

# GCSE 2004

## *June Series*



# Mark Scheme

## Design and Technology: Graphic Products *(3543/Full Course Higher)*

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Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

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*The answers given in the following mark schemes are neither exhaustive nor exclusive. Candidates whose answers do not appear directly on the mark scheme, but who have demonstrated knowledge, understanding, or skills relevant to the question will receive appropriate credit for their answers.*

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**GENERAL CERTIFICATE OF SECONDARY EDUCATION**

June Examination 2004

**Design and Technology Graphic Products**

**Full Course Higher Tier**

***Question 1 Data Representation***

	<b>Bar Chart</b>	Reward either “Bar” or “Column”		
(a)	Accuracy	three correct height $\pm$ 1mm	3 marks	
	(visual check)	two correct	2 marks	
		one correct	1 mark	
		none correct	0 marks	(3 marks)
(b)	Colour	good, even, within borders	2 marks	
	(inc. hatching)	some outside borders	1 mark	
		consistently outside borders/not attempted	0 marks	(2 marks)
(c)	Labels	all three bars colours (hatching) match key, %	1 mark	
		incorrect	0 marks	(1 mark)

**Total 6 marks**

**Question 2 Vacuum Forming**

- |        |                                                                                                             |         |           |
|--------|-------------------------------------------------------------------------------------------------------------|---------|-----------|
| (a)    | Any thermoplastic e.g. HIPS, PVC, Polystyrene, Plastizote, acrylic, perspex<br>Do not accept vinyl, styrene | 1 mark  | (1 mark)  |
| (b)    | The Process:                                                                                                |         |           |
|        | Good understanding of process, e.g. thermo-plastics                                                         | 3 marks |           |
|        | Atmospheric pressure, air tight                                                                             |         |           |
|        | Some understanding evident, but errors                                                                      | 2 marks |           |
|        | An attempt, some correct features                                                                           | 1 mark  |           |
|        | Incorrect, not attempted                                                                                    | 0 marks | (3 marks) |
| Notes: | Clear, self explanatory                                                                                     | 2 marks |           |
|        | Some confusion or labels                                                                                    | 1 mark  |           |
|        | Incorrect or not attempted                                                                                  | 0 marks | (2 marks) |

**Total 6 marks**

**Question 3 Designing****Decoration – Mountains**

Three different relevant quality, relevant designs, well communicated, some development	(3 x 2)	6 marks	
Satisfactory designs, mountains suggested	(pro rata 1 mark)		
Not attempted		0 marks	(6 marks)

**Colour**

Colour consistently indicated – labels or used		1 mark	(1 mark)
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**Logo**

Good <b>quality development</b> of an idea		3 marks	
Discrete ideas or limited evidence of development		2 marks	
One idea		1 mark	
Totally inappropriate/not attempted		0 marks	(3 marks)

**Printing finishing effect**

(stated, or shown)			
Is a suitable effect indicated? (What?)		1 mark	
Appropriate to design (Where?)		1 mark	
Not appropriate		0 marks	(2 marks)

**Evaluation (Best Evidence)**

Critical, relevant, justified		3 marks	
Superficial, self congratulatory, labels, descriptive		2, 1 marks	
Not attempted/not relevant		0 marks	(3 marks)

**Total 15 marks**

**Question 4 Presentation****(a) Presentation Drawing**

	Use of spec: pro rata, one mark per criteria		
	mountains		
	colours - quality		
	logo with A1C		
	enhancement techniques evidently used (credit if shown in Qu3)	4 x 1 marks	(4 marks)
<b>(ii)</b>	<b>Quality of Drawing:</b>		
	Very good line quality, clear, neat, etc.	3 marks	
	Adequately drawn, some reasonable lines	2 marks	
	A fair attempt, lacks precision		
	Scribble/Not attempted	0 marks	(3 marks)
<b>(iii)</b>	<b>Combining Ideas</b>		
	All designs faithfully brought forward	3 marks	
	Most designs brought forward	2 mark	
	Some designs brought forward	1 mark	
	Nothing brought forward ( <i>different design</i> )	0 marks	(3 marks)
<b>(iv)</b>	<b>Layout</b>		
	Very effective, consistently good, e.g. spacing, proportion, good use of space, guide lines	5-4 marks	
	Satisfactory, sense of composition, adequate spacing, some imperfections	3-2 marks	
	An attempt but lacks clarity and/or poorly spaced, crowded	1 mark	
	Unrecognisable or not attempted	0 marks	(5 marks)
<b>(v)</b>	<b>Colouring</b>		
	Good quality, enhances drg, visual impact, e.g. good tonal control, very good block colouring	5 marks	
	Satisfactory, controlled use of media, some attempt at higher skills e.g. tone, block colour	4 marks	
	Moderate quality, some enhancement, (good monochrome max.)	3 marks	
	Poor quality, untidy/scribble, does little to enhance product	2 marks	
	An attempt – very poor, scribble	1 mark	
	No colour – line drawings only	0 marks	(5 marks)

- (b) **Bar Codes** *Any two suitable and different with appropriate details  
(care not to double award)*
- |                                                         |         |           |
|---------------------------------------------------------|---------|-----------|
| (i) Name e.g. price, stock check, product code/name     | 1 mark  | (1 mark)  |
| Explanation: Clear, concise, related                    | 2 marks |           |
| Some understanding, some confusion                      | 1 mark  |           |
| Not attempted, not related                              | 0 marks | (2 marks) |
| (ii) Name e.g. price, stock check, product code/name    | 1 mark  | (1 mark)  |
| Explanation: Clear, concise, related                    | 2 marks |           |
| Some understanding, some confusion                      | 1 mark  |           |
| Not attempted, not related                              | 0 marks | (2 marks) |
| (c) (i) Type of Drawing Isometric                       | 1 mark  | (1 mark)  |
| (ii) e.g. full name – correct give e.g. 2pt perspective | 2 marks |           |
| partially named – e.g. perspective                      | 1 mark  | (2 marks) |
- NB if (i) is incorrect e.g. oblique, then if (ii) is isometric  
Award 2 marks for (ii).**

**Total 29 marks**

**Question 5 Locking mechanisms**

Clear explanation in sketches and notes.

**(a) Function**

Cut/tab/Slit	3 marks	
‘Arrow head’ or serrated tab (max 2 if additional material used)	2 marks	
Friction – no locking	1 mark	
Incorrect, not attempted	0 marks	(3 marks)

**Quality**

e.g. good alignment and sizes, likely to fit well	2 marks	
will lock but some inaccuracies	1 mark	
will not lock, not attempted	0 marks	(2 marks)

**Total 5 marks**



**Question 6 Enlargement & B.S.**

(i)	Neat, accurate outline successfully transferred	3 marks	
	Fair attempt, some correct features	2 marks	
	An attempt, foot/toe shapes apparent	1 mark	
	Not easily recognised, poor size or not attempted	0 marks	(3 marks)
(ii)	BS Neat leader lines, gaps	1 mark	
	All consistent, neat and correct arrowheads	1 mark	
	All dimension lines solid, parallel, correct length	1 mark	
	All numbers, above line, centre position	1 mark	(4 marks)
	Scale 2:1 (only possible answer)	1 mark	(1 mark)

**Total 8 marks**

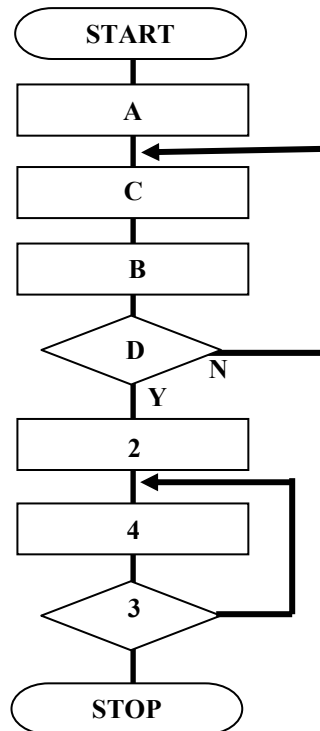
**Question 7 Equipment & Materials**

- (a) (i) Equipment  
 Stencil  
 Spirit/Pantone/felt tip pen/marker pen  
 Craft/modelling knife/balsa knife  
 Hot glue gun/glue gun/low melt glue 4 x 1 marks (4 marks)
- (ii) Uses  
 Lettering  
 Adding outline, details  
 Cutting modelling materials  
 Gluing ‘blister’ to card, shape to card 4 x 1 marks (4 marks)
- (b) Must relate to Typical Use’ given in question.
- Mark pro rata*
- |                   |                                        |                       |
|-------------------|----------------------------------------|-----------------------|
| Polystyrene sheet | e.g. thermoplastic - mouldable         |                       |
| Foam board        | e.g. flat, good surface, easily worked |                       |
| Acrylic Sheet     | e.g. thermoplastic, translucent        |                       |
| Corrugated Board  | e.g. energy absorbent, easily worked   |                       |
| Block foam        | e.g. takes finishes, lightweight       | 5 x 1 marks (5 marks) |
- (c) *e.g. heat causes the crystals in the film to change colour, seen on outside by temp. marker, when cool crystals revert to ‘black’ and temp. bar disappears. Reversible process*
- |                                                                       |                   |
|-----------------------------------------------------------------------|-------------------|
| Good understanding, e.g. reversible, line moves up/down scale         | 4 marks           |
| Some understanding, general principles – ref. inks, crystal, pigments | 3 marks           |
| An understanding, basic terms – ref. to colour/temperature            | 2 marks           |
| A fundamental knowledge, vague – how a thermometer works              | 1 mark            |
| Incorrect, not attempted                                              | 0 marks (4 marks) |

**Total 17 marks**

**Question 8 CAD/CAM and Flow Chart**

- (a) (i) Flow chart. Reward by position in chart. (Pro rata) 7 x 1 marks (7 marks)
- (ii) Feed back loops (in correct positions) 2 x 1 marks (2 marks)



- (b) (i) e.g. uniformity of design, speed, ease of change  
 Good, justified understanding 2 marks  
 Superficial reasoning 1 mark  
 One word answer e.g. speed, fast or not attempted 0 marks (2 marks)
- (ii) e.g. capital cost, training, risk of errors in production  
 Good, justified understanding 2 marks  
 Superficial reasoning 1 mark  
 One word answer e.g. cost, or not attempted 0 marks (2 marks)

**Total 13 marks**

**Question 9 Environmental, Cultural, Social Issues**

- (a) e.g. *some suggestion of contamination, health risk preserves scent, tamper proof, protects contents.*
- |         |                                              |             |           |
|---------|----------------------------------------------|-------------|-----------|
| REASONS | Correct statement, reasons clearly expressed | 2 x 2 marks | (2 marks) |
|         | Vague, one word                              | 2 x 1 mark  | (2 marks) |
|         | Not attempted, inappropriate reasons         | 0 marks     |           |
- (b) Must relate to These packages
- (i) non-renewable 1 mark  
 e.g. *oil based product, plastics, finite resource* 1 mark  
 Incorrect 0 marks (2 marks)
- (ii) Backing Card: e.g. *unsightly, litter, bio-degradable, rot, decompose*
- |  |                                          |         |           |
|--|------------------------------------------|---------|-----------|
|  | Clearly reasoned, good understanding     | 3 marks |           |
|  | Some understanding, not fully explained, | 2 marks |           |
|  | An attempt                               | 1 mark  |           |
|  | Incorrect, not attempted                 | 0 marks | (3 marks) |
- Plastic material: e.g. *unsightly, litter, not bio-degradable, Small animals*
- |  |                                         |         |           |
|--|-----------------------------------------|---------|-----------|
|  | Clearly reasoned, good understanding    | 3 marks |           |
|  | Some understanding, not fully explained | 2 marks |           |
|  | An attempt                              | 1 mark  |           |
|  | Incorrect, not attempted                | 0 marks | (3 marks) |
- (c) e.g. *accept any suitable recycling image and reward the following features*



- |               |                                                                 |         |           |
|---------------|-----------------------------------------------------------------|---------|-----------|
| <u>Image:</u> | 50% stated (must include %)                                     | 1 mark  |           |
|               | Colour – green, black only (accept negative)                    | 1 mark  |           |
|               | good representation of symbol, wide arrows, shape, ‘cyclic’ etc | 3 marks |           |
|               | adequate representation, loss of detail, single line            | 2 marks |           |
|               | an attempt, some connection to correct symbol                   | 1 mark  |           |
|               | Incorrect. Not attempted                                        | 0 marks | (5 marks) |

(d) (i) Advantage	e.g. <i>ref. to: environmental, preserves resources etc.</i> <i>Do not accept 'cheaper'</i>		
	good understanding e.g. example given	2 marks	
	an attempt e.g. no example	1 mark	
	Not attempted, one word answer	0 marks	(2 marks)
(ii) Disadvantage	e.g. <i>quality diminishes in proportion to amount of recycled material, colour, less attractive, lower quality, bleeds.</i>		
	good understanding e.g. example given	2 marks	
	an attempt e.g. no example	1 mark	
	Not attempted, one word answer	0 marks	(2 marks)
(e) (i) Recycled card in food packaging.			
	Reference to contamination of food, toxic, germs	1 mark	
	Explanation of source of contamination or consequences on customer	1 mark	
	Not attempted	0 marks	(2 marks)
(ii) <u>Reasoned</u> answer. Reason and effect			
	e.g. food on floor, litter, vermin, health, pollution	2 marks	
	Limited, but no reasoning	1 mark	
	Not attempted or unrelated to question	0 marks	(2 marks)
(iii) Reward if related on context			
	accept – signs, symbols on the packages, e.g. recycling, logos, pictograms, BSI symbols, poster/advertising campaign.	1 mark	(1 mark)

**Total 26 marks**

**Total Paper 125 marks**