



**General Certificate of Secondary
Education**

*Design and Technology:
Textiles Technology*

Specimen Mark Scheme

The specimen assessment materials are provided to give centres a reasonable idea of the general shape and character of the planned question papers and mark schemes in advance of the first operational exams.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' 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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Qu No	Response to be awarded credit	Mark
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NB This mark scheme is intended as a guide to the type of answer expected but is not intended to be exhaustive or prescriptive. If candidates offer other answers which are equally valid they must be given full credit.

Many responses at this level are assessed according to the quality of the work rather than the number of points included. The following level descriptors are intended to be a guide when assessing the quality of a candidate's response.

<p>Low The candidate has a basic but possibly confused grasp of the issues. Few correct examples are given to illustrate points made. This candidate does not have a clear idea of what s/he is writing about</p>
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<p>Mid The candidate has some knowledge but there will be less clarity of understanding. Some correct examples given to illustrate points made. This candidate knows what s/he is writing about but is confused in part.</p>

<p>High The candidate has a thorough understanding of the issues and has provided relevant examples / provides high quality explanation to support the knowledge shown. This candidate knows what s/he is writing about and provides clear evidence of understanding and makes use, where appropriate, of high order skills.</p>

- 1 (a) (i) Use pencil to draw and label two different design ideas for your product.
Marks will be given for the quality of the ideas and the notes and sketches.**

Two sketches to show different initial ideas for product.
Candidates are not to be penalised if they do not use pencil.

Marks awarded as follows:

No answer worthy of credit 0 marks

Weak unimaginative idea, poorly presented. Little detail shown, or idea may be for decoration of product only. 1 mark each

A quality design which will appeal to target market. Some attempt to be imaginative. May be a 'tried and tested' design with attempt to give it a new twist. Well presented with sufficient annotation to explain thinking. 2 marks each

A quality design with strong appeal to target market. Evidence of originality. It will be clear what is intended. Idea is well presented and annotated to explain thinking. 3 marks each

Design should be neat and clear for full marks.
If both ideas are similar, mark first as it stands; alter second (1 or 2 marks instead of 3).

(6 marks)

(ii) Analyse and evaluate how the design idea you have chosen will appeal to a specific target market.

Candidate must provide a specific target market in their response.

Marks awarded as follows:

No answer worthy of credit

0 marks

Simple statements / evaluation, e.g. 'Young people will like the design', 'it uses bright colours'. There are descriptive comments with no real attempt to make a true evaluation of the likely popularity of the design idea.

1-2 marks

Detailed statements / evaluation with exemplification e.g. 'the handles on the product make it easy to carry and the pockets will safely store personal possessions such as mobile phones. The bag can be used for many different occasions'.

3-4 marks

(4 marks)

(b) Use sketches, labelling and notes to present a final design for your bag.

Final design for product to include:

Use of theme

No answer worthy of credit

0 marks

Little relevance to theme or it is used inappropriately. An existing design may have been copied.

1 mark

Clear use of theme but may not be most interesting or appropriate for product. An existing design may have been modified slightly.

2 marks

Thoughtful and/or imaginative use of theme which is totally appropriate for product. Little evidence that an existing design has been copied.

3 marks

(3 marks)

Originality and Quality of design

The following should be considered:

Modern, original and imaginative design, balanced composition / effective use of space, effective proportions, appropriate for intended use, will the design work?

Use of decorative techniques and components which are in keeping with the fabrics selected - use of components may be functional and/or decorative.

Marks awarded as follows:

No answer worthy of credit 0 marks

Lack of detail, unimaginative design which may not be appropriate, may not clearly relate to spec, poor use of space, design is uncoordinated. Makes no reference / incorrectly uses emerging technologies. 1-2 marks

Unimaginative design with some thought given to intended end use. Relates to most areas of spec but may not be clear, overall balance weak. Decoration/components added as an afterthought. Emerging technologies are included in the design, but in a straightforward manner that has limited effectiveness / in an inappropriate fashion. 3-4 marks

Sound design related to all aspects of spec with clear detail about product – this may be inappropriate in places. Design lacks some imagination but is likely to be popular. Overall composition may be weak. There may be some lack of clarity about decoration/components. Product may have some weaknesses. Makes a reasonable use of emerging technologies, although this may be in a limited fashion and / or may not necessarily be fully effective or appropriate. 5-6 marks

Product will be modern and likely to sell well. Design clearly relate to all aspects of spec. High quality and imaginative design for product. Makes an appropriate and effective use of emerging technologies. 7-8 marks

(8 marks)

Use of colour

This is not about colouring in of the design idea. The following should be considered:

How has colour been used? Are the colours toning, contrasting, complementary?

Do they work for the product? Do they promote the Pop art theme?

Marks awarded as follows:

No answer worthy of credit 0 marks

Use of colour is immature and not used to effect. 1 mark

Choice is used well but does not make product exciting. 2 marks

Used effectively/imaginatively, mature and sensitive choice. 3 marks

(3 marks)

Fabrics and components

No answer worthy of credit 0 marks

Poor choice of fabric/components, inappropriate for product, do not reflect theme. 1 mark

Sound choice of fabric/components but will not be used to advantage/may lack clear indication of what they are. 2 marks

Good choice of fabric/components, may not be a wide choice but used effectively. May include a smart material to give special effect, although it does not need to do so. 3-4 marks

(4 marks)

Presentation

No answer worthy of credit 0 marks

Lack of care in presenting work, candidate will not communicate detailed information about product 1 mark

Candidate has taken care with presentation and labelling and information about product is clear. 2 marks

(2 marks)

Section B

2 (a) Analyse how information about recent sales figures might be useful when planning new products.

E.g. Sales figures indicate which lines are selling well, which are not selling, show seasonal differences, show most popular price ranges. This can be used to plan new designs for different seasons, market sectors, indicate which designs are still popular and can be re-vamped.

Marks awarded as follows:

No answer worthy of credit 0 marks

Very basic information. This candidate displays little knowledge will typically repeat information and is unable to analyse how new products can be planned beyond 'if they don't sell well, design new ones'.
1 mark

Range of points considered, and linked to the development of new products. This candidate has a good grasp of the issues but response lacks detail.
2 marks

Detailed range of appropriate issues considered. Analysis shows clear understanding of how sales figures can be used when planning ideas for new products and how the different information derived may be used in differing ways.
3 marks

(3 marks)

(b) Designers often study the work of others to give them ideas for new products. Give two advantages of doing this.

E.g. gives ideas for product shape, fabrics, decorative techniques, methods of manufacture shows 'tried and tested' ideas.

No answer worthy of credit 0 marks

Any two appropriate benefits. 1 mark each

(2 marks)

- 3 (a) **Complete the table below by giving one advantage and one disadvantage of each of the ways of adding colour to products.**

Tie-dye

Advantages: easy to do, requires little equipment, gives interesting results which are different each time.

Disadvantages: results are unpredictable, difficult to repeat pattern, time consuming, patterns lack detail.

Screen printing

Advantages: can be repeated with accuracy, quick to do, can give intricate patterns, easy to use a number of colours.

Disadvantages: can be expensive to set up, takes time to make all screens required for detailed patterns, each colour has to be applied separately.

Embroidery

Advantages: gives texture as well as colour, quick to do, can give intricate patterns, can be done using computerised machines, hand embroidery can give unique results.

Disadvantages: very time-consuming, can be expensive if hand embroidered, products might not be identical if hand embroidered, may be difficult to care for products.

1 mark for each relevant advantage **and** 1 mark for each relevant disadvantage. No response worthy of credit = 0 marks.

(6 marks)

(b) (i) What is a prototype?

No answer worthy of credit

0 marks

A mock-up / trial / model of a product design

1 mark

(1 mark)

(ii) Give three detailed reasons for making a prototype.

e.g. test accuracy of size / shape of product, find out how shaping might be achieved, check on methods of manufacture, consider a range of materials which will help achieve shape, iron out potential manufacturing problems, help plan bulk manufacture in terms of equipment, labour requirements, costings.

Marks awarded as follows:

No answer worthy of credit

0 marks

Simple statements, e.g. 'to make sure the product works'

1 mark

More detailed statements, e.g. 'to check if the decorative technique will work on the fabric that is to be used'.

2 marks

3 reasons, 2 marks each maximum

(6 marks)

4 (a) Explain why appliqué could be a suitable technique to decorate a textile product.

E.g. strong finish, can be used to apply large areas of colour / texture, shapes can be repeated accurately, strengthens base fabric by making double layer, can be produced automatically on computer-controlled machines, can add further decoration such as beads and sequins.

Marks awarded as follows:

No answer worthy of credit 0 marks

Simple statements, e.g. 'It looks nice.' 1 mark

More detailed statements, e.g. 'the appliqué adds texture and colour to a product and gives a strong finish.' 2-3 marks

(3 marks)

(b) Use notes and diagrams to explain how to work appliqué.

Clear details of how to work appliqué, including detail of materials and equipment to be used. Notes and diagrams should be used.

Marks awarded as follows:

No answer worthy of credit 0 marks

Very basic detail with little explanation of process. Explanation is confused. This candidate displays little knowledge and is unable to explain method. 1-2 marks

Basic detail, explanation of process adequate and would mostly achieve desired effect. This candidate has a good grasp of the method. 3-4 marks

Detailed explanation of process which would achieve desired result. Candidate understands and can clearly explain method. Accurate information about materials and equipment needed. 5-6 marks

(6 marks)

- (c) (i) **Manufacturers use an interfacing like ‘Bondaweb’ when making appliqué.
Explain why this will be used.**

E.g. to prevent appliqué stretching when being sewn, to prevent shape from moving whilst being sewn, to prevent shape from fraying, to add bulk / body to shape.

Marks awarded as follows:

No answer worthy of credit 0 marks

Simple statements, e.g. ‘It stops fraying’ 1 mark

More detailed statements, e.g. ‘the Bondaweb holds the shape on the fabric so it won’t move about when sewing it down.’ 2-3 marks

(3 marks)

- (ii) **Give two reasons why a non-woven fabric is used.**

No answer worthy of credit 0 marks

E.g. it does not fray, it has no grain so can be cut in any direction, economical in use so keeps costs down.

2 reasons, 1 mark each

(2 marks)

- (iii) **Using the interfacing will add to the costs of manufacture.
Consider the reasons why the manufacturer might consider these costs worthwhile.**

E.g. will speed up manufacture time, less skilled machinists can be employed, and produces higher quality goods with fewer faults.

Marks awarded as follows:

No answer worthy of credit 0 marks

Simple statements, e.g. ‘It makes it easier to manufacture so saves costs’ 1-2 marks

More detailed statements, e.g. ‘because the Bondaweb holds the shape on the fabric and it won’t move about when sewing it down, less skilled workers can be employed so money will be saved on wages.’
The candidate may give a number of points with less explanation.

3-4 marks

(4 marks)

5 (a) (i) Label the diagram below by placing each of the following in the correct box.

No answer worthy of credit 0 marks

Warp, weft and selvedge correctly labelled. 1 mark each

(3 marks)

(ii) What is the name of the weave shown above?

No answer worthy of credit 0 marks

Plain weave 1 mark

(1 mark)

(b) (i) A fabric using this weave is made from 100% cotton. Explain three properties of this cotton fabric.

E.g. both the fibre and the weave are hardwearing, fabric does not require special care, strong, soft on skin, cotton is absorbent so can be dyed/printed on / comfortable against skin/does not develop static, creases, can shrink when washed, flammable.

Any 3 appropriate qualities, 1 mark each plus 1 mark for acceptable detail for each. No answer worthy of credit 0 marks

(6 marks)

(ii) How would using a blend of polyester and cotton change the properties of the fabric?

E.g. the polyester is strong, not absorbent and does not crease. When blended with cotton it reduces the overall absorbency so makes fabric quicker drying, less likely to shrink and more resistant to creasing.

Polyester adds strength and enables the fabric to be heat set, but the blended fabric becomes highly flammable.

Marks awarded as follows:

No answer worthy of credit 0 marks

Very basic information will tend to refer only to the added strength or reduced cost with little explanation of how this is achieved. There will be inaccurate and confused points. 1-2 marks

Candidate understands how the combined properties of the two fibres work in the blend and is able to explain how the properties of both are changed when blended. Information will be clear and accurate, especially at the top end of the mark range. 3-5 marks

(5 marks)

- 6 (a) Computers can be used to help manufacturing.
Give two advantages when using them to lay and cut out fabric.**

E.g. pattern pieces laid out to minimize waste, layouts can be saved and used at a later date; automated laser cutters are accurate, safe and fast. 2 advantages, 1 mark each

No answer worthy of credit 0 marks

(2 marks)

- (b) (i) What is meant by a sub-assembly?**

A separate line or unit of manufacture. 1 mark
No answer worthy of credit 0 marks

(1 mark)

- (ii) Give two reasons why sub-assembly is used in industrial manufacture.**

E.g. specialist machines / workers may be used, checked for faults, cost effective, specialist components available.
Any two appropriate points, 1 mark each
No answer worthy of credit 0 marks

(2 marks)

- (c) (i) Give two dangers when using an industrial sewing machine.**

E.g. stitching fingers, electrocution, and inhalation of textile dust. Two dangers related to use of industrial sewing machines.

1 mark each
No answer worthy of credit 0 marks

(2 marks)

(ii) How can a manufacturer reduce these dangers?

E.g. use of guards on machines, dust extractors, training of staff, regular safety and maintenance checks, emergency stop buttons, regular breaks so concentration is not lost.

Marks awarded as follows:

No answer worthy of credit

0 marks

Simple statements, e.g. 'Keep fingers away from needle.'

1 mark

More detailed statements, e.g. 'machines should have emergency stop buttons so they can be stopped quickly if someone sews their fingers.'

2-3 marks

(3 marks)

7 (a) What are smart fabrics?

Smart fabrics are ones which can react/change automatically to their surroundings.

Correct definition plus explanation	2 marks
Simple definition	1 mark
No answer worthy of credit	0 marks

(2 marks)

(b)(i) Name one smart fabric.

Eg Speedo 'Fastskin'	1 mark
No answer worthy of credit	0 marks

(1 mark)

(ii) What is special about the features of the fabric?

Laminated fabrics which sense temperature changes, electro-conductive textiles which heat garments in extreme conditions, medical textiles which automatically administer medicines, fabrics with in-built electronics. Accurately named/described smart fabric.

Simple response, which may be not be clearly linked to (i)	1 mark
Detailed response, clearly and accurately linked to (i)	2 marks
No answer worthy of credit	0 marks

(2 marks)

(iii) What is the fabric used for?

Candidate should give typical uses for fabric selected.

No answer worthy of credit	0 marks
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General statement which will tend to refer to fabrics which are 'breathable'; this candidate will not have understood the concept of 'smart' and will be confused. Reference will be made to a technical textile which may not be new or 'smart', uses may not be specific to fabric selected.

1 mark

Sound understanding of what is meant by 'smart'; candidate will describe a modern fabric used in a particular application and will be able to clearly explain its particular features.

2 marks

(c) Analyse the impact of developments in nanotechnology on textile materials. Give specific examples in your answer.

E.g. Nano-fibres are very fine fibres (about 1% of the width of a human hair) which can be engineered for different end uses. These fibres are extremely lightweight, smooth and fine, but also very strong. They are typically produced from carbon or ceramic materials, spun and collected in non-woven felt-like sheets. They can be added to a base of other fibres such as cotton, wool, polyester.

Potential uses include self-cleaning fabrics used for underwear, work clothing, sportswear, fabrics used for catering and hospital applications, military applications such as lightweight bullet proof clothing, energy saving applications such as panels for computer displays, and a variety of filters. It is possible to spray a nano-fibre on to the body to give a seamless skin covering. Because these fibres are so fine, a large area of fabric can be folded so it takes up a very small space. The sheets of nano-fibre can be used as breathable membranes which allow body moisture and air to pass through but prevent larger water molecules and other particles from passing through, hence their potential use in sportswear and protective wear.

Marks awarded as follows:

No answer worthy of credit 0 marks

General statements which will tend to refer to fabrics which are 'very small' and/or 'fine and light' with a lack of accurate detail. This candidate will not have understood the concept of 'nano-fibre' and will be confused. Uses suggested may not be specific to nano-fibres. 1-2 marks

Sound understanding of what is meant by 'nano-technology' with some clear explanation of origin/method of production. Candidate will accurately describe a range of particular applications and be able to clearly explain their relationship to the particular features of nano-fibres. 3-5 marks

(5 marks)

8 (a) (i) Explain one way in which fabric makes the cushions attractive.

E.g. use of toning colours, use of shiny fabrics, use of different fabrics, layering of fabrics.

Marks awarded as follows:

No answer worthy of credit 0 marks

Simple statements, e.g. 'two colours have been used.' 1 mark

More detailed statements, e.g. 'Purple and pink have been used to contrast with each other'. 2 marks

(2 marks)

(ii) How are components used to make the cushions attractive? Use one example to support your answer.

e.g. use of beads to represent flowers and leaves, use of pearls to represent flowers, use of threads to stitch outlines.

Marks awarded as follows:

No answer worthy of credit 0 marks

Simple statements, e.g. 'beads have been used.' 1 mark

More detailed statements, e.g. 'Beads have been used to show flowers'. 2 marks

(2 marks)

(b) Evaluate the use of zips to fasten the back of these cushion covers.

E.g. zips are a good choice because they are quick and simple in use and lie flat on the cushion without adding bulk. They wash easily and are strong. They are easy to insert so are not expensive to manufacture.

However, they do not add any interest to the design and may snag the delicate fabrics used for the cushions.

Marks awarded as follows:

No answer worthy of credit 0 marks

Candidate will outline some advantages of using zips but they will not always relate to the cushions shown. All points will tend to be positive with no evaluation. 1-2 marks

Candidate considers advantages of using zips on these cushions and refers to one or more drawbacks as well. 3 - 4 marks

(4 marks)

(c) Analyse briefly how you could change the design so it would be cheaper to make.

E.g. use only 1 fabric for cushion, omit centre seamed section, and do not layer fabrics.

Marks awarded as follows:

No answer worthy of credit 0 marks

Simple statements / analysis, e.g. 'don't have seams on front.' 1 mark

More detailed statements / analysis, e.g. 'Use only 1 layer of fabric to reduce sewing costs'.

2 marks

(2 marks)

(d) Discuss the environmental issues related to the manufacture of such ‘throw away’ products.

E.g. fabric production can use up valuable non-renewable resources such as oil to produce polyester fibres. Energy is also used in all manufacturing processes which leads to CO₂ emissions and other by-products which can harm the environment. Chemicals used to colour and finish fabrics can produce harmful waste. Large amounts of water are used in finishing processes.

Disposal of discarded products requires huge landfill sites and some fabrics take many years to decompose. Environmental impact of transporting goods and materials, sometimes from one continent to another. Many of these fashion products are sold at very low prices which do not reflect the true cost to the global environment. Products designed for a longer life can help minimize some of the impact of industrial activity.

Marks awarded as follows:

No answer worthy of credit

0 marks

Simple statements e.g. ‘synthetic fibres are not environmentally friendly’. Candidate will tend to concentrate superficially on only a few issues and offers little information, many aspects will be ignored. Little connection made between superficial consumption and environmental damage. Response is structured poorly with little or no use of Design and Technology terminology and with numerous errors in grammar, punctuation and spelling.

1-2 marks

More detailed information with example(s). This candidate has some understanding of issues at a basic level or may have more detailed understanding of a few issues. Response is fairly well structured with some use of Design and Technology terminology and with a small number of errors in grammar, punctuation and spelling.

3-4 marks

Sound understanding of issues involved with accurate and appropriate examples given across a wide range of issues. Response is well structured with good use of appropriate Design and Technology terminology and shows a good grasp of grammar, punctuation and spelling.

5-7 marks

(7 marks)