



**General Certificate of Secondary Education
June 2013**

**Design and Technology: 45501
Graphic Products**

(Specification 4550)

Unit 1: Written Paper

Final

Mark Scheme

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 events which all examiners participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for standardisation each examiner analyses a number of students' scripts: alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, examiners encounter unusual answers which have not been raised they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

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Section A				
1	(a)	<p>Promotional sales packaging</p> <p>Two imaginative and creative outer packaging ideas.</p> <p>Award mark for considering each point- Tick required. (2 x 3)</p> <ul style="list-style-type: none"> • Hold a minimum of 10 clear plastic spheres of diameter 50mm, evidence of considered sizes or arrangement of the spheres • Transport, promote and dispense the 10 clear plastic spheres, (any 1 of 3) • Be easy to construct from a suitable material. Eg card, board, corrugated card, fluted board and polypropylene (PP), carton board (Abbrev' FBB, SUB, SBB or WLC) Do not accept cardboard <p>Quality of sketching for both ideas (overall impression): High level: Good quality and effective, flair, well communicated Medium: Adequate quality some omissions Low: Poor quality, difficult to interpret, inadequate communication Not attempted; scribble</p> <p>Creative solutions: High level: Original/creative solutions Medium: Some creativity Low: Basic designs, little creativity or repetition No attempt</p> <p>Annotation: Best Evidence Clear annotation, explaining the constructional detail, nets, locking tabs, glue tabs etc Labelling No annotation related to constructional details.</p>	<p>3 2 1 0</p> <p>4 – 5 2 – 3 1 0</p> <p>2 1 0</p>	<p>Max 3 3 Marks</p> <p>Max 3 marks</p> <p>Max 5 marks</p> <p>Max 2 marks</p>
1	(b)	<p>Development:</p> <p>Sequence and quality of sketches: High level A: Sequence of sketches showing clear progression and well communicated High level B: Sequence of sketches showing clear progression <u>or</u> well communicated Medium level: Some progression towards final idea and moderate level of sketching Low level: Single idea or little progression or poorly communicated or a different idea not from part (a). Not attempted</p> <p>Including the name 'AQAtec' in a suitable letter style: Good letter style, double line lettering, possible construction lines, bold, stylised Single line only, max 1 mark for incorrect spelling or name No attempt or scribble</p>	<p>4 3 2 1 0</p> <p>2 1 0</p>	<p>Max 4 marks</p> <p>Max 2 marks</p>

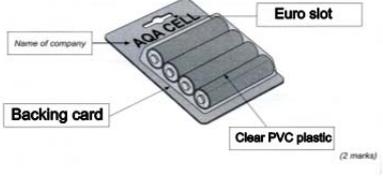
		<p>Graphics: High level: Suitable graphics, good layout and proportion Medium level: An attempt, but image is confusing or lacking attention to detail Low level: Poor graphics or layout No attempt</p> <p>Indication of colour</p>	<p>3 2 1 0</p> <p>1</p>	<p>Max 3 marks</p> <p>Max 1 mark</p>
1	(c)	<p>3-D presentation drawing: (Open or closed packaging) High level: Good quality, in proportion, crating, line work etc. Including use of colour As above but no colour Medium level: Adequate quality, recognisable, some inaccuracy As above but with possibly no colour. Max 3 marks for drawing only – no graphics Low level: Poor, difficult to interpret, confused or 2D with good graphics. As above but no colour or 2D with no graphics Not attempted</p>	<p>6 5 4 3 2 1 0</p>	<p>Max 6 marks</p>
1	(d)	<p>Evaluation against one of the original design criteria: High level: Analytical/critical including justification Medium level: Mainly descriptive Low level: Mainly self-congratulation No attempt or not relevant</p>	<p>3 2 1 0</p>	<p>Max 3 marks</p>

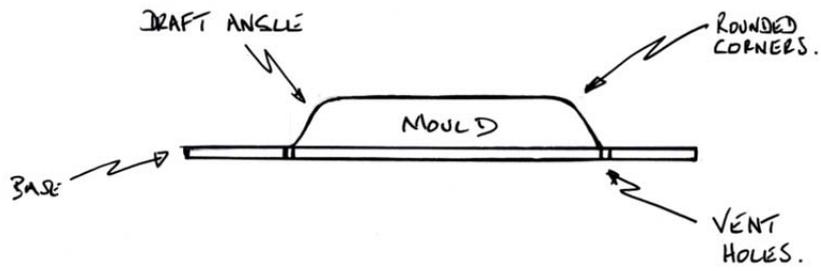
Section B					
2	(a)		<p>Sign High level: Accurate to grid and a well curved head, e.g. freehand or compass Medium level: Some errors Low level: Poor or scribble Not attempted or no points plotted accurately-Abstract.</p>	<p>3 2 1 0</p>	Max 3 marks
2	(b)		<p>Enlargement</p> <p>Accuracy: High level: Including a well curved freehand sketch for the head Medium level: Some errors Low level: Poor or scribble or distorted. No point correct but enlarged. Not attempted. No point correct and not enlarged.</p> <p>Quality of line: High level: Neat, sharp lines and accurate Medium level: Untidy off the lines in some places Low level: Poor</p>	<p>4-5 2-3 1 0 2 1 0</p>	<p>Max 5 marks Max 2 marks</p>
2	(c)	(i)	<p>Material choice – award 1 mark for: Accept any suitable durable material: Vinyl, acrylic, styrene or foamex, mdf, laserply, stainless.</p>	1	1
2	(c)	(ii)	<p>Do not double penalise. Reason: Availability of colours, ease of manufacture, readily available, low unit cost, hygienic, sticks straight on door, etc.</p> <p>Well-reasoned Attempt at reasoning Poor or not attempted Do not accept cheap</p>	<p>2 1 0</p>	Max 2 marks
2	(c)	(iii)	<p>CAM equipment – award 1 mark for: Robo cutter, Stika cutter, Camm1, plotter/cutter, CAMM 3, Laser cutter, CNC miller or micro router, 3D printer etc. PVC cannot be cut on a laser cutter.</p>	1	1

3	(a)	<p>Alessi-design requirements not material requirements.</p> <p>Three requirements – award 1 mark for each requirement and a 1 mark for a suitable reason:</p> <p>Aesthetic considers Effective at holding the egg Stable Available with salt dispenser and spoon Style Theme Novelty aspect Includes storage facility for spoon H & S aspects-sharp edges etc. (Do not reward for hygienic-in question)</p>	3 x 2 marks	2 2 2
3	(b)	<p>Keep manufacturing costs low:</p> <p>Simple design, not complex design, minimum parts, ease of production, minimal assembly, material selection, bought in components, batch production-making in quantity.</p> <p>High level: Good explanation with reference to above and an example to support the answer Low level: Poor understanding or no example Not attempted</p>	2 1 0	Max 2 marks
3	(c)	<p>Material – award 1 mark for any thermoplastic: Eg: Polypropylene (PP), nylon, polythene (HDP), PVC, Acrylic, Hips, PET.</p> <p>Reason – award 2 marks for: Do not double penalise. Scratch resistant, hygienic, hot/cold temp resistant, injection moulded, accuracy, intricate moulding, self-finishing.</p> <p>Well-reasoned Attempt at reasoning Poor or not attempted</p>	1 2 1 0	1 2
3	(d)	<p>Block modelling material – award marks for:</p> <p>Styrofoam, jelutong, expanded polystyrene, clay, plasticine, polyester block, hard wax, fimo.</p>	1	1
3	(e)	<p>Stages for making a block model: (Mark equipment to the same stage)</p> <p>Stage 3 – G Equipment needed: Pencil, template or permanent pen etc.</p> <p>Stage 4 – E Equipment needed: Hot wire cutter, fret saw or coping saw etc.</p> <p>Stage 5 – D</p>	1 1 1 1 1	1 1 1 1 1

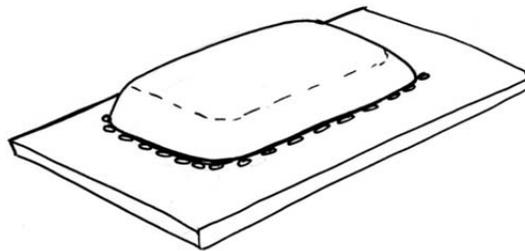
			Equipment needed: Sanding block, hot soapy water, bowl, plastic sheet to cover table etc.	1	1
			Stage 6 – H	1	1
			Equipment needed: Water based filler (polyfiller), plastic spreader.	1	1
			Stage 7 – A	1	1
			Equipment needed: Emulsion paint, aerosol primer, sponge, paint brush, paint stand/jig, extractor	1	1
3	(f)	(i)	Quality control statement		
			Answer – H or the correct identified stage where they placed H	1	1
3	(f)	(ii)	Important – Checking process to reduce faults etc. Ensures a consistent product. Safety. Consumer confidence.		
			Well-reasoned	2	Max 2 marks
			Attempt at reasoning	1	
			Poor or not attempted	0	

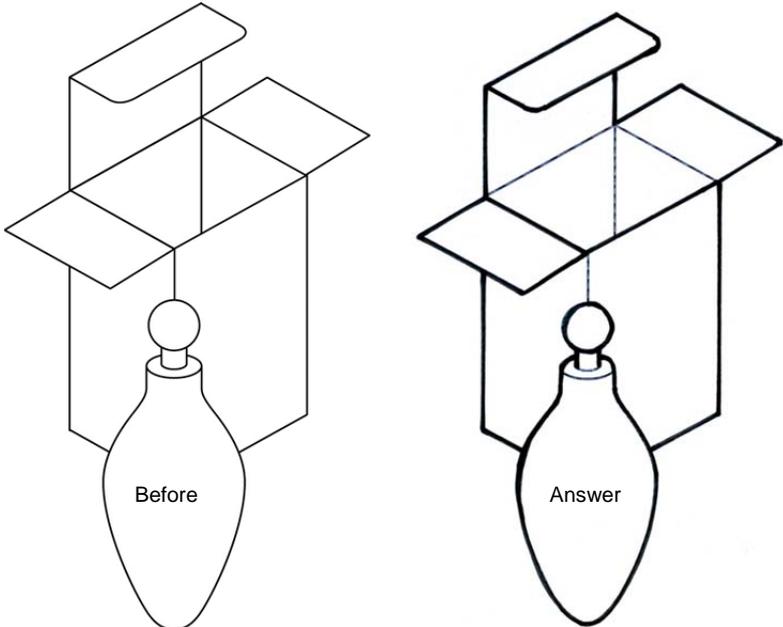
4		<p>Discuss why the appearance of a graphic product is important to the consumer – reference to:</p> <ul style="list-style-type: none"> Customer appeal Customer confidence Feel good factor Emotional response Appropriate to situation Fashion Trends Changing lifestyles <p>A fully detailed and comprehensive response that includes details of most of the examples above. The answer is well-structured, with good use of appropriate design & technology terminology and showing a good grasp of grammar, punctuation and spelling.</p> <p>A detailed and comprehensive response that includes several of the examples above. The answer is well-structured, with good use of appropriate design & technology terminology and showing a good grasp of grammar, punctuation and spelling.</p> <p>A fairly detailed response which refers to some of the examples above. 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.</p> <p><u>Max 4 marks for a simple list of points, without explanation.</u></p> <p>A response which contains very limited reference to any of the examples above. 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.</p> <p>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.</p>	<p>7 – 8</p> <p>5 – 6</p> <p>3 – 4</p> <p>1 – 2</p> <p>0</p>	<p>Max 8 marks</p>
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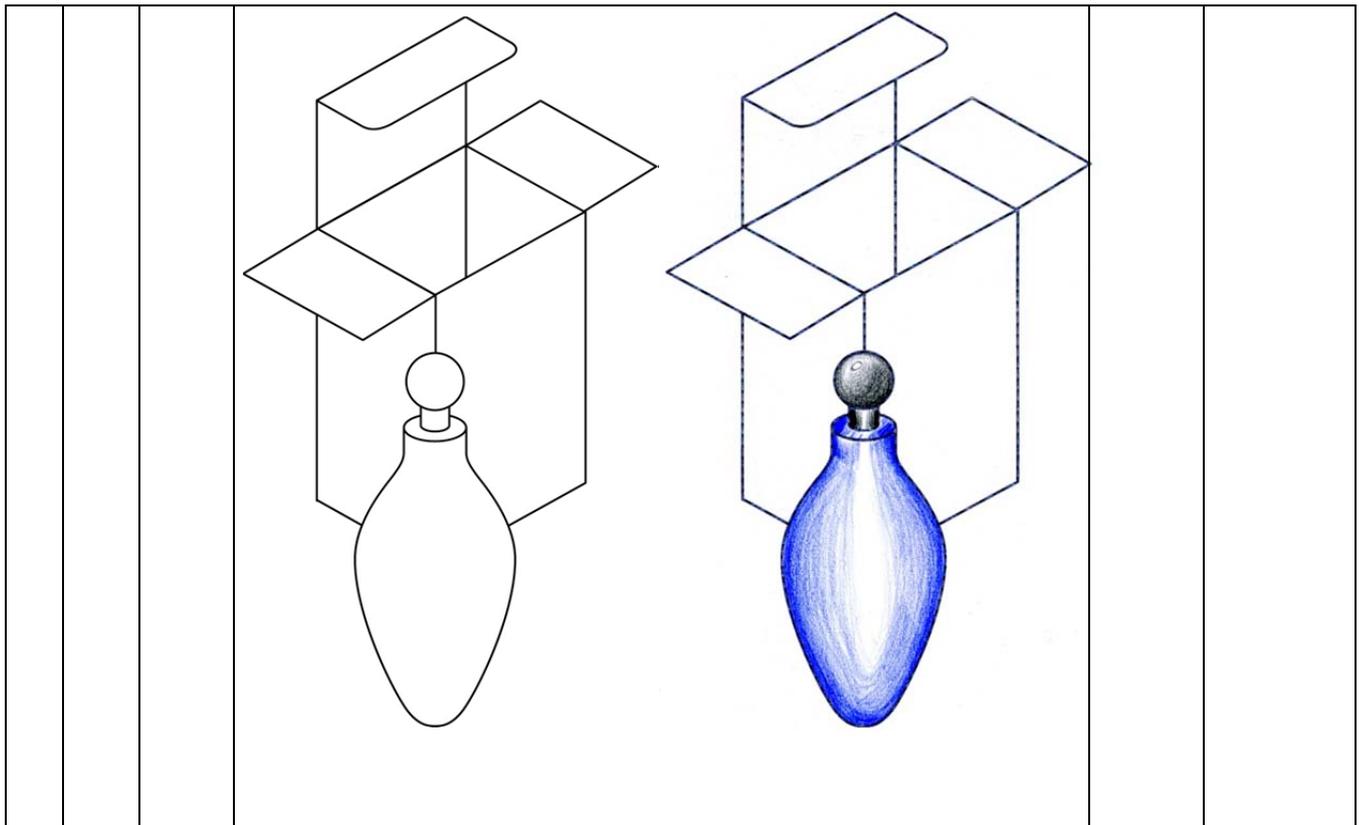
5	(a)	(i)	<p>Material</p> <p>Euro slot Clear PVC plastic Backing card</p>  <p>Award marks as follows:</p> <p>3 correct answers 1 correct answer None correct or not attempted</p>	2 1 0	Max 2 marks
5	(a)	(ii)	<p>Award marks as follows:</p> <p>Blister packaging Bubble packaging Not attempted or incorrect, not bubble wrap</p>	2 1 0	Max 2 marks
5	(a)	(iii)	<p>Alternative method of fixing the two parts:</p> <p>Staples, folded plastic around backing card, rivets, double sided tape</p> <p>High level: Effective sketching, clear, well communicated Medium level: Reasonable sketch, some errors or omissions, max 2 marks for velcro Low level: Difficult to understand, confused No attempt or inappropriate method</p> <p>Labelling of sketches</p>	3 2 1 0 1	3 1
5	(b)	(i)	Vacuum forming	1	1
5	(b)	(ii)	<p>Mould materials – award 1 mark for any of the following:</p> <p>MDF, Styrofoam, Plasticine, Jelutong, Clay, Balsa. Industrial-GRP, Aluminium</p> <p>Reason-Easy to shape/form into a 3D shape, relatively fast process, low cost, readily available.</p> <p>Well-reasoned Attempt at reasoning Poor or not attempted Do not accept cheap.</p>	1 2 1 0	1 2
5	(b)	(iii)	<p>Suitable mould or former: Draft angle, rounded corners, vent holes, waxed or releasing agent, appropriate size etc.</p> <p>High level: Effective sketching, clear, well communicated Medium level: Reasonable sketch, some errors or omissions eg no draft angle or rounded corners or vent holes. Low level: Difficult to understand, confused, only considered a single feature from list above No attempt or inappropriate method</p> <p>Labelling of sketches must relate to mould</p>	3 2 1 0 1	3 1



OR



6	(a)	<p>Presentation</p>  <p>Thick and thin line – see example</p> <p>High level: Consistently applied-majority of correct lines Medium level: Some errors or mistakes Low level: Confused-no logic Not attempted Max 2 marks if only lid or bottle is attempted.</p>	<p>3 2 1 0</p>	<p>Max 3 marks</p>
6	(b)	<p>Render lid – see example (could be sphere only)</p> <p>High level: Consistently applied including highlight Low level: Confused or mistakes Not attempted</p> <p>Render bottle – see example</p> <p>High level: Consistently applied gradual/tonal shading. Low level: Confused or mistakes-does not enhance the shape of the bottle Not attempted</p>	<p>2 1 0</p> <p>2 1 0</p>	<p>2</p> <p>2</p>



7	(a)	(i)	<p>Sequential illustrations</p> <p>Reason why poster was chosen:</p> <p>Clear precise stages, easy to understand, no language barriers, words and diagrams, economical printing coats, A4 size lends to photocopying, easy to read, colour attracts attention, etc.</p> <p>High level: Effective, clear, well communicated, reasoned response 3</p> <p>Medium level: Reasonable, some understanding, attempt at a reasoned answer 2</p> <p>Low level: Difficult to understand, confused 1</p> <p>No attempt or inappropriate method 0</p> <p>.</p>		Max 3 marks
7	(a)	(ii)	<p>If Encapsulation is explained – Encapsulation is the process of covering and sealing printed paper or board with a tough waterproof, plastic film. This gives a professional looking finish and helps to strengthen the encapsulated item, Potentially improving its useful life. Seals the paper.</p> <p>Or refers to Laminating – The application of a single layer of plastic film to one side of paper- eg transpaseal film or clip frame, plastic film.</p> <p>Confused</p>	2 1 0	Max 2 marks
7	(a)	(iii)	<p>Award 1 mark for: (Cannot pierce the wall) Blue tack, sticky pads/buds/tabs, double side tape etc.</p>	1	1
7	(b)		<p>Sequential: (3 x 3 marks) Black and white or colour</p> <p>High level: Well communicated, easy to follow the order. Self-explanatory 3</p> <p>Medium level: Some confusion, needs interpretation 2</p> <p>Low level: Difficult to understand the order 1</p> <p>Not attempted or unclear. 0</p> <p>Catch it – looking for tissue and face/nose-catching germs Bin it-looking for used tissue going into bin Kill it-Looking for hands being washed/gell/antibacterial hand wash, soap</p> <p>Easy to follow without words</p>		3 3 3

Paper Total 120 marks