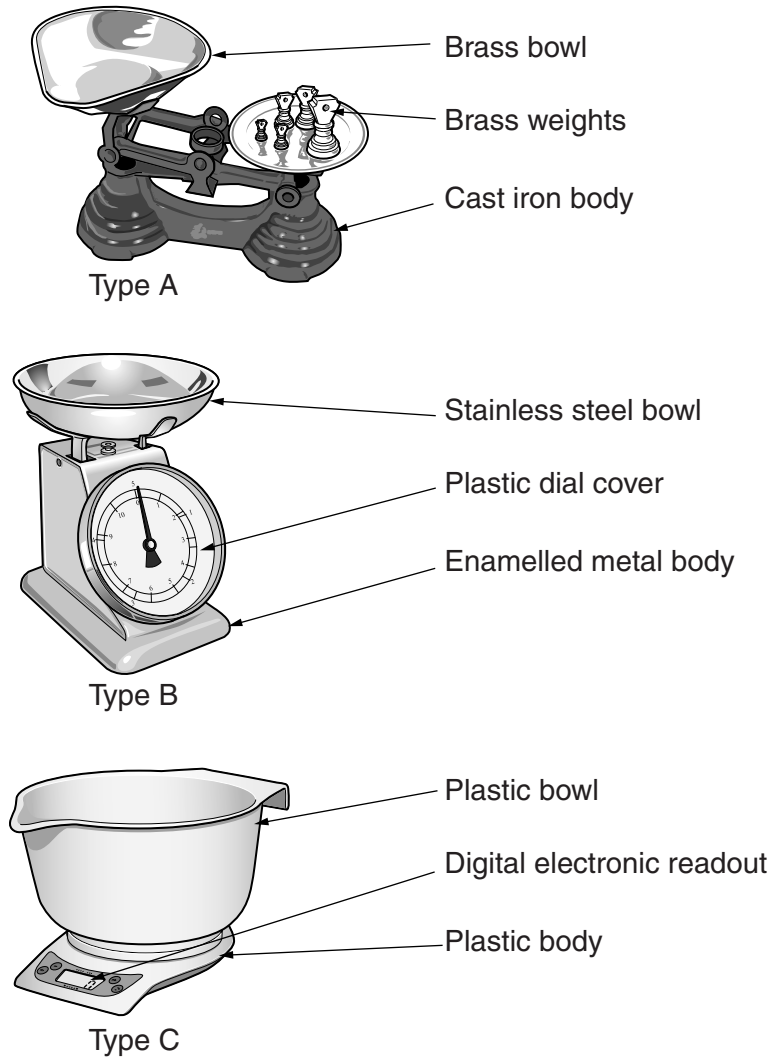


Fig. 1

(a) Explain **two** reasons why the Type A kitchen scale is easy to recycle.

1

.....

.....

.....

2

.....

.....

.....

(b) Explain the following terms with reference to kitchen scales.

(i) Functional
.....
.....
..... [3]

(ii) Ergonomic
.....
.....
..... [3]

(c) Refer to the bowls in Fig. 1:

(i) Give **one** example of how the design has changed over time.
.....
..... [1]

(ii) Explain why the design has changed over time.
.....
.....
..... [2]

(d) The dial of the Type B scale has a vacuum formed plastic cover.

Give **two** environmental disadvantages of vacuum forming.

Disadvantage 1
.....

Disadvantage 2
.....

[2]

Total [15]

17 Fig. 2 shows a basic wooden go-kart.

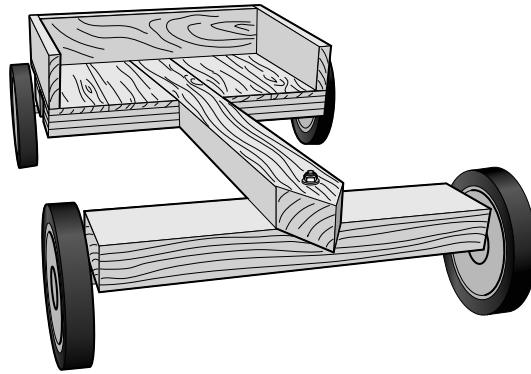
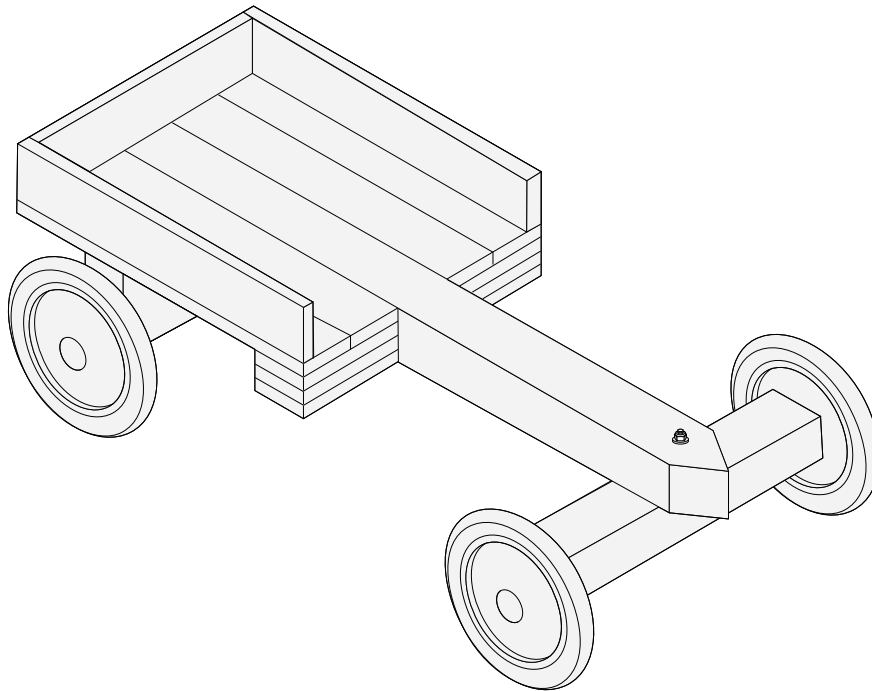


Fig. 2

- (a) Using notes and sketches, add features to the go-kart to make it safer and more comfortable to use.



[3]

(b) The go-kart is made from softwood.

Give **two** environmental advantages of using softwood.

1

.....

2

.....

[2]

(c) The go-kart will have to be disposed of at the end of its life.

Describe **two** methods of disposal that would be environmentally friendly.

1

.....

.....

.....

.....

2

.....

.....

.....

.....

[4]

18 Fig. 3 shows a toddler's outdoor slide manufactured from recyclable plastics.



Fig. 3

(a) Some outdoor plastic toys are assembled using nuts and bolts.

Name **one** material from which these nuts and bolts could be manufactured.

..... [1]

(b) In the space below sketch the symbol that shows that a plastic toy can be recycled.

[3]

(c) The CE mark is found on toys sold in Europe.



(i) What do the letters CE stand for?

..... [1]

(ii) Give **one** reason why this mark is important to consumers in the UK.

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

(d) With reference to the slide, explain the following terms:

Repair

.....

.....

.....

Redundant

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.....

.....

[4]

(e) Describe **two** ways in which the energy used when transporting large items from the manufacturer to the consumer can be reduced.

1

.....

.....

2

.....

.....

[4]

Total [15]

END OF QUESTION PAPER



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