



**General Certificate of Secondary Education  
June 2010**

**Design and Technology (Graphic Products)**

**45501**

**Final**

***Mark Scheme***

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**Section A****1****Promotional Packaging****(a) Two creative packaging ideas.**

- Award marks for each idea. (2 x 6 marks)

Excellent idea, hold 6 chocolates, considering size, manufacture, assembly from one piece net and access. (5 – 6 marks)  
 Could be made by a third party.

Satisfactory idea, considering some of the above points. (3 – 4 marks)  
 May be made by a third party.

Weak idea, minor or no consideration of above points. (1 – 2 marks)

Unable to be made by a third party.

Not attempted or repeat (0 marks)

**6 marks**

- **Quality of sketching, for both ideas (overall impression):**

High level-good quality (3 marks)

Medium-adequate quality with limited range (2 marks)

Low-poor quality, difficult to interpret, inadequate communication (1 mark)

Not attempted - scribble

(0 marks)

**3 marks**

- **Creative solutions, for both ideas:**

High level: original/creative solutions/flair (3 marks)

Mid level: some creativity, similar (2 marks)

Low level: basic designs, rectangular/square (1 mark)

No attempt (0 marks)

**3 marks**

- **Quality of notes with reference to materials and constructional details: Look on either sketch**

Reference to either materials and constructional details or one point justified (2 marks)

Reference to either materials and constructional details (1 mark)

*Incorrect or not attempted or one word answer* (0 marks)

**2 marks**

**(b) Method of holding the chocolates:  
Vacuum formed tray, card folded, slotted card,  
partitioning etc**

Award 3 marks for each idea (2 x 3 marks):

High level: Chocolates well protected by separating and supporting the individual chocolates. Well communicated, third party manufacture	(3 marks)
Medium level: Attempted but some confusion, some details omitted	(2 marks)
Low level: An attempt, limited understanding. Unclear method	(1 mark)
Not attempted	(0 mark)

**3 marks**

**(c) 3D drawing:**

High level: Good quality, in proportion, line work etc. Includes the method of protecting the chocolates.	(5 – 6 marks)
Med level: adequate quality, recognisable, some inaccuracy. <b><u>Max of 3 marks if no method of protecting the chocolates.</u></b>	(3 – 4 marks)
Low level: poor, difficult to interpret, confused. <i>Not attempted or 2D drawing</i>	(1 – 2 marks) (0 marks)

**6 marks**

**(d) Evaluation – can be packaging and/or method of protecting the chocolates**

High level: Analytical/critical/modification	(3 marks)
Medium level: some reasoning	(2 marks)
Low level: mainly self congratulation eg good	(1 mark)
No attempt or not relevant or simply describing drawing-repeat.	(0 marks)

**3 marks**

**35 marks**

**Section B**

- 2 Ergonomics**
- (a) Item 1 – craft knife/modelling knife/scalpel** (1 mark)
- Use – e.g. cutting card, paper, sheet material etc (1 mark)
  - Safety – Carry with blade facing down or covered. Use on a flat surface. Safety/cutting mat or rule. Fingers behind blade. (1 mark) **3 marks**
  - **Item 2 – Rotary cutter** (1 mark)
  - Use – e.g. Cutting or scoring curved edges, perforating, decal edge (1 mark)
  - Safety – Always keep the blade guard on when not in use. Retract blade. Carrying issues, always use onto of a cutting/safety mat. (1 mark) **3 marks**
- (b) Ergonomics – is the study of how efficient a product is when used by humans. Ergonomics is important because it deals with issues such as ease of use, comfort and safety. Designs shaped and sized to fit the body are ergonomic (systems and environment)**
- High level: clear and concise, including an example (3 marks)  
 Med level: some understanding, possible no example (2 marks)  
 Low level: Poor understanding (1 mark)  
 No understanding or not attempted (0 marks) **3 marks**
- (ii) Anthropometric data. Award 1 mark for:**
- Width of palm  
 Length of hand  
 Length of fingers  
 Grip diameter
- Appropriate reason, award an additional 1 mark.  
 e.g. size of hand/shape of hand (1 mark only)  
 e.g. Width of palm determines the length of the handle (2 marks) **2 marks**
- (iii) Sketches and notes**
- High level: Quality sketches and notes which communicate the new ergonomic qualities effectively. (3 marks)  
 Med level: Adequate, some detail missing (2 marks)  
 Low level: Impractical or reference to choice of material or larger handle only (1 mark)  
 Not attempted or confused (0 marks) **3 marks**
- (iv) Styrofoam, polymorph, polypropylene, board or expanded polystyrene, corriflute, correx, clay and plastercine** (1 mark) **1 mark**

<b>3</b>	<b>Designers</b>		
	(a) Harry Beck – Schematic maps	(1 mark)	
	Alberto Alessi – Product design	(1 mark)	
	Robert Sabuda – Paper engineering	(1 mark)	
	Wally Olins – Corporate identity	(1 mark)	<b>4 marks</b>
	<b>(b) Queues likely – Traffic queues/jam/line likely ahead.</b>		
	(i) Clear understanding	(1 mark)	
	Not attempted or confused or just traffic	(0 marks)	<b>1 mark</b>
	<b>(ii) Design and Technology warn sign: Hazards</b>		
	Two identifiably <b>different</b> signs on the theme ( non text)	(1 mark)	<b>1 mark</b>
	Triangle on both	(1 mark)	<b>1 mark</b>
	Simplified and stylised shape	(2 marks)	
	An attempt at stylised shape	(1 mark)	
	No attempt or text	(0 marks)	<b>2 marks</b>
	Neat pencil work	(1 mark)	<b>1 mark</b>
	<b>(iii) Presentation warning sign:</b>		
	High quality: Suitable sign, image inside red triangle, straight lines, good block colour, use of space, no text	(3 marks)	
	Good quality: some of features above	(2 marks)	
	Poor quality, untidy, use of text or unrelated to D & T	(1 mark)	
	Not attempted	(0 marks)	<b>3 marks</b>
			<b>13 marks</b>

**4****Packaging****(a) 2. Promote**

Explanation:

Graphics need to be eye catching to attract customer.  
Brand names often have specific colours and styles that must be incorporated into the design.

Clear explanation

*(2 marks)*

Some Confusion

*(1 mark)*

Not attempted

*(0 marks)***2 marks****3. Protect**

Explanation:

Product is protected so that the consumer gets the product home in perfect condition.

Clear explanation

*(2 marks)*

Some Confusion

*(1 mark)*

Not attempted

*(0 marks)***2 marks****4. Preserve**

Explanation:

Most food products have to be packaged to keep them fresh and edible. Barrier against air. Air tight seal.

Clear explanation

*(2 marks)*

Some Confusion

*(1 mark)*

Not attempted

*(0 marks)***2 marks****5. Inform**

Explanation:

It is now often a legal requirement to tell consumers exactly what the product is and what it contains. Printed onto packaging or onto a label.  
e.g. Weight, ingredients, safety, dates and usage etc.

Clear explanation

*(2 marks)*

Some Confusion

*(1 mark)*

Not attempted

*(0 marks)***2 marks****(b) Tetra Paks:**

70% paperboard

24% polythene film

6% Aluminium

All correctly labelled = 2

1 correct = 1

**2 marks**

- (c)** Advantages: Stops light depleting vitamins, paperboard made from recycle source, good insulator, flat packed construction, freshness, shock resistance, bacterial barrier, protects printed paper, good printing surface sturdy construction

**1 mark**

Disadvantage: Only one recycled plant in country-limited recycling ability at present. Difficult to sort and disassemble, punctures. Not bio-degradable. Not recyclable  
Zero marks – expensive to manufacture, waterproof, damaged

**1 mark**

- (d) Symbols:**  
**(i)**

Communicate information quickly and effectively, not language barrier, instantly recognisable, universal language etc.

High level: full understanding with example  
Medium level: Some understanding.  
Low level: confused  
Incorrect or not attempted

*(3 marks)*

*(2 marks)*

*(1 mark)*

*(0 marks)*

**3 marks**



(d)  
(ii)



The symbol seen opposite tells those handling the package that it must be stored the right way up. The arrows point towards the top of the package.

(2 marks)  
(1 mark)  
(0 marks)

**2 marks**

Exact meaning eg Handling or storage

Some understanding eg this way up, upright

Not attempted or incorrect.

Example: Electrical products TVs, furniture, ornaments etc

Good example

Incorrect

(1 mark)  
(0 marks)

**1 mark**



The two hands holding or protecting the package is another reminder that the contents should be handled with care.

Exact meaning-handle with care

Some understanding e.g. do not drop this product, fragile

Not attempted or incorrect.

(2 marks)  
(1 mark)  
(0 marks)

**2 marks**

Example: Glass products etc

Good example

Incorrect

(1 mark)  
(0 marks)

**1 mark**



Compliance with the symbol is best achieved if the cargo is kept under the coolest possible conditions. In any event, it must be kept away from additional sources of heat. It may be appropriate to enquire whether prevailing or anticipated temperatures may be harmful.

Exact meaning e.g. Keeping product cool away from heat

Some understanding e.g. keep out of sunlight

Not attempted or incorrect.

(2 marks)  
(1 mark)  
(0 marks)

**2 marks**

Example: Butter or chocolate, ice cream, frozen/chilled food products

Good example

Incorrect

(1 mark)  
(0 marks)

**1 mark**

**24 marks**

5

**Disassembly****(a) Award 1 mark for each label in correct order.**

Name of company	(1 mark)
Front panel	(1 mark)
Bar code	(1 mark)
Energy information	(1 mark)
Glue flap	(1 mark)
Dust flap	(1 mark)

**6 marks****(b) Sustainable design (in context of question)**

**A fully detailed and comprehensive response that includes details of most of the examples below.** The answer is well-structured, with good use of appropriate design & technology terminology and showing a good grasp of grammar, punctuation and spelling. (7 – 8 marks)

**8 marks**

**A detailed and comprehensive response that includes several of the examples below.** The answer is well-structured, with good use of appropriate design & technology terminology and showing a good grasp of grammar, punctuation and spelling. (5 – 6 marks)

**A fairly detailed response which refers to some of the examples below.** The answer is fairly well structured, with some use of design & technology terminology and with a small number of errors in grammar, punctuation and spelling. (3 – 4 marks)

**A response which contains very limited reference to any of the examples below.** The answer is vague or poorly structured, with little use of design & technology terminology and with a considerable number of errors in grammar, punctuation and spelling. (1 – 2 marks)

**A response which is poorly structured with no relevant examples.** There is very little or no use of design technology terminology and with many errors in grammar, punctuation and spelling. (0 marks)

Points for sustainable design:

Sustainable future, 6 R's (rethink, refuse, reduce, re-use, repair and recycle). E.g. reduce environmental impact, advantages and disadvantages of recycling and reusing materials.

Damage to environment. E.g. non renewable

Energy waste and production.

Environmentally friendly.

Alternative materials e.g. potato starch / bioplastics

**14 marks**

**6 Card Engineering**

- (a) Moral - designers have to decide if something is dangerous or controversial. Social-best interest of the consumers. Cultural issues-points that need advertising or product decisions are changeable and depend on target market, not offensive.

High level: Good understanding relating to card (3 marks)  
 Medium level: some understanding (2 marks)  
 Low level: limited understanding (1 mark)  
 Not attempted (0 marks)

**3 marks****(b) Key****(i)**

Glue area ○ ○ ○ ○ ○ (1 mark)  
 Cut line \_\_\_\_\_ (1 mark)  
 Fold line - - - - - (1 mark)

**3 marks****(ii) Scale**

The drawing is half size of the original product (2 marks)  
 Smaller scale (1 mark)  
 Not attempted (0 marks)

**2 marks****(c) Making****(i)**

Start	G	
Mark out the surface development	F	(1 mark)
Cut out	E	(1 mark)
Crease the fold lines	A	(1 mark)
Fold the line	D	(1 mark)
Glue the tab	C	(1 mark)
Is it glued correctly?	I	(1 mark)
Assemble the net	B	(1 mark)
Finish	H	

**7 marks****(ii) Feedback loop**

Correct position of loop (1 mark)  
 Arrow head pointing up (1 mark)  
 Labelling 'yes' and 'no' in correct position (1 mark)

**3 marks****(d) Die cutting**

(1 mark)

**1 mark****19 marks****Paper Total 120**