

# Mark Scheme (Results)

June 2011

GCSE Design & Technology: Graphic  
Products  
(5GR02/01: Knowledge and  
Understanding of Graphic Products)

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June 2011

Publications Code UG027692

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Question Number	Answer	Mark								
<b>1</b>	Only acceptable response: A	<b>(1)</b>								
Question Number	Answer	Mark								
<b>2</b>	Only acceptable response: B	<b>(1)</b>								
Question Number	Answer	Mark								
<b>3</b>	Only acceptable response: B	<b>(1)</b>								
Question Number	Answer	Mark								
<b>4</b>	Only acceptable response: C	<b>(1)</b>								
Question Number	Answer	Mark								
<b>5</b>	Only acceptable response: D	<b>(1)</b>								
Question Number	Answer	Mark								
<b>6</b>	Only acceptable response: A	<b>(1)</b>								
Question Number	Answer	Mark								
<b>7</b>	Only acceptable response: C	<b>(1)</b>								
Question Number	Answer	Mark								
<b>8</b>	Only acceptable response: B	<b>(1)</b>								
Question Number	Answer	Mark								
<b>9</b>	Only acceptable response: C	<b>(1)</b>								
Question Number	Answer	Mark								
<b>10</b>	Only acceptable response: B	<b>(1)</b>								
Question Number	Answer	Mark								
<b>11(a)</b>	<table border="1"> <tbody> <tr> <td>Circle template</td> <td>Drawing circles/technical drawing/measuring (1)</td> </tr> <tr> <td>Ruler</td> <td>Measuring/marketing/drawing straight lines/technical drawing (1)</td> </tr> <tr> <td>Laminator/ Laminating machine /Pouch laminator/ Pocket laminator (1)</td> <td>To apply a layer of polythene to paper and card</td> </tr> <tr> <td>Graphics tablet/digitizing tablet/graphics pad/drawing tablet/pen pad (1)</td> <td>To hand-draw images on a computer</td> </tr> </tbody> </table> <p style="text-align: right;"> <b>1x1</b>  <b>1x1</b>  <b>1x1</b>  <b>1x1</b> </p>	Circle template	Drawing circles/technical drawing/measuring (1)	Ruler	Measuring/marketing/drawing straight lines/technical drawing (1)	Laminator/ Laminating machine /Pouch laminator/ Pocket laminator (1)	To apply a layer of polythene to paper and card	Graphics tablet/digitizing tablet/graphics pad/drawing tablet/pen pad (1)	To hand-draw images on a computer	<b>(4)</b>
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Question Number	Answer	Mark
<b>11 (b) (i)</b>	<p><b>One</b> property and linked reason from:</p> <ul style="list-style-type: none"> <li>• Property: Excellent impact resistance/ absorbs shock (1)</li> <li>• Reason: Protection of product/avoids breakages (1)</li>   <li>• Property: Lightweight (1)</li> <li>• Reason: Does not add significant weight to the package/ reduces transport costs (1)</li>   <li>• Property: Easily moulded/shaped/ formed (1)</li> <li>• Reason: Can be formed in intricate shapes/'snug fit' around product avoiding movement (1)</li> </ul> <p><i>Do not accept 'cheap', 'hard' or 'rigid' as properties</i></p> <p style="text-align: right;"><b>2x1</b></p>	<b>(2)</b>
Question Number	Answer	Mark
<b>11 (b) (ii)</b>	<p><b>One</b> property and linked reason from:</p> <ul style="list-style-type: none"> <li>• Property: Excellent impact resistance/ absorbs shock (1)</li> <li>• Reason: Protection of product/avoids breakages (1)</li>   <li>• Property: High strength to weight ratio (1)</li> <li>• Reason: Protection of products without adding unnecessary weight to overall package (1)</li>   <li>• Property: Can be recycled (1)</li> <li>• Reason: Conserves natural resources/less trees cut down for paper-making process (1)</li>   <li>• Property: Relatively inexpensive/low cost (1)</li> <li>• Reason: One trip packaging simply thrown away/cost effective/lower unit costs (1)</li> </ul> <p><i>Do not accept 'cheap', 'strong' or 'durable' as properties</i></p> <p style="text-align: right;"><b>2x1</b></p>	<b>(2)</b>

Question Number	Answer	Mark
<b>11(c)(i)</b>	<p><b>Three</b> reasons given from:</p> <ul style="list-style-type: none"> <li>• Most widely used printing process for packaging (1)</li> <li>• Good print quality/ accurate (1)</li> <li>• Fast/ quick (printing speeds)/ efficiency (1)</li> <li>• Relatively inexpensive/ low cost for large print runs (1)</li> <li>• Can print on the same presses as Letterpress (1)</li> <li>• Can print on a wide range of materials (1)</li> </ul> <p><i>Do not accept 'easy' or 'easy to use'</i></p> <p style="text-align: right;"><b>3x1</b></p>	<b>(3)</b>
Question Number	Answer	Mark
<b>11(c)(ii)</b>	<p><b>One</b> reason explained from:</p> <ul style="list-style-type: none"> <li>• Relatively expensive process/ more expensive than flexography (1) therefore increases unit cost (1)</li> <li>• Very high quality printing process/ used for printing high quality products (1) therefore not required for corrugated board packaging/ corrugated board is a lower quality material (1)</li> <li>• Very expensive set up costs (1) only cost effective for long print runs (1)</li> </ul> <p style="text-align: right;"><b>2x1</b></p>	<b>(2)</b>

Question Number	Answer	Mark
<p><b>11(d)</b></p>	<p><b>One</b> reason explained for each material from the following:</p> <p><b>Paperboard:</b></p> <ul style="list-style-type: none"> <li>• Provides strength/stiffness (1) therefore, giving the carton its structure (1)</li> <li>• Can be printed on (1) therefore, able to provide visual impact/advertise product (1)</li> </ul> <p><b>Aluminium foil:</b></p> <ul style="list-style-type: none"> <li>• Keeps out air/light/other flavours (1) preventing milk from becoming contaminated/deterioration (1)</li> </ul> <p><i>Do not accept 'to keep the liquid cool' and 'waterproof'</i></p> <p><b>Polyethylene:</b></p> <ul style="list-style-type: none"> <li>• Makes carton liquid tight/waterproof (1) so milk cannot leak out (1)</li> <li>• Provides a barrier to micro-organisms/germs (1) keeping the contents safe/fresh/hygienic (1)</li> <li>• Gives package a gloss finish (1) therefore high quality appearance for consumers (1)</li> </ul> <p style="text-align: right;">2x1 2x1 2x1</p>	<p><b>(6)</b></p>
Question Number	Answer	Mark
<p><b>12.</b></p>	<p>Design idea 1</p> <p>1 mark should be awarded for evidence of each point of the specification resolved in the design.</p> <p>When an answer does not viably answer a specification point 0 marks.</p> <p>For each specification point with the element viably satisfied 1 mark.</p> <p>Candidates may answer any specification point in either graphical form or by annotation.</p> <p><b>No marks awarded for the quality of communication.</b></p> <ul style="list-style-type: none"> <li>• The design should contain the <b>two</b> cartoon action figures (1), e.g. packaging should be able to accommodate two figures.</li> <li>• The design should hold <b>both</b> figures securely whilst in transit (1), e.g. internal packaging to prevent contents from moving (blister pack, card net etc).</li> <li>• The design should display the names of the <b>two</b> cartoon figures (1), e.g. package to include areas where graphics</li> </ul>	

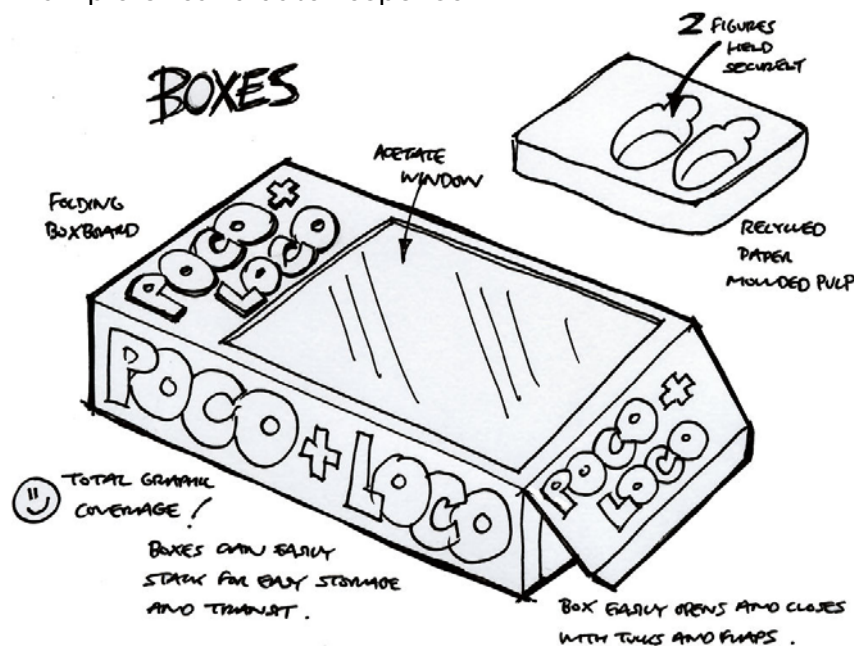
including the names 'Poco' and 'Loco' could be printed.

- The design should allow **both** figures to be clearly visible within the package (1), e.g. elements of the packaging must be transparent (acetate window, clear PVC blister etc).
- The design should allow the shop to either hang on racks or stack on shelves for display (1), e.g. include a 'euro slot' for hanging or be a shape that tessellates easily for stacking
- The design should allow customers to easily remove the figures when purchased (1), e.g. flaps and tucks indicated on a net, two halves of a clamshell/ blister etc.
- One **specific** material is indicated that is appropriate to the design (1), e.g. PVC for blister, folding boxboard for net etc

*Do not accept 'plastic' and 'paper'*

- One mass manufacturing process is indicated that is appropriate to the design (1), e.g. vacuum forming for a blister, die cutting for a net etc.

Example of candidate response:



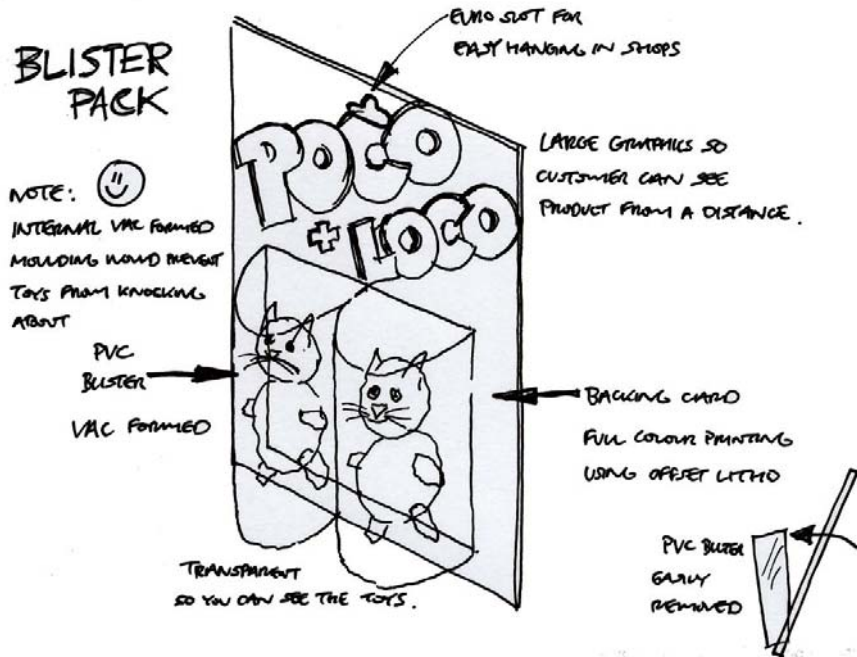
8x1 (8)

Design idea 2

To score a mark for design idea 2, each specification point must be resolved in the second design idea but the second design idea **must be technically/conceptually different in design and construction** from the first and not a simple variation on a theme to score the mark.

Use exactly the same criteria as design idea 1 to mark design idea 2.

Example of candidate response:



8x1 (8)

Question Number

Answer

Mark

13(a)

Two properties and linked justification from:

- Property: Crystal clear appearance/transparency (1)
- Reason: excellent product visibility/ high quality appearance (1)
  
- Property: Inert material (1)
- Reason: Does not react with the perfume inside (1)
  
- Property: Tough/hard/strong/resistant to mechanical shock (1)
- Reason: Does not shatter easily/relatively safe (1)
  
- Property: Can be re-used/recycled (1)
- Reason: Conserves natural resources/energy (1)
  
- Property: Impervious to water/air (1)
- Reason: excellent protection against contamination (1)
  
- Property: Can be easily moulded (1)
- Reason: Forms intricate/ decorative shapes (1)
  
- Property: Can be coloured/tinted (1)
- Reason: To provide enhanced visual appearance (1)

2x1  
2x1

(4)



Question Number	Answer	Mark
<b>13(b)</b>	<p><b>One</b> reason explained from:</p> <ul style="list-style-type: none"> <li>• Ideal for mass production (1) due to repeatable quality/low unit cost for each moulding for high volumes (1)</li> <li>• High volumes can be produced (1) relatively inexpensively/ cost effective (1)</li> <li>• Precision/accurate moulding (1) high quality surface finish/textured grip/screw thread can be added to the mould/ complex shapes can be produced (1)</li> </ul> <p><i>Do not accept 'cheap', 'quick 'and 'easy'</i></p> <p style="text-align: right;"><b>2x1</b></p>	<b>(2)</b>
Question Number	Answer	Mark
<b>13(c)(i)</b>	<p><b>One</b> explanation from:</p> <ul style="list-style-type: none"> <li>• Uses a tough/ hard/strong material (glass) (1) which will not shatter easily/protects perfume (1)</li> <li>• Provides a watertight/airtight package (1) prevents leaking/ contamination/ if knocked over will not spill (1)</li> <li>• Inert material (1) does not react with the perfume inside (1)</li> <li>• Crystal clear appearance (1) excellent product visibility/ high quality appearance (1)</li> </ul> <p style="text-align: right;"><b>2x1</b></p>	<b>(2)</b>
Question Number	Answer	Mark
<b>13(c)(ii)</b>	<p><b>One</b> explanation from:</p> <ul style="list-style-type: none"> <li>• Uses an Atomiser system (1) which sprays a fine mist of perfume (1)</li> <li>• Easy to use pump action spray (1) which dispenses a measured quantity of perfume/dispenses all contents (1)</li> <li>• Ergonomic shape (1) can be used with one hand (1)</li> </ul> <p style="text-align: right;"><b>2x1</b></p>	<b>(2)</b>

Question Number	Answer	Mark								
<p><b>13(d)</b> <b>(iii)</b> <b>QWC</b></p>	<p><b>Evaluation to address the following specification criteria:</b></p> <p><b>Form:</b> Why are the perfume bottles shaped/styled like they are? How different are the two bottles?</p> <table border="1"> <thead> <tr> <th>Bottle A</th> <th>Bottle B</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> <li>Angular/masculine looking bottle.</li> <li>Highly polished surface finish gives high quality appearance.</li> </ul> </td> <td> <ul style="list-style-type: none"> <li>Curved/feminine looking bottle</li> <li>Transparent glass – perfume clearly visible.</li> <li>Rounded bottle shape provides good ergonomics for holding in hand.</li> </ul> </td> </tr> </tbody> </table> <p><b>User requirements:</b> What qualities make the perfume bottles attractive to potential users? (functional and aesthetic)</p> <table border="1"> <thead> <tr> <th>Bottle A</th> <th>Bottle B</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> <li>Polished aluminium provides excellent visual impact (cannot see contents)</li> <li>Bottle can be displayed in bathroom/bedroom due to high quality appearance.</li> <li>Closure provides security/hygiene.</li> <li>Atomiser is easy to use and can be operated with one hand</li> </ul> </td> <td> <ul style="list-style-type: none"> <li>Bottle shape provides visual interest.</li> <li>Glass gives crystal clear/high quality/can see when running out</li> <li>Closure provides security/hygiene.</li> <li>Atomiser is easy to use and can be operated with one hand</li> </ul> </td> </tr> </tbody> </table>	Bottle A	Bottle B	<ul style="list-style-type: none"> <li>Angular/masculine looking bottle.</li> <li>Highly polished surface finish gives high quality appearance.</li> </ul>	<ul style="list-style-type: none"> <li>Curved/feminine looking bottle</li> <li>Transparent glass – perfume clearly visible.</li> <li>Rounded bottle shape provides good ergonomics for holding in hand.</li> </ul>	Bottle A	Bottle B	<ul style="list-style-type: none"> <li>Polished aluminium provides excellent visual impact (cannot see contents)</li> <li>Bottle can be displayed in bathroom/bedroom due to high quality appearance.</li> <li>Closure provides security/hygiene.</li> <li>Atomiser is easy to use and can be operated with one hand</li> </ul>	<ul style="list-style-type: none"> <li>Bottle shape provides visual interest.</li> <li>Glass gives crystal clear/high quality/can see when running out</li> <li>Closure provides security/hygiene.</li> <li>Atomiser is easy to use and can be operated with one hand</li> </ul>	<p><b>(6)</b></p>
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Level	Mark	Descriptor								
	0	No rewardable material								
Level 1	1-2	Candidate identifies the area(s) of comparison with no development OR identifies and develops one area. Shows limited understanding of the comparison. Writing communicates ideas using everyday language but the response lacks clarity and organisation. The candidate spells, punctuates and uses the rules of grammar with limited accuracy.								
Level 2	3-4	Candidate identifies some areas of comparison with associated developments showing some understanding of the comparison. Writing communicates ideas using D&T terms accurately and showing some direction and control in								

		the organising of material. The candidate uses some of the rules of grammar appropriately and spells and punctuates with some accuracy, although some spelling errors may still be found.	
Level 3	5-6	Candidate identifies a range of areas of comparison with associated developments showing a detailed understanding of the comparison. Writing communicates ideas effectively, using a range of appropriately selected D&T terms and organising information clearly and coherently. The candidate spells, punctuates and uses the rules of grammar with considerable accuracy.	
Question Number	Answer		Mark
<b>14(a)(i)</b>	<p><b>One</b> reason from the following:</p> <ul style="list-style-type: none"> <li>• Transparent - allows copying/tracing through of design on to another sheet as basis for next idea (1)</li> <li>• Speeds up development process as design can be traced accurately and quickly (1)</li> <li>• Allows layering of paper for rendering/texture (1)</li> </ul> <p style="text-align: right;"><b>1x1</b></p>		<b>(1)</b>
Question Number	Answer		Mark
<b>14(a)(ii)</b>	<p><b>Two</b> reasons from the following:</p> <ul style="list-style-type: none"> <li>• Good quality drawing paper/completely opaque (1)</li> <li>• Accepts most drawing media including paints (1)</li> <li>• Allows rubbing out without damaging surface (1)</li> <li>• Robust/durable allows for day-to-day handling (1)</li> </ul> <p style="text-align: right;"><b>2x1</b></p>		<b>(2)</b>
Question Number	Answer		Mark
<b>14(b)</b>	<p>Description to include the following points:</p> <ul style="list-style-type: none"> <li>• Easily accessible local networks (1)</li> <li>• Transmits data (pictures, images, files) easily via low-power radio waves (1)</li> <li>• Bluetooth devices avoid interfering with other systems by sending out very <b>weak signals</b> (1)</li> <li>• Portability - doesn't require line of sight between communicating devices (1)</li> <li>• Can connect up a range of devices simultaneously i.e. laptop, printer and mobile phone (1)</li> <li>• Each device uses automatic <b>Spread-spectrum frequency hopping</b> which makes it rare for more than one device to be transmitting on the same frequency at the same time (1)</li> <li>• Transmitter change frequencies meaning that more devices can make full use of a limited slice of the radio spectrum (1)</li> <li>• When Bluetooth devices come within range of one another, an automatic electronic conversation takes place to determine whether they have data to share or whether one needs to control the other (1)</li> </ul> <p><i>Do not accept 'wireless'</i></p> <p style="text-align: right;"><b>4x1</b></p>		<b>(4)</b>

Question Number	Answer	Mark
<b>14(c)(i)</b>	<p><b>One</b> advantage explained from:</p> <ul style="list-style-type: none"> <li>• LCD displays are thinner (1) therefore, less materials/energy used in manufacture/ reduces packaging (1)</li> <li>• LCD's use much less energy (1) therefore, saving energy/costs (1)</li> <li>• LCD displays are lighter (1) therefore, easier to transport/decreasing transport fuel/costs (1)</li> <li>• LCD displays can be recycled (1) therefore minimising waste production/ no toxic waste as in CRT (1)</li> </ul> <p style="text-align: right;"><b>2x1</b> <b>2x1</b></p>	<b>(4)</b>
Question Number	Answer	Mark
<b>14(c)(ii)</b>	<p><b>Two</b> advantages explained from:</p> <ul style="list-style-type: none"> <li>• HDTV yields a better-quality image/clearer, sharper picture (1) because it has a greater number of lines of resolution (1)</li> <li>• HDTV capable of widescreen format/16:9 aspect ratio (1) standard TV has letterbox 'black bars'/due to 4:3 aspect ratio (1)</li> <li>• Superior Resolution (1920 x 1080 pixels) (1) therefore, greater detail/can display about ten times as many pixels as standard TV (1)</li> </ul> <p style="text-align: right;"><b>2x1</b></p>	<b>(2)</b>
Question Number	Answer	Mark
<b>14(d) QWC (iii)</b>	<p><b>Discussion to address the following benefits:</b></p> <ul style="list-style-type: none"> <li>• Medicated adhesive patch that is placed on the skin to deliver a specific dose of medication through the skin and into the bloodstream.</li> <li>• delivery of a therapeutic level of drug is painless/ convenient/ ease of use/ discrete as worn under clothing</li> <li>• An advantage of a transdermal drug delivery route over other types such as oral (by mouth), topical (inhalation), etc is that it provides a controlled release of the medicament into the patient.</li> <li>• A wide variety of pharmaceuticals can be delivered by transdermal patches.</li> <li>• there are few or no gastrointestinal effects from the drug itself</li> <li>• Peak plasma levels of the drug are reduced, leading to decreased side effects.</li> <li>• the patient does not need to inject himself, <b>therefore:</b> <ul style="list-style-type: none"> <li>○ limited risk of addiction /drug abuse</li> </ul> </li> </ul>	<b>(6)</b>

		<ul style="list-style-type: none"> <li>○ limited risk of HIV and other infectious diseases due to sharing needles</li> <li>○ there are no bulky delivery devices to manage or dangerous needles to dispose of (bio hazard/ safety)</li> <li>○ Avoiding potential of air bubbles if not injected properly, which can be fatal</li> <li>○ It is the most dangerous route of administration because it bypasses most of the body's natural defenses, exposing the user to health problems such as hepatitis, abscesses, infections etc</li> </ul>	
<b>Level</b>	<b>Mark</b>	<b>Descriptor</b>	
	0	No rewardable material	
Level 1	1-2	Candidate identifies the benefits with no development OR identifies and develops one area. Shows limited understanding of the benefits. Writing communicates ideas using everyday language but the response lacks clarity and organisation. The candidate spells, punctuates and uses the rules of grammar with limited accuracy.	
Level 2	3-4	Candidate identifies some benefits with associated developments showing some understanding of the benefits. Writing communicates ideas using D&T terms accurately and showing some direction and control in the organising of material. The candidate uses some of the rules of grammar appropriately and spells and punctuates with some accuracy, although some spelling errors may still be found.	
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