



**General Certificate of Secondary Education
June 2010**

Design & Technology

45751

Short Course – Written Paper

Unit 1

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 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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Question	Part	Sub Part	Marking Guidance	Mark	Comment
1	(a)			4 x 1	x 1 mark for each correct answer Max 4 marks
1	(b)	(i)	<p>Material sources which do not run out as more materials can be grown i.e. materials from plants and animals.</p> <p>Definition shows some understanding</p> <p>Good definition</p> <p>Do not award any marks for providing an example (e.g. cotton) as this is required for part b(ii)</p>	1 2	Max 2 marks
1	(b)	(ii)	<p>Materials from plants</p> <p>Materials from animals</p> <p>Any specific source from plants or animals, e.g. Leather, Wheat, Wool, Beech</p>		Any 1 answer is acceptable Max 1 mark

1	(c)	<p>Qualified response which explains how it helps the environment with an example</p> <p>basic explanation/definition of selected term</p> <p>e.g. Reuse</p> <p>use a product again rather than throwing it away</p> <p>less energy / materials used to make new products if things are reused, fewer materials going to landfill, particularly important for materials from non renewable sources. Need to avoid disposable products e.g. carriers</p>	<p>2 – 3</p> <p>1</p> <p>1</p> <p>2 – 3</p>	Max 3 marks
1	(d)	<p>Simplistic explanation to why the carrier are better for the environment</p> <p>Response includes some justification e.g. the bag for life is better because it can be reused. This means materials last longer. Award marks for each point made with qualification</p> <p>detailed response which considers several areas and makes comparisons between the carriers:</p> <ul style="list-style-type: none"> • Source of materials – renewable sources • Disposal of materials – biodegradable, recyclable, landfill • Life of the carrier – how long it can be reused for / possibility of repair <p>When applying the mark scheme: 3 well qualified points = 6 marks Or 6 simplistic points = 6 marks</p>	<p>1</p> <p>2 -4</p> <p>5 – 6</p>	Max 6 marks

Question	Part	Sub Part	Marking Guidance	Mark	Comment
2	(a)		<p>Feasible and effective idea, well drawn and clearly annotated with a variety of information which is more than descriptive e.g. explains / justifies / evaluates</p> <p>Clear changes to the idea – e.g. change of function, additional features Some of the labelling is more than descriptive e.g. explains / justifies / evaluates</p> <p>Small changes to the idea – mainly superficial e.g. surface shape / decoration, labelling is superficial e.g. this is the zip, it will be blue, it is a Cornish pasty, it has sequins on etc</p> <p>Idea redrawn but some simple labelling evident or idea redrawn with one small change, no labelling</p> <p>Redrawn idea from the question with no changes, no labelling</p> <p>When applying the mark scheme: 3 well explained changes = 6 marks Or 6 changes with no explanation = 6 marks</p>	<p>6</p> <p>4 – 5</p> <p>2 – 3</p> <p>1</p> <p>0</p>	<p>Max 6 marks</p> <p>Possible responses for each product to be provided in an appendix along with responses to exemplify the mark range</p>

2	(b)		<p>Use the annotation tool to show a breakdown of marks for the question, i.e. D-? M-? P-? N-?</p> <p>dimensions / sizes / weights: Dimensions / sizes / weights provided with units (e.g. g, mm etc) – these are appropriate for the product designed</p> <p>Dimensions / sizes / weights provided with units, some may not be realistic for the product designed</p> <p>Measurements unclear / units not provided</p> <p>material / ingredient: Specific material / ingredient names provided, these are appropriate for the product designed</p> <p>Specific material / ingredient names provided, some may be inappropriate for the product considering function or chosen manufacturing processes</p> <p>Generic material names provided e.g. wood, metal, plastic, fabric, pastry</p> <p>processes for making and assembly: Accept QA/QC points as a process. You are looking to award 1 mark for each stage up to a maximum of 6 marks.</p> <p>Stages for making explained in sufficient detail for 3rd party manufacture. Appropriate processes described.</p> <p>Description of making suggests a good understanding of the processes described. Appropriate processes described</p> <p>Processes selected are well described, but inappropriate for the product or processes are appropriate but some points missing</p> <p>Correct processes stated and ordered, but no additional detail provided, superficial response</p>	<p>2</p> <p>1</p> <p>0</p> <p>2</p> <p>1</p> <p>0</p> <p>6</p> <p>4 – 5</p> <p>3</p> <p>2</p> <p>1</p>	<p>Max 2 marks for: dimensions / sizes / weights</p> <p>Max 2 marks for: material/ ingredients</p> <p>Max 6 marks for: processes for making and assembly</p>
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			<p>A suitable process for making part of the product identified</p> <p>No suitable processes named or described</p> <p>names of tools and equipment to be used: Appropriate tools / machinery listed</p>	<p>0</p> <p>3 x 1</p>	<p>Max 3 marks for: names of tools and equipment to be used</p>
2	(c)		<p>Appropriate ICT application named and explanation included to suggest how this would be used</p> <p>Appropriate ICT application named, no explanation or use suggested, but no specific software named</p> <p>Possible responses:</p> <p>CAD applications e.g. 2D design, Corel draw, Prodesktop, AutoCAD, Prosketch / paint, photoshop</p> <p>Other ICT applications e.g. web based research e.g. recipes, nutritional analysis software, excel to analyse sensory analysis results / costings</p> <p>CAM applications e.g. CNC router, laser cutter, plotter, sublimation printer, computerised embroidery machine</p>	<p>2</p> <p>1</p>	<p>Max 2 marks</p>

Question	Part	Sub part	Marking Guidance	Mark	Comment
3	(a)		Reasons provided e.g. waterproof, can be moulded into wellington shape, easy to rinse off mud, can be printed on Explanation provided e.g. waterproof as designed for use in wet conditions. Do not accept: Warm Strong/sturdy unless related to wellington boots	1 2	Max 2 marks
3	(b)		e.g. <ul style="list-style-type: none"> • Waterproof • Long enough to stop mud/ water leaking over the top of the boot • Good grips to prevent slipping • Easy to put on and take off • Comfortable to walk in • Easy to clean • Quick drying • Adjustable fit so boots don't slip off accidentally • Tall enough to stop mud getting over the top Do not accept warm, have soles	3 x 1	Max 3 marks
3	(c)		Aesthetic features described, understanding of different target markets and how this is reflected in each design Aesthetic features described Superficial response which describes an aesthetic feature of <u>one</u> of the boots Examples: Boot A - Bright colours are attractive to children, green reflects outdoors, colours appeal to boys, Dinosaurs design appeals to children, contrasting trim at the top and bottom of the boot makes the design more interesting, Fun design Boot B - Green natural colour makes the boot subtle – wearer blends in with environment, colour appeals to adults, Boring design – mainly functional work-wear Boot C - Pinks appeal to girls, colours	3 2 1	Max 3 marks

			stand out, flower design appeals to girls and reflects outdoors. Ribbed texture of the knitted tops makes the boot more interesting, fun design and colouring makes a fashion statement		
3	(d)		<p>Feature and function described in some detail, recognises that this is particular to the target audience e.g. loops are there to make it easy to pull the boots on, good for small children who might be unsteady on their feet, easier to grip to pull on.</p> <p>Feature described and function identified e.g. plastic loops make it easier to pull the boots on,</p> <p>Will accept to carry the wellies, to hang them up but max of 2 for these responses, even if really well explained</p> <p>Superficial response i.e. identify wellies have handles</p>	<p>3</p> <p>2</p> <p>1</p>	Max 3 marks

Question	Part	Sub part	Marking Guidance	Mark	Comment
4	(a)		Any two correct responses: Acrylic Bookend - former Chocolate - mould Pendant - mould Hat - former	1 1 1 1	Max 2 marks
4	(b)		Good quality drawing which matches product shape – may show other details such as two parts to the mould. Should show a taper so product is easier to get out Drawing of former / mould resembles product shape Choice of former / mould is correct, but drawing is poor / a straight copy of those provided as part of the question Product requires a mould – former drawn and visa versa – award no marks	3 2 1 0	Max 3 marks
4	(c)		Award a mark for an appropriate material for the mould / former e.g. Food grade plastic, Aluminium, MDF, Resin Do not credit responses such as metal, wood, plastic	1	Max 1 mark
4	(d)		Acrylic Bookend - Good description of the process e.g. Thermoplastic sheet, heated on the bend line using a strip heater, bent around a former and held in place by clamps until cool. Answer explains how the plastic is heated but may be incorrect. Answer shows forming, but response is unclear or has detail missing. Simple response e.g. plastic is heated and is put on the former Chocolates - Answer shows chocolate broken into smaller pieces, melted appropriately in microwave or in a bowl over a pan of boiling water, left to cool to set, removal from mould. Full and accurate description / diagram of moulding process Method of melting chocolate described but inappropriate i.e. over direct heat.	4 2 – 3 1 4	Max 4 marks

		<p>Answer shows the filling of the mould but the response is unclear or has details missing e.g. greasing the mould so that the chocolates are easily removed.</p>	2 – 3	
		<p>Simple response e.g. Melt the chocolate and pour chocolate in the mould</p>	1	
		<p>Pewter pendant - Answer shows small pieces of pewter chopped from an ingot and melted appropriately in a crucible, mould being filled & left to set/cool, removal from mould. Full and accurate description / diagram of pewter moulding process</p>	4	
		<p>Method of melting pewter described but inappropriate e.g. in a kiln. Answer shows the filling of the mould but the response is unclear or has details missing e.g. clamping of mould</p>	2 – 3	
		<p>Simple response e.g. melt the pewter and pour pewter in the mould</p>	1	
		<p>Felt hat - Accept answers for process by hand or press forming Response describes the use of steam to make the fabric stretchy. Full and accurate description /diagram of felt blocking process</p>	4	
		<p>Answer shows wetting of felt or cutting to size but response may be difficult to follow / inaccurate. Answer shows felt stretched on former but response is unclear or lacking some detail e.g. pinning to place to maintain stretched shape</p>	2 – 3	
		<p>Simple response e.g. felt is cut / felt is heated to make it bendy. Felt is on a former / block</p>	1	
		<p>Response shows moulding/ forming for another product. Award marks in a similar manner to above, depending upon the accuracy and amount of detail in the response.</p>		

4	(e)		<p>Any sensible and relevant precaution suggested e.g. using heat proof gloves when pouring pewter.</p> <p>Accept responses relating to food hygiene/safety e.g. aprons, tie hair back etc.</p> <p>Do not award marks for non specific responses e.g. be careful when pouring pewter</p> <p>Justification for precaution / description of possible hazard when making the product identified e.g. to prevent burns</p>	<p>1</p> <p>1</p>	<p>Max 2 marks</p>
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