

GCSE
Design and Technology
Short Course

45751/Unit 1 Written Paper
Mark scheme

4575
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Mark schemes are prepared by the Lead Assessment Writer 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 associates 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 associate understands and applies it in the same correct way. As preparation for standardisation each associate 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, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Assessment Writer.

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.

Further copies of this mark scheme are available from aqa.org.uk

Question	Part	Sub Part	Marking Guidance	Marks
1	a		<p>A - Softwood, hardwood, pine, ash, oak, beech, balsa, jelutong, sycamore, maple, accept other light coloured timbers, plywood, birch ply. Other manufactured boards accepted if veneered. Do not accept teak, walnut, mahogany, or other dark coloured timbers.</p> <p>B - Brass, plated steel, steel, aluminium, copper.</p> <p>C - Leather or PVC or other suitable plastic. Do not accept plastic</p> <p>D – Denim, cotton, polyester (which is added to the fabric to make it more stretchy</p> <p>E and F - Accept potato, cheese plus any one from minced lamb, minced beef. Do not accept minced meat or meat or mince.</p>	<p>(4 x 1) mark</p> <p>Total (4 marks)</p>
1	b		<p>A easy to work with, attractive finish, inexpensive, can be made with simple tools, can be manufactured in bulk using CNC machinery</p> <p>B Strong, looks attractive, can be manufactured in bulk so relatively cheap to buy.</p> <p>C Leather - Sustainable natural material, can be made by hand, can be made by machine. Plastic – low cost of manufacture,</p> <p>D Very strong, hard wearing, can be dyed to other colours, only the warp threads are normally dyed, so as it wears, it exposes the white colour of the non dyed weft threads.</p> <p>E Minced meat/lamb/beef/quorn mince. Provides protein, vitamins and minerals</p> <p>F Potato: provides carbohydrate. Provides vitamins and minerals. The addition of cheese makes the product more appealing.</p>	<p>1 mark for a simple point about each material, or 2 marks for points if explained /justified in more detail.</p> <p>If only one material/ingredient is mentioned, maximum 1 mark.</p> <p>(Max 2 marks)</p> <p>Total (2 marks)</p>

1	c		Thermochromic ink/dye, temperature/heat sensitive dye.	1 mark Total (1 mark)
1	d		'The manipulation of matter on an atomic or molecular scale'	1 mark Total (1 mark)

(Total Marks 8)

Question	Part	Sub Part	Marking Guidance	Marks
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<p>2</p>	<p>a</p>	<p>Flapjack</p> <p>Check that chilled ingredients are the correct temperature Check that all ingredients are 'in date', within best before/use by date. Check that the packaging is undamaged Check the ingredients are from a reliable/reputable source</p> <p>Bird box</p> <p>Check that the wood is not split, warped, rotten, dented or stained or likely to rot split or warp in an outdoor situation. Check that any hinges used are not rusty, bent, stiff, poorly machined. Check that any adhesive used is waterproof. Check that any panel pins, screws etc. are non-corrosive. Check that any exterior coating is weatherproof and the same brand, colour and texture. Check the nails /screws/ panel pins are the right length.</p> <p>Finger puppets</p> <p>Check that the fabric is not ripped, dirty or stained Check that the thread is the closest colour to the fabric Check that the felt is the correct thickness and/or is sufficiently flexible (to go round the finger)</p>	<p>(2 x 1) mark</p> <p>1 mark for each point made.</p> <p>Total (2 marks)</p>
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2	b	<p>Flapjack</p> <p>Template for cutting out the parts the same size Scales used to check the weights are the same Colour swatch to make sure they are the correct colour Same size baking trays used for all batches Ingredients measured by volume using standard cups Same brand/quality of ingredients for each ingredient</p> <p>Bird box</p> <p>Template for marking out the box parts Jig for cutting all the parts of the box the same size Jig for drilling the holes for the hinge screws Jig for glueing the box together Any exterior coating applied is from the same batch/container. Sizes checked using a rule, gauges, jigs or templates Check that all the parts are made from the same sort of timber Use laser cutter or CNC router to ensure parts are consistent sizes</p> <p>Finger puppets</p> <p>Templates to cut out parts the same size Template to mark out for machining CNC embroidery machine used to decorate/stitch puppets Mock up of standard fingers, to check the puppets fit on. Make sure all the parts of felt are the same colour Use the same amount of glue on each to avoid having too much or too little</p> <p>No realistic points made</p>	<p>1 mark for each point made (maximum 3 marks with no explanation of how it is done)</p> <p>2-3 marks for each point made and explained.</p> <p>(to maximum of 6 marks)</p> <p>0</p> <p>Total (6 marks)</p>
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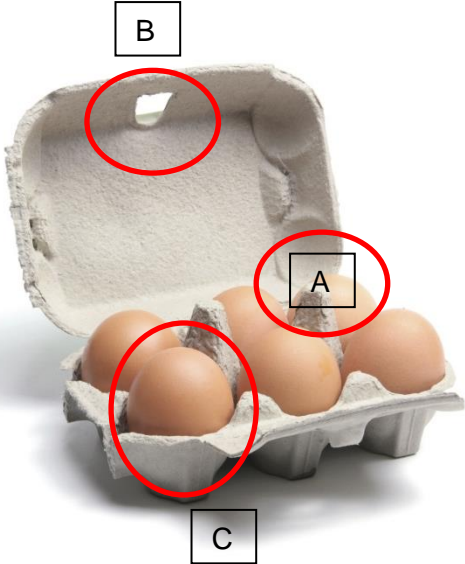
(Total Marks 8)

Question	Part	Sub Part	Marking Guidance	Marks
3	a	i	<p><u>Generic</u> Researching the Italian theme, e.g. styles, colours, Research how to make the product What similar products look like Who the target market is for the product</p> <p><u>Desk tidy</u> Find out what sorts of things need to be stored in the desk tidy to make sure that there is room for them. Find out the size of the items to be stored, to ensure the desk tidy is large enough</p> <p><u>Drawstring bag</u> Find out what sorts of things need to be carried in the bag (and how many of each item), Find out the size of the items to be carried, to ensure the bag is large enough The size of typical bodies to fit the string of the bag around.</p> <p><u>Pizza</u> What sorts of toppings people like on their pizza. Find out what sort of size pizza people would want to take in a packed lunch. Ask what sort of pizza people would want, e.g. edge, stuffed crust, deep pan, thin, calzone. Look at the nutritional values of ingredients that could be used in a pizza</p>	<p>1 mark for each item identified (max 2 marks)</p> <p>Or 1 item described in detail 2 marks.</p> <p>2 or more points described in detail 3 marks.</p> <p>Total (3 marks)</p>

<p>3</p>	<p>a</p>	<p>ii</p>	<p>A questionnaire could be typed out in Word.</p> <p>Information about sizes could be gathered from websites on the internet</p> <p>Use graphics software/Word/PowerPoint to produce a moodboard</p> <p>Questionnaires could be emailed to people in the target market.</p> <p>Use of a survey monkey to publish questionnaire.</p> <p>Use a spread sheet to calculate average sizes, needs generated by target market responses.</p> <p>Study examples of existing products on web pages.</p> <p>Other appropriate use of a computer to carry out research including researching the Italian theme and Italian lifestyles.</p> <p>Check with your team leader if unsure.</p>	<p>1 mark for each (max 3 marks)</p> <p>Total (3 marks)</p>
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<p>3</p>	<p>b</p>		<p>Creative, feasible and effective idea, well drawn and clearly annotated with a variety of information which is more than descriptive e.g. explains / justifies / evaluates / clearly describes how the product reflects the Italian theme. Excellent use of the mood board, with images adapted and used very creatively.</p>	<p>7 - 8 marks</p>
		<p>Feasible idea presented. Some of the labelling is more than descriptive e.g. explains / justifies / evaluates. Creative use of the mood board with any placement of images effective and stylised rather than directly copied. Links to Italian theme explained.</p>	<p>5 - 6 marks</p>	
		<p>Idea presented that is mostly feasible, but may have some aspects that are unrealistic or simple e.g. surface shape/decoration, labelling is superficial e.g. it is red, white and green. Use of the mood board likely to be more literal with imagery from the mood board being crudely added. Limited explanation of how image is linked to Italian theme.</p>	<p>3 - 4 marks</p>	
		<p>Idea redrawn but some simple labelling evident or idea redrawn with one small change, no labelling.</p>	<p>1 -2 marks</p>	
		<p>Redrawn idea from the question with no changes, no labelling – award no marks.</p>	<p>No marks</p>	
				<p>Total (8 marks)</p>

3	c		<p>Dimensions, size or quantities Dimensions are stated with a metric unit of measurement e.g. mm, g, ml The dimensions stated appear reasonable for the item designed</p>	2 marks
			<p>Dimensions stated with a metric unit of measurement but the sizes given are inappropriate</p>	1 mark
			<p>Dimensions without units of measurement</p>	0 marks
				(2 marks)
			<p>Materials or ingredients Specific material/ ingredient names provided, these are appropriate for the product designed</p>	2 marks
			<p>Specific material/ ingredient names provided, some may be inappropriate for the product considering function or chosen manufacturing processes</p>	1 mark
				0 marks
				(2 marks)
			<p>Processes for making, assembly and finishing Stages for making explained in sufficient detail for 3rd party manufacture. Appropriate processes described.</p>	6 marks
			<p>Description of making suggests a good understanding of the processes described. Appropriate processes described</p>	4 – 5 marks
			<p>Processes selected are well described, but inappropriate for the product or processes are appropriate but some points missing</p>	3 marks
			<p>Correct processes stated and ordered, but no additional detail provided, superficial response</p>	2 marks
			<p>A suitable process for making part of the product identified</p>	1 mark
	<p>No suitable processes named or described</p>	0 marks		
		(6 marks)		
	<p>Names of tools and equipment used Appropriate tools/ machinery listed</p>	3 x 1 mark (3 marks)		
		Total (13 marks)		

Question	Part	Sub Part	Marking Guidance	Marks
4	a			
4	a		<p>A</p> <p>Divider is same height as the eggs, to help support the lid, and hence stop the eggs from being crushed.</p> <p>B</p> <p>Holes allow tabs on flap to lock in, keeping the lid shut helping to protect the eggs</p> <p>C</p> <p>Individual space for each egg. The eggs are held away from each other so that they are less likely to break</p> <p>Any other suitable answer. Check with your team leader if unsure.</p>	<p>No explanation 0 marks.</p> <p>1 mark for simple explanation</p> <p>2 marks for a more explicit explanation</p> <p>Total (2 marks)</p>
4	b		<p>the name of the food</p> <p>a 'best before' or 'use by' date (or instructions on where to find it)</p> <p>any necessary <u>warnings</u> e.g. allergens, nut allergy etc</p> <p>quantity information</p> <p>a <u>list of ingredients</u> (if there are more than 2)</p> <p>the name and address of the manufacturer, packer or seller</p> <p>the lot number (or use-by date if you wish)</p> <p>any special storage conditions</p> <p>instructions for use or cooking, if necessary</p>	<p>Any 1 from the list 1 mark</p> <p>Any 2 from the list 2 marks</p> <p>Total (2 marks)</p>

4	c	<p>Card is made from materials from a sustainable source, ie trees can be replanted to replace those felled. The card boxes can be made from recycled paper based products, and can be recycled at the end of their useful life If sent to landfill, instead of recycling, the card egg boxes will rot down. If an egg shell breaks, its contents can soak through the packaging, and contaminate other boxes of eggs, which will make them unsaleable.</p> <p>The plastic boxes are more likely to retain the egg contents if a shell is broken in transit. They can be made from recycled plastics e.g. plastic milk bottles They can be recycled at the end of their life They will not rot down if sent to landfill Plastic is made from a finite commodity, crude oil. This means that new plastic cannot be made forever.</p> <p>3+ separate points made, qualified with explanations Response well-structured with good use of appropriate design and technology and showing a good grasp of grammar, punctuation and spelling.</p> <p>2+ points made with some explanation Response reasonably well structured with some use of design and technology terminology with some errors in grammar, punctuation and spelling.</p> <p>Simplistic response Response poorly structured with little or no use of design and technology terminology and with numerous errors in grammar, punctuation and spelling.</p>	<p>5 - 6 marks</p> <p>3 - 4 marks</p> <p>1 – 2 marks</p> <p>Total (6 marks)</p>
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(Total Marks 10)

Question	Part	Sub Part	Marking Guidance	Marks
5	a	i	<p>The cable has been cut, or has cracked, so there is a risk of electrocution from exposed cables</p> <p>Risk of fire if cables touch each other.</p>	<p>1 mark</p> <p>Total (1 mark)</p>
5	a	ii	<p>Switch it off at the mains or plug (accept either)</p> <p>Report it to a teacher or technician (accept either)</p>	<p>1 mark</p> <p>1 mark</p> <p>Total (2 marks)</p>
5	b		<p>The display allows people to check the temperature of the inside of the fridge easily.</p> <p>The temperature can be monitored easily without having to open the door.</p> <p>This fridge is too warm.</p> <p>The correct temperature for the fridge is 0 – 5 degrees Celcius (centigrade). Food will deteriorate more quickly at a temperature higher than 5 degrees.</p>	<p>1 mark per point,</p> <p>2 marks if a point is explained in more detail.</p> <p>Total (2 marks)</p>

5	c		<p>Look at the best before label to see if it is before the date stated</p> <p>Seal has been removed from the packaging</p> <p>For a person with allergies, check the ingredients, e.g. gluten</p> <p>Look at the best before date label. If it is before this date the product is definitely safe to eat. If it is a day or two after this date, it may still be safe to eat, but may not taste as good, whilst still being safe Visual inspection to check whether the bread has mould.</p>	<p>1 mark per point,</p> <p>2 marks if a point is explained in more detail.</p> <p>Total (2 marks)</p>
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(Total Marks 10)