



GCSE

# Design and Technology (Textiles Technology)

General Certificate of Secondary Education

Unit A574: Technical Aspects of Designing and Making

## Mark Scheme for June 2013

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

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## Annotations

Annotation	Meaning
	Level 1
	Level 2
	Level 3
	Noted but no credit given
	Tick

Question		Answer	Marks	Guidance
1	(a)	<p>No mark for identification of feature. Two marks for a detailed explanation of why the feature is of benefit to the wearer, one mark if shallow.</p> <p><b>Elasticated waistband</b> – easy to put on and off, freedom of movements/ allows you to stretch and move / easy to move in, allows for slight increases in weight or thicker clothing, easier fit around waist, stretches to fit the waist, more likely to fit the customer, will stay in place while moving about so more comfortable,  <u>Not</u> – fits all sizes, any wearer, one size fits all, less likely to fall down.</p> <p><b>Belt loops</b> – belt can be worn (for fashion), added security or if weight is lost or thinner garments worn attach keys or other items to loops, holds belt in place / stops it slipping down.  <u>Do not credit</u> reference to belt – must relate to the belt loops.</p> <p><b>Zip fastening</b> – easy / quick to put on and off, a better more tailored fit</p> <p><b>Shrink resistant</b> – will not shrink when washed so will still fit, will not shrink if it rains or get wet while outdoors</p> <p><b>Fade resistant</b> – will not fade in sunshine so will stay looking good, / remains looking good for longer and prolonging life</p> <p><b>Quick drying</b> – will dry quickly if get wet while out and will dry quickly when washed, won't weigh you down when wet because dries quickly, will feel less cold because will dry quickly, less skin irritation because dries quickly, stays comfortable longer if gets wet,</p> <p><b>Reinforced knees and seat</b> – will protect wearer when scrambling over rough ground or rocks, will be comfortable if sitting on hard surface, will last longer / hard wearing/ stronger/ prolong life of trousers.</p>	6	<p>For each feature identified there needs to be two points / benefits of that feature for two marks.</p> <p>Do not credit 'comfortable' – the mark is for why the feature identified makes the trousers comfortable.</p>

Question		Answer	Marks	Guidance
		<p><b>Dupont fabric with Teflon protector</b> – abrasion resistant, strong and durable so will last a long time / won't wear out / looks good for longer. The coating makes the fabric waterproof and stain proof – keeps the wearer dry in wet weather and will dry quickly. Stain resistant will keep the trousers clean for longer, reducing the need for washing and make them easier to wash.</p> <p><b>Ankle zip opening</b> – allows easy access to change socks or boots. Easy to put boots on after trousers, or change socks without removing trousers / ventilation.</p> <p><u>Not</u> stops insects getting in</p> <p><b>Lower leg can be removed for shorts</b> – if gets hot while out can convert to shorts – no need to carry them, or change into them. Can put back if goes cold or wet again. If lower leg gets dirty, just that part can be washed, can be worn all year – summer and winter / versatile / practical, saves wearer changing, can change to shorts if cycling to prevent them getting caught / can remove to go in to water</p> <p><b>Multi pockets</b> – items can be stored in easy reach / quick, easy access, no need for bag, can carry lots of essential things (accept examples of items to be carried), leaves hands free,</p> <p><b>Fastenings on pockets</b> for security, items will not fall out and be lost or stolen</p>		

Question		Answer	Marks	Guidance
	(b)	<p>Any three, one mark each:</p> <p>Thread Elastic(in waistband) Buttons/poppers/gingersnaps Zips Velcro Pockets.</p> <p><u>Not</u> eyelets, interfacing, elasticated waistband, belt loops. Only credit zip once.</p>	3	
	(c)	<p>Any three, one mark each:</p> <p>Bought in bulk so economical Cost effective / do not have to have machinery to make them / saves money buying special machines / cheaper to buy than make themselves / production cheaper elsewhere e.g. overseas Standard sizes so production quicker Quality can be consistently maintained in component / finished product. Machines can be set up to attach items of standard size. Fewer stages in the making process so quicker Uses less resources in the factory if bought in, also reduces labour costs / don't have to pay or employ people to make them / train people to make them</p> <p><u>Do not</u> credit reference to recycling components</p>	3	<p>Cheaper must be qualified to gain mark – an explanation of why cheaper.</p> <p>Quicker must be qualified to gain mark – an explanation of why quicker.</p> <p>Easier must be qualified to gain mark – an explanation of why easier.</p> <p>All reasons must be different. If not, just credit first answer.</p> <p>Can have more than one mark for identifying reduced costs if different reasons given.</p> <p>.</p>

Question			Answer	Marks	Guidance
2	(a)	(i)	<p>Any answer, one mark;</p> <p>Computerized machine stitching / embroidery machine / CNC embroidery</p> <p>Free machine embroidery / just machine embroidery</p> <p>Appliquéd (motif).</p> <p>Printed – specific method named e.g. transfer printing / screen printing</p> <p><u>Not</u> hand methods, bondaweb, just embroidery, block printing or sublimation printing.</p> <p><u>Not</u> just CAD CAM machine – must specify technique.</p>	1	Watch for scattergun approach.
		(ii)	<p>Any answer, one mark;</p> <p>Efficient / fast / quick</p> <p>Inexpensive / cheap</p> <p>Can be repeated numerous times / all will be the same / can be mass produced</p> <p>Washable</p> <p>Durable / hardwearing.</p> <p>Suitable for a knitted / stretchy fabric</p> <p><u>Do not</u> accept 'easy' or 'good quality', or 'professional finish' as reasons.</p>	1	<p>Watch for scattergun approach. Remember if two answers are given and they are contradictory, no marks can be awarded, even if one of them is correct.</p> <p>If 2(a)(i) does not gain a mark, no mark can be awarded for 2(a)(ii).</p>

Question		Answer	Marks	Guidance
	(b)	One mark for spinning.	1	No alternative acceptable.
	(c)	<p>Any three points, one mark each:</p> <p>Will cut different thicknesses of fabric accurately          Will cut different types of fabrics accurately          All pieces are identical in edge finish / may fuse edges if laser cut so neatening synthetic fabrics /          Precision cutting – corners, tight curves and points/all products will be precise/accurate          Faster or quicker so more economical – speed of cutting round shapes          Quality maintained over long runs / all products are the same          Can be computer controlled          Pattern lay can be downloaded directly to cutter.          Many layers of fabric can be cut at once (faster so cheaper on a large scale).          Requires less workers therefore saves money</p> <p><u>Not</u> less material wasted, reference to safety.  <u>Not</u> 'neat edges', better finish, professional finish or smooth cut.          Do not credit 'no mistakes' or 'less human error'.</p>	1	<p>Cheaper or economical - has to be qualified.</p> <p>Fast / faster / quicker is acceptable as a one word answer.</p> <p>One word answers are acceptable (with the exception of cheaper / economical) as the question is 'give' not explain.</p>

Question		Answer	Marks	Content	Guidance
					Levels of response
(d)		<p>Answers may include reference to:</p> <p>Acrylic fibres <b>handle like wool</b> fibres – feels the same</p> <p>Acrylic fibres are <b>almost as warm</b> to wear as wool fibres – jumper is meant to keep the wearer warm</p> <p>Acrylic fibres are <b>less expensive</b> to produce – jumper will need replacing. Acrylic fibres are cheaper than wool fibres.</p> <p>Acrylic fibres are <b>easier to wash</b> – jumper will be washed often / does not shrink or loose it's shape</p> <p><b>Dry quicker</b> ready to wear next day / or if gets wet at school</p> <p>Acrylic fibres <b>maintain their shape</b> better – will look good for longer</p> <p>Acrylic fibres are not <b>attacked by mildew or moths</b> – may be damp/resist biological damage</p> <p>Acrylic fibres have <b>good resistance to acids - sweat</b>.</p> <p>Acrylic fibres <b>are more durable / hardwearing</b> than wool fibres so lasts longer.</p> <p>Some people <b>are allergic to wool</b> fibres / find them itchy or uncomfortable to wear</p> <p>Acrylic fibres can be <b>more comfortable next to the skin</b> than wool and are lighter in weight.</p>	6	<p><u>Do not credit</u> references to any type of finish applied to the fibres, including colouring or decoration.</p>	<p><b>Level 3 (5–6 marks)</b> Description shows a thorough understanding the performance characteristics of both wool and acrylic fibres and these are linked back to the requirements of the school jumper. Specialist terms will be used appropriately and correctly and the information will be presented in a structured format. The candidate will demonstrate accurate use of spelling, punctuation and grammar.</p> <p>Technical terms may include words such as 'crimp', 'scales', resilience, felting, handle, insulation, sustainability, renewable resource.</p> <p><b>Level 2 (3–4 marks)</b> Description shows some knowledge of the performance characteristics of wool and acrylic fibres. This is sometimes linked to the product. Some indication of advantages and disadvantages of the two fibres. There may be occasional errors in spelling, punctuation and grammar.</p> <p><b>Level 1 (0–2 marks)</b> Description shows limited knowledge of the performance characteristics of wool and/or acrylic fibres, but is basic and not linked to the product. There will be little or no use of specialist terms. Answers may be vague and disorganised. Errors of grammar, punctuation and spelling may be intrusive. Answer may take the form of one or two word answers.</p>

Question		Answer	Marks	Guidance
3	(a)	<p>One mark for harmful / irritant.</p> <p><u>Do not</u> credit toxic or dangerous.</p>	1	<p>As in text book.</p> <p>Watch for shotgun approach.</p>
	(b)	<p>Any two, one mark each:</p> <p>Adhesives / glue Paints Cleaning materials – e.g. bleach / acids Chemicals - any type e.g. fertilizers Printing inks just inks Aerosols.</p> <p><u>Do not</u> credit any form of dye as this is in the stem of the question. This includes hair dyes or synthetic dyes. The question asks for <b>other substances</b>, not other types of dye. Not marker pens or fabric pens.</p>	2	Watch for shotgun approach.
	(c)	<p>Any three, one mark each:</p> <p>Apron/overalls / protective coat / lab coat / protective jacket/ chemical suit Gloves/gauntlets Goggles/safety glasses / visor Wellingtons or boots/ steel toe capped shoes Face mask / respirator</p> <p><u>Do not</u> credit hat, hairnet or bobbles to tie hair up.</p>	3	<p>Watch for shotgun approach.</p> <p>Must be a named piece of clothing, not just 'eye protection' or suitable footwear.</p>

Question		Answer	Marks	Guidance
(d)		<p>Any six points, one mark in each section:</p> <p><b>Preparation of fabric</b>            Wash (and dry) fabric / iron fabric) / ensure fabric is clean / no finish            Check fibre content matches type of dye.            Mark design onto fabric using tailors chalk / pencil            Place fabric on wax/tracing paper to prevent sticking            Use of a frame / ring or method of stretching given</p> <p><b>Preparation of dye bath</b>            Mix / make dye (bath) following instructions on the packet            Mix (correct quantities of) water and dye / correct concentration            Mix well / stir well / dissolve            Use of salt / fixer            Enough dye to cover fabric (if immersing)            Weigh fabric            Correct temperature / hot water  <u>Do not</u> credit just – ‘mix dye’ it needs to be qualified</p> <p><b>Apply wax</b>            Heat up wax / melt wax            Apply using a paint brush / tjanting tool / metal stamp            Add wax to prevent dye being absorbed / maintain colour.            Could cover all of fabric in wax <b>only if</b> an interesting effect created by picking / scraping wax off in next section            Splash / flick / drip the wax on</p> <p><b>Create interesting effect</b>            Crack wax to create ‘veining’ effect / Twist material            Pick / scrape areas of wax off to allow dye through            Add more wax and re-dye a different colour.            Splash / flick / drip the wax on if not credited earlier.</p> <p><b>Dyeing fabric</b>            Immerse fabric in dye completely / stir / agitate/ paint dye on</p>	6	<p>Credit information in notes or diagrams.</p> <p>No marks for protective clothing.</p> <p>One mark per stage – this can be credited even if in the wrong box.</p>

Question		Answer	Marks	Guidance
		<p>Leave for specified time / desired colour achieved            Avoid cracking the wax <b>if not given</b> as an interesting effect  <u>Not just 'put fabric in dye'</u></p> <p><b>Remove wax</b>            Iron between sheets of (absorbent) paper            Wash (in hot soapy water)  <u>Do not credit</u> just ironing without mention of paper, or just scraping it off. Do not accept tracing, greaseproof or baking parchment paper.</p>		

Question		Answer	Marks	Guidance
4	(a)	<p>A maximum of six marks to be allocated as detailed below:</p> <p>One mark for each specification point identified/explained <b>in the annotation</b> up to a maximum <b>of three marks</b>:</p> <p><b>Easy to carry / comfortable to carry</b> – for example ruck sack style, reference to width of handles or straps, adjustable or removable, a variety of ways of carrying / long to carry over shoulder or across body/ extra handle so it can be hand held as well/ padded straps for comfort when carrying / back straps</p> <p><b>Unisex</b> – reference to colour / theme appealing / shape to males and females point must be explained, do not accept just the fact it is coloured in.</p> <p><b>Environmentally friendly</b> – e.g. use of sustainable fibres and fabrics, recycled materials used in the manufacture, consideration given to the end of the products life, can it be recycled / biodegradable Use of Fair Trade fabrics / natural dyes / leather</p> <p><b>One mark</b> for each construction detail given in annotation up to a maximum of three marks:</p> <p><b>Measurements</b> or sizes given</p> <p><b>Fabrics</b> suggested – not fibres – e.g. leather, canvas, denim, calico, cotton drill, sail cloth, drill</p> <p><b>Pre-manufactured standard components</b>, e.g. parachute clips, D rings to make adjustable, other named fastenings</p> <p><b>Pockets/compartments</b> for storage</p> <p>Details of <b>construction methods</b> such as seams, hems, finishing methods accept reference to straight stitch or zig-zag</p> <p><b>Decorative techniques</b> such as screen printing, appliqué, patchwork, free machine embroidery.</p> <p><b>Padding / quilting</b> if not credited in specification section</p>	6	<p>Some candidates add comments next to the specification points – take these in to account when marking.</p> <p>Points made must link to specification point – even if the exact words of the specification are not used, e.g. padded straps for comfort, suitable colour for boys and girls, <b>however</b> – it must be clear which specification point is addressed in the annotation for a mark to be awarded.</p> <p>For example, if a sustainable fabric or a recycled fabric is mentioned, the annotation <b>must link this</b> to being environmentally friendly. Do not assume that is what the candidate is referring to.</p> <p>Do not credit the same information in both sections.</p> <p>Can gain a mark for fabric if a fibre and a method of fabric construction given. For example, woven polyester fabric, PVC coated cotton fabric.</p>

Question		Answer	Marks	Guidance	
				Content	Levels of response
(b)		<p>Answers may include reference to:</p> <p>Industry may use virtual prototypes generated on the computer allows the product to be <b>seen in 3D</b></p> <p>Prototypes can be <b>shown to clients</b> or the target group to get feedback on the design to improve it – boost profits</p> <p><b>Test manufacturing methods</b> and amend as necessary to ensure trouble free production saving time and money see how easy it is to make, highlights any problems / dangers when making / check correct methods used to make it.</p> <p><b>Check pattern works</b> – that the pieces fit together properly to create the product.</p> <p><b>Costings</b> can be calculated for materials, labour and profit margins</p> <p>Can <b>compare with street prices</b></p> <p>Can <b>test for sales appeal</b> in market research, exhibitions and ready to wear shows – makes sure product is a success saving time and money</p> <p>Products that are unsatisfactory can be <b>re-worked modifications</b> made to the design, improvements</p> <p>Amounts of <b>fabrics can be calculated</b></p> <p><b>Fabric choices</b> can be tested</p> <p><b>Production can be planned</b> to make best use of time and resources, increasing efficiency and profit can</p>	6	<p>Question is about <b>why a prototype is made, not how</b>. Do not credit reference to the materials used to make the prototype unless it links to saving money by testing design in a cheaper fabric before using expensive materials.</p> <p><b>Level 3 (5–6 marks)</b> Explanation shows a thorough understanding of prototypes and the benefits for a manufacturer in making one. Specialist terms will be used appropriately and correctly and the information will be presented in a structured format. The candidate will demonstrate accurate use of spelling, punctuation and grammar.</p> <p><b>Level 2 (3–4 marks)</b> Explanation shows the candidate knows what a prototype is and how they have used on to help planning and making. There may be some reference linked to industry, commercial manufacturers and producing items in quantity. There may be occasional errors in spelling, punctuation and grammar.</p> <p><b>Level 1 (0–2 marks)</b> Explanation may include reference to what a prototype is, but little information about why it is useful. There will be little or no use of specialist terms. Answers may be vague and disorganised. Errors of grammar, punctuation and spelling may be intrusive. Answer may take the form of one or two word answers.</p>	

Question		Answer	Marks	Guidance	
				Content	Levels of response
		see how long it will take to make <b>Quality control</b> can be devised. <b>Compare to specification</b> – check it meets requirements, modify as necessary			

Question		Answer	Marks	Guidance
5	(a)	<p>Any six points in logical order, credit information on diagram or notes:</p> <p>Place fabric right/ wrong sides together Match edges of fabrics/notches <i>Pin/tack</i> Stitch 1.5 cm from the raw edge/on seam line or fitting line/make a plain or open seam first/ straight stitch <i>Press seam open</i> Trim the seam allowance on one side to 5 mm Fold uncut edge under 5 mm and lay over cut edge <i>Press/pin/tack in place</i> Machine stitch <u>close to folded / tucked under edge</u> <i>Credit removal of pins / tacking once only</i> <i>Press seam.</i></p>	6	<p>Credit information in notes or diagrams.</p> <p>Only credit one reference to pressing the seam in an appropriate place.</p> <p>Only credit pin / tack once in an appropriate place.</p>
	(b)	One mark for twill weave.	1	This is the only correct answer.
	(c)	<p>Any two points, one mark each:</p> <p>Hardwearing/strong/durable / resists abrasion Does not show the dirt Not likely to wrinkle Yarns packed closer together so a firm fabric/secure/tightly packed together / stable fabric <u>Do not</u> credit reference to this weave being used for denim.</p>	2	
	(d)	<p>Any one point for a mark</p> <p>The iron must be: Hot / set to 210°C or temperature suggested / full heat / high / cotton or linen setting.</p>	1	To gain a mark, the temperature or setting for the iron must be mentioned.

Question		Answer	Marks	Guidance
(e)		<p>Any two, one mark each:</p> <p>Cut sleeves out to make a body warmer / gillet / waistcoat make sleeves removable</p> <p>Cut sleeves to short sleeves to change style</p> <p>Add decoration using appliqué or beads, braid, screen print etc /personalise it – add a feature (must say what)</p> <p>Add patches to cover holes if not mentioned in decoration</p> <p>Add/ remove pockets to improve style</p> <p>Change buttons to more stylish ones to update</p> <p>Dye it a different colour to update/make more fashionable</p> <p>Change shape of/remove collar to make fashionable</p> <p>Add a hood</p> <p>Add a lining, matching, coloured or fleece or shearling</p> <p>Shorten the body of the jacket to make more stylish</p> <p>Make smaller and hand down to younger sibling.</p> <p>Add darts to make it a more fitted shirt rather than a jacket</p> <p>Update / make fashionable by adding embellishment.</p> <p><u>Do not credit</u> reference to recycling the jacket, giving it way or making it into something different.</p>	2	Answers must relate to modification of the jacket, not making it into something different.

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