Pearson
Edexcel

Mark Scheme (Results)

Summer 2025

Pearson Edexcel GCSE
Design Technology
Paper 1E: Textiles

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

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Component 1 mark scheme

Section A – Core content

Question number	Answer	Additional guidance	Mark
1 (a) (i)	Any **one** property from: • Soft (1) • Insulator of heat (1) • Flexible/flexibility (1) • Warm (1)	Do not accept 'Insulator' on its own	(1)

Question number	Answer	Additional guidance	Mark
1 (a) (ii)	Any **one** property from: • Stiff / rigid / hard (1) • Waterproof / water resistant / stain resistant / non-absorbent (1) • Food safe / non-toxic (1) • Good heat resistance (1) • Good UV resistance (1) • Lightweight (1)	Do not accept the following on their own: 'Can be recycled' 'Durable' 'Light' 'Strong'	(1)

Question number	Answer	Additional guidance	Mark
1 (a) (iii)	Any **one** property from: • Good insulator of heat (1) • Good impact resistance (1) • Printability / takes colour well (1) • Food safe / non-toxic (1)	Do not accept the following on their own: 'Insulator' 'Recyclable'	(1)

Question number	Answer	Additional guidance	Mark
1 (a) (iv)	Any **one** property from: • Corrosion resistance / will not rust (1) • Good fluidity / casts well (1) • Malleability (1)	Do not accept: 'Durable	(1)

Question number	Answer	Mark
1 (b) (i)	Any **one** other property of oak that makes it a suitable choice of material for the floorboards (1) and a linked justification of that property (1) • Oak is hard (1) therefore it will withstand abrasive wear from being walked over / on / furniture placed / moved on it (1) • Oak is durable / hardwearing (1) therefore it will be able to withstand abrasive wear / damage from being walked on (1)	(2)

Question number	Answer	Additional guidance	Mark
1 (b) (ii)	A calculation that includes: • correct working out of cost 57.6 / 1.44 (1) • correct answer £40 or £40.00 (1) ECF Award 1 mark if candidates show 1.44 / 57.6 = 0.025 or Award 1 mark if candidates show $57.6 / 1.44^2$ = 27.70 to 27.80	Award full marks for correct numerical answer without working. Allow ECF if candidate gets part of calculation wrong.	(2)

Question number	Answer	Additional guidance	Mark
2 (a)	Any **one** property of copier paper that makes it an appropriate choice of material for the origami rabbit from: • Flexibility (1) • Bendability / easy to bend (1) • Easily creased / holds shape when folded (1) • Biodegradability (1) • Foldability / easy to fold / easily folded / easily foldable (1)	Do not accept 'Foldable' or 'Folded' on their own	(1)

Question number	Answer	Additional guidance	Mark
2 (b)	Any **one** advantage explained of using recycled copier paper to manufacture the origami rabbit (1) and a linked justification of that advantage (1) • Using recycled paper will reduce the need to make new paper / reduce environmental damage / is more sustainable / lowers carbon footprint (1) which reduces the need for cutting down trees to make the pulp required for paper production / reduces deforestation / reduces energy consumption / emissions (1) • Recycling paper stops it going to landfill / being thrown away / reduces waste (1) which keeps the space in landfill available for materials that cannot be recycled (1)	Do not accept 'Recycled' on its own	(2)

Question number	Answer	Additional guidance	Mark
2 (c)	Any **one** feature explained of how SMAs can be used to animate the origami rabbit (1) and a linked justification for that feature (1) • SMAs can be added / connected to the ears / nose / head / tail (1) which can be made to twitch / spring / straighten / fold when activated / heated / cooled / deformed (1) • SMAs can be added / connected to the legs / front paws / arms (1) which can create the impression of the rabbit hopping when activated / heated / cooled / deformed (1) Marking points can be accepted in reverse	Do not accept any reference to 'Move' on its own	(2)

Question number	Answer	Additional guidance	Mark
2 (d)	A calculation that includes: • correct calculation for the area of the standard sheet of A4 paper (Step 1) 29.7 x 21.0 = 623.7 cm^2 (1) • correct calculation for area of the square sheet (Step 2) 21.0 x 21.0 = 441 cm^2 (1) • correct calculation of waste percentage (Step 3) ((623.7 – 441) / 623.7) x 100 = 29.29(2929)% (1) • Correct answer rounded to 29% (Step 4) (1) Alternative method for Steps 2 and 3: • correct calculation for waste area cut off (Step 2) (29.7 - 21.0) x 21 = 182.7 cm^2 (1) • correct calculation of waste percentage (Step 3) (182.7 / 623.7) x 100 = 29.29% (1)	Award full marks for correct numerical answer without working. Allow ECF if candidate gets part of calculation wrong. Award one mark for the correct rounding of an ECF calculation.	(4)

Question number	Answer	Mark
3 (a)	Award **one** mark from: • Resistor (1) • Fixed resistor (1) Do not accept: • Variable resistor • Preset resistor • Surface mount resistor	(1)

Question number	Answer	Mark
3 (b)	Any **one** advantage for the manufacturer of making the electronic circuit in batches of 1,000 (1) and a linked justification for the advantage (1) • A batch of circuit boards will take a set amount of time to manufacture (1) therefore the manufacturer can plan how to make best / efficient use of their time / machines / staffing (1) • Any changes in component / material prices can be reflected when a new batch is ordered / manufactured (1) therefore the manufacturer does not have to bear / stand any price increases (1) • If faults are found in a batch of completed / assembled circuit boards modifications can be made / products do not sell (1) therefore material / components wastage / financial loss is kept to a minimum (1) • The manufacturer does not need to buy lots of stock (1) therefore they do not have to invest / tie up money in stock / storage space (1) • The manufacturer can bulk buy components / get discounts (1) therefore being able to take advantage of economies of scale / pass on savings to the customer (1)	(2)

Question number	Answer	Additional guidance	Mark
3 (c)	A calculation that includes: • Correct calculation of number of circuit boards that can be cut from the larger sheet (32 / 4) x (16 / 4) = 8 x 4 = 32 (1) • Correct calculation of cost of one circuit board £3.20 / 32 = £0.10 or 0.1 (1)	Award full marks for correct numerical answer without working. Allow ECF if candidate gets part of calculation wrong.	(2)

Question number	Answer	Mark
3 (d)	Any **one** advantage of using batteries (1) and a linked justification of the advantage (1) • They do not need to be plugged into a mains power source / require a cable (1) which means the device is free to be used anywhere / fully mobile / portable (1) • The batteries are a small / discrete component (1) which means they do not take up too much space within the circuit / product (1) • You can use rechargeable batteries (1) which means one set can be used again and again (1) • You can use the voice recorder in remote areas / campsites / beach / power cuts (1) because it does not need to be plugged into the mains power supply (1) • The batteries can simply be replaced with new ones (1) which means no time is wasted having to wait to charge it / can be used straightaway (1)	(2)

Question number	Answer	Mark
3 (e)	Any **two** benefits of using HIPS for the case of the Sing Along Box (1) and a linked justification of that benefit (1) • HIPS is lightweight / has a low density (1) therefore it will be easier for young children to carry / move it around / it is portable (1) • HIPS has good / excellent impact resistance / tough (1) therefore if the box is dropped the contents inside will be protected from damage / the box is unlikely to break (1) • HIPS does not absorb water / is waterproof (1) therefore it can be easily cleaned / wiped down without any risk of damaging the materials / moving / working parts / electronic circuit (1) • As a thermoplastic / thermoforming polymer HIPS can be formed / moulded (1) therefore it is capable of being used to form complex shapes / forms / intricate details (1)	(4)

Question number	Answer	Mark
4 (a)	Any **two** explanations of a working characteristic of stainless steel (1) and a linked justification of that characteristic (1) • Stainless steel is corrosion resistant / rust proof / non-toxic (1) therefore it will not be affected by the corrosive salt / react with / contaminate the contents / surface will not become blemished / food safe (1) • Stainless steel has good torsional resistance (1) therefore it will not distort / twist when the grinder is rotated (1) • Stainless steel is hard (1) which means it will withstand the abrasive wear / scratching from grinding the salt / will not wear / will extend life span of product (1)	(4)

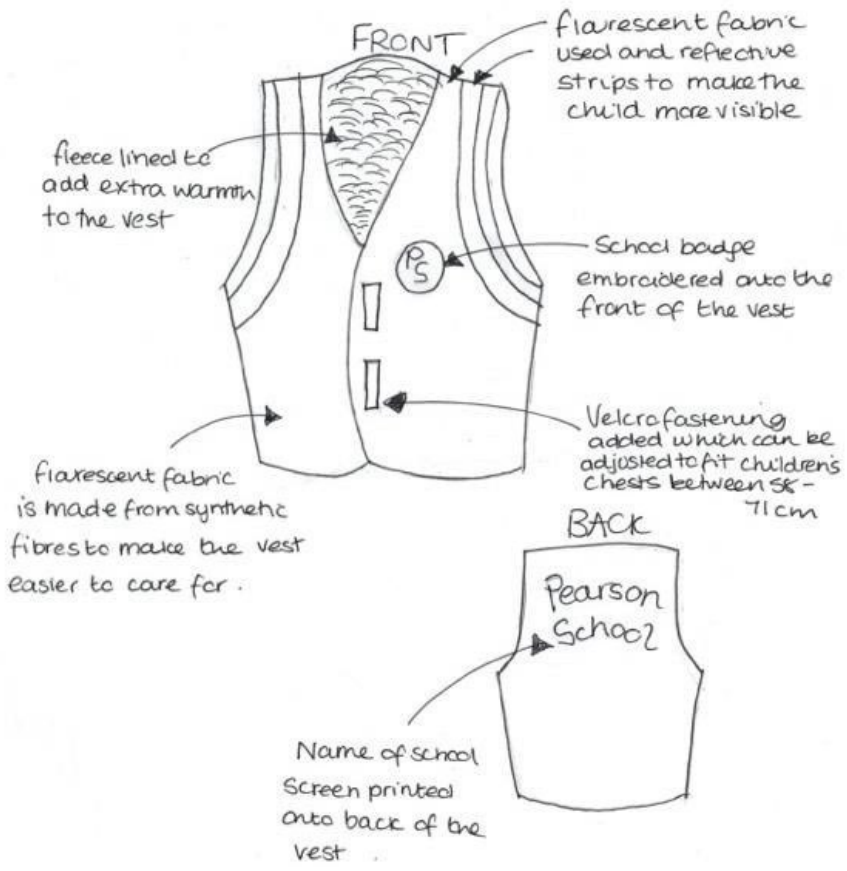
Question number	Answer	Additional guidance	Mark
4 (b)	A calculation that includes: • Correct calculation of the percentage of material that CANNOT be recycled 100 – 80 = 20 % (1) • Correct calculation of the weight of material that CANNOT be recycled (20 / 100) x 270 = 54 grams (1) ECF Award 1 mark for an answer of 216 grams which is what 80% represents	Award full marks for correct numerical answer without working. Allow ECF if candidate gets part of calculation wrong. 216 alone with no working out is zero marks.	(2)

Question number	Indicative content	Mark
4 (c)	• Designers can see / get a better idea of how products work when they are taken apart • Designers can see / draw each individual part that they may be able to improve / refine / combine / design them out / combine them into one individual part • Designers may be able to introduce standardised components into their new designs • Designers can look at ways of trying to reduce material usage / wastage when designing a new product • Designers can take measurements of existing products • Designers can look at how they might improve the assembly / manufacture of a new product to reduce time • Designers take inspiration that they can use in their own work • Designers can analyse / evaluate the materials that have been used • Designers can get to see the intricate workings of the product • Designers are able to evaluate products in terms of working out / discovering what is wrong with them / identify flaws • Designers can work out how they can be improved / made more reliable / energy efficient	(6)

Level	Mark	Descriptor
	0	
Level 1	1 - 2	• Attempts to interrogate and deconstruct information but connections and logical chains of reasoning are flawed. • An unbalanced appraisal of the information/issues, containing judgements that show a limited awareness of the interrelationships between factors or competing arguments.
Level 2	3 – 4	• Interrogates and deconstructs information and provides some connections and logical chains of reasoning. • A balanced appraisal of the information/issues, containing judgements that show an awareness of the interrelationships between factors or competing arguments.
Level 3	5 - 6	• Interrogates and deconstructs information and provides sustained connections and logical chains of reasoning. • A well-balanced appraisal of the information/issues, containing judgements that show a thorough awareness of the interrelationships between factors or competing arguments.

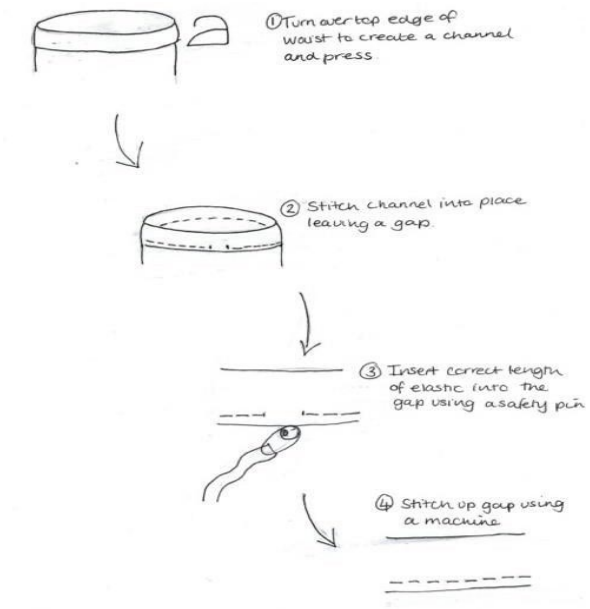
Section B – Textiles

Question number	Answer	Mark
5 (a)	Marks will be awarded for understanding of design and technology, not graphical skills. Notes and sketches that include: • be highly visible (1) and provide extra warmth for wearing outside (1) e.g. fluorescent or hi-vis / neon coloured / reflective tape / built in LEDs / padded panels / quilted / fleece lining / shearling or faux fur lining / extend the design, e.g. add hood or sleeves (Note: the lining must be a suitable material, e.g. **not** 'cotton') • be easy to care for (1) and include a way to show which school the child attends (1) e.g. synthetic fabrics / stain-proof coating / plastic coating / school logo screen printed / embroidered / sublimation printed (do not accept 'school logo/name' on its own) • fit children of different ages (1) and include a method of fastening (1) e.g. adjustable fit / elasticated side panels / extra fabric overlapping at front / velcro / poppers / ties	(6)

	Example of candidate response:  Notes: • Fluorescent fabric used and reflective strips to make the child more visible • Fleece lined to add extra warmth to the vest • Fluorescent fabric is made from synthetic fibres to make the vest easier to care for • School badge embroidered onto the front of the vest or name of school screen printed onto the back • Velcro fastening added which can be adjusted to fit children's chests between 58-71cm	

Question number	Answer	Mark
5(b)	Any **two** explanations that include a way the number play set meets or fails to meet the requirement (1) and a linked justification of that way (1) • There is a full set / lots of numbers and maths symbols (1) therefore the child will be able to make up lots of different sums / equations (1) • The numbers are all very clear /easy to read (1) therefore there can be no confusion as to what the number is / 6 and 9 cannot be confused (1) • Helps teach them about how the numbers look / differentiate numbers / symbols (1) without the need of having to be able to write (1) • The numbers are easily moved around / rearranged (1) therefore they can learn that some problems / calculations have the same answer (e.g. 6 x 4 = 24 and 4 x 6 = 24) (1) • There might not be enough numbers / symbols to make up some questions / answers [e.g. 11 x 11 = 121 so the set will not be very useful as you will not be able to make the correct answer since you need 6 1s and there are only 3 in the set] / therefore some extended calculations will not be able to be completed (1) [Accept the opposite to the above in that there are enough counters (1) to make some large sums / calculations (1)] • Some of the numbers / symbols might get lost (1) therefore you will not be able to carry out a full range of sums / equations (1) • The plus / multiply symbols are quite similar (1) therefore the child might get confused as to what the sum / equation actually is (1) • There is one disc that is the greater / less than symbol which the child might not be able to identify (1) therefore they may not understand what the purpose of the question / task is (1) • The embroidery might start to unravel (1) therefore the child may not have a whole set of numbers / symbols (1)	(4)

Question number	Answer	Mark
6 (a)	Any **two** explanations for using polyester fibres for the walking trousers (1) and a linked justification (1) • Polyester fibres have high tensile strength (1) therefore they retain their shape when being worn (1) • Polyester fibres have good durability (1) therefore they have some resistance to wear and tear when being worn (1) • Polyester fibres have some water resistance (1) therefore they are suitable to be worn when walking in the wet (1) • Polyester fibres are lightweight (1) therefore the walker is less likely to get tired as quickly / easier to walk in (1) • Polyester fibres have some elasticity (1) therefore they don't crease when being worn (1) • Polyester fibres can be manufactured very smoothly (1) which will be comfortable for the wearer next to the skin (1) • Polyester fibres can be manufactured in a wide variety of colours (1) so can be suitable for all tastes (1)	(4)

Question number	Answer	Additional Guidance	Mark
6 (b)	Marks will be awarded for understanding of design and technology, not graphical skills. Notes and sketches that include: • Turn / fold over top edge of waist to create a channel / casing and press / pin / tack into place (1) • Stitch channel / casing into place leaving a gap in the stitching (1) • Measure / cut elastic to the correct waist size (1) • Insert elastic into the channel / casing using a safety pin and tie / secure ends of elastic together (1) • Sew up gap left in stitching (1)  Example of candidate response: Notes: • Turn over top edge of waist to create a channel and press • Stitch channel into place leaving a gap • Insert correct length of elastic into the gap using a safety pin • Stitch up gap using a machine	Cap at 3 marks if no sketches or all sketches and no notes If a candidate creates the waistband separately but still follows the same steps, credit should still be awarded	(4)

Question number	Answer	Additional guidance	Mark
6 (c)	Any **one** explanation of a physical characteristic of a plain weave (1) and a linked justification of the characteristic (1) • Plain woven fabric is firm (1) therefore it keeps its shape during washing (1) • Plain woven fabric has the maximum number of interlaced points (1) therefore is suitable for heavy use outside (1) • Plain woven fabric is tightly / closely woven (1) which can help to provide some wind / weather resistance to keep the wearer more protected (1)	Do not credit responses related to 'Breathable'	(2)

Question number	Answer	Mark
6 (d)	Any **two** explanations that include a manufacturing method that could be used to make the side seams of the trousers weatherproof (1), plus two linked justifications of that method (1) + (1) Sealed / fused seams (1) • Sealed / fused seams create a joined material so that water cannot soak through to the skin (1) as the parts of the trousers can be pressed together using heat which ensures that even the smallest gaps are eliminated (1) Taping / seam taping (1) • Taping creates a physical barrier to stop any water from entering (1) as a membrane can be added to the inside of the seam (1) Bonding (1) • Where the side seams are stitched there will be small holes in the garment and seam binding can be added inside where the fabric joins are (1) which will help to increase the wind resistance of the seams (1)	(6)

Question number	Answer	Mark
7 (a)	Award **one** mark from: • Overlocker (1) • Overlocking machine (1) • Overlocker machine (1) • Overlock machine (1) • Serger (1) • Serger machine (1) Award different / phonetic spellings of overlock, including (there are other variations): • Overlooke • Overloc • Overlok	(1)

Question number	Answer	Mark
7 (b)	Any **two** benefits for the manufacturer of using stock materials (1) plus a linked justification of the benefit (1) • It means the materials will be widely / readily available / can be bulk purchased / do not have to be manufactured to a specific non-standard size (1) therefore the materials will be cheaper / reducing overall costs / improve profit margin (1) • The manufacturer does not need to have / hold lots of different sized materials (1) which reduces the need for cutting / machining / reducing waste / machining time / processes (1) • Machines do not have to be reset each time a different sized material is used (1) therefore it helps to reduce the manufacturing time / speed up manufacturing / reduce potential errors that might be introduced (1)	(4)

Question number	Answer	Additional guidance	Mark
7 (c)	A calculation that includes: • Conversion of units at any stage (1) • Calculation of the cost of Part number 1 (1) 1 at 200 mm = 200 mm or 0.2 m x 2.80 = £0.56 • Calculation of the cost of Part number 2 (1) 1 at 500 mm = 500 mm or 0.5 m x 3.30 = £1.65 • Calculation of the cost of Part number 3 (1) 3 at 100 mm = 300 mm or 0.3 m x 2.80 = £0.84 • Total cost of the material (1) £0.56 + £1.65 + £0.84 = £3.05 Any response of £3050 or £30.50 or equivalent without any working out shown must be awarded 0 marks	Award full marks for correct numerical answer without working. Allow ECF if candidate gets part of calculation wrong. £3050 or £30.50 are partially correct answers given some incorrect conversion of units has taken place but can be awarded 4 marks	(5)

Question number	Answer	Additional guidance	Mark
7 (d)	Any **two** explanations that include a benefit of using a laminated finish (1), plus two linked justifications of that benefit (1) + (1) • The finish will provide improved water resistance (1) which will stop the fabric from soaking up water (1) therefore preventing the fabric from rotting / getting damaged (1) • The finish will provide greater tensile strength (1) which means the fabric will not rip (1) therefore prolonging the life of the product (1) • The finish will provide improved durability (1) which means the holder will stay more pristine (1) therefore prolonging the appearance of the product (1) • The finish will provide improved stain resistance (1) which will prevent the fabric from getting dirty / make it easier to clean / wipe clean (1) therefore protecting it from discolouration (1)	Do not accept anything related to a smoother surface	(6)

Question number	Answer	Additional guidance	Mark
8 (a)	Any **one** explanation of a physical characteristic of denim (1) and a linked justification of that characteristic (1) • Denim fabric is tightly woven / twill woven / stiff (1) therefore is fairly durable / hardwearing in use (1) • Denim fabric is crease resistant (1) therefore stays looking pristine in use (1) • Denim fabric is breathable (1) therefore comfortable to wear (1)	Do not credit responses related to denim being 'Absorbent'	(2)

Question number	Answer	Mark
8 (b)	Any **one** explanation of an issue associated with the ecological footprint of using cotton (1) plus two linked justifications of that explanation (1) + (1) • The cotton is sprayed with chemicals / fertilisers / pesticides when grown (1) which can then enter the water system / environment (1) and prove toxic to plants / animals / humans (1) • Growing cotton needs a lot of fresh water (1) which can take water away from human / animal needs (1) in areas where water is scarce (1) • Growing cotton severely degrades soil quality (1) which means that the soil may then be too poor quality to grow other crops (1) leading to food shortages for animals or humans (1)	(3)

Question number	Answer	Mark
8 (c)	Any **two** reasons for manufacturing the jacket to a tolerance (1) and a linked justification (1) • The overall size of the jacket needs to be manufactured to a tolerance (1) to ensure that the measurements are correct for the size bought by the customer (1) • The buttons and button holes need to line up correctly / fit together (1) otherwise the jacket cannot be fastened correctly (1) • The placement of the pocket flaps needs to be correct (1) otherwise the overall appearance of the jacket would be uneven (1) • The length of the button holes needs to be correct (1) otherwise the jacket won't fasten / will easily come undone (1)	(4)

Question number	Indicative content	Mark
8 (d)	Impact on **cost factors** in relation to: • Cotton fibres can vary in quality depending upon the country they have come from, e.g. Egyptian cotton is the highest quality • Natural fibres tend to be more expensive than man-made or blended fibres • Organic cotton is more expensive than cotton grown with the use of chemicals but would appear to a more niche market (such as at craft fairs) • The cotton grown in Pakistan tends to be of a lower quality so would be less expensive to buy • Pakistani cotton tends to have a lower thread count resulting in the fabric showing greater / faster signs of wear • Twill woven denim is tightly interlaced and so the fabric tends to be of a higher quality • Products of this nature tend to be hand finished / hand dyed given the batch size and the location where the products are being sold • Tie-dyeing is a hand finishing process meaning it is time consuming / has an impact on production costs • The parts of the jacket will need to be cut out carefully to ensure that they fit together correctly for the overall shape / size of the garment • The edges / seams of the jacket will need to be finished correctly as a jacket of this style is not normally lined • These additional processes will increase the cost of the final jacket • The metal buttons / trims will need to be added with specialist equipment once the garment has been assembled • The fabric may have to undergo certain surface treatments to make sure that it is soft and comfortable in use	(9)

Level	Mark	Descriptor
	0	
Level 1	1 - 3	• Attempts to interrogate and deconstruct information but connections and logical chains of reasoning are flawed. • An unbalanced appraisal of the information/issues, containing judgements that show a limited awareness of the interrelationships between factors or competing arguments. • A conclusion may be presented but it is likely to be generic assertions rather than supported by relevant judgements.
Level 2	4 – 6	• Interrogates and deconstructs information and provides some connections and logical chains of reasoning. • A balanced appraisal of the information/issues, containing judgements that show an awareness of the interrelationships between factors or competing arguments. • A conclusion is presented that is partially supported by relevant judgements.
Level 3	7 - 9	• Interrogates and deconstructs information and provides sustained connections and logical chains of reasoning. • A well-balanced appraisal of the information/issues, containing judgements that show a thorough awareness of the interrelationships between factors or competing arguments. • A conclusion is presented that is fully supported by relevant judgements.