A LEVEL
DESIGN AND TECHNOLOGY (FASHION AND TEXTILES)
FOR TEACHING FROM 2017

2019 EXAMINATION

UNIT 3 OER MATERIAL (ANNOTATED)

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Printing with/without comments and annotations

The exemplar in this booklet includes comments/annotations from the Principal Examiner.

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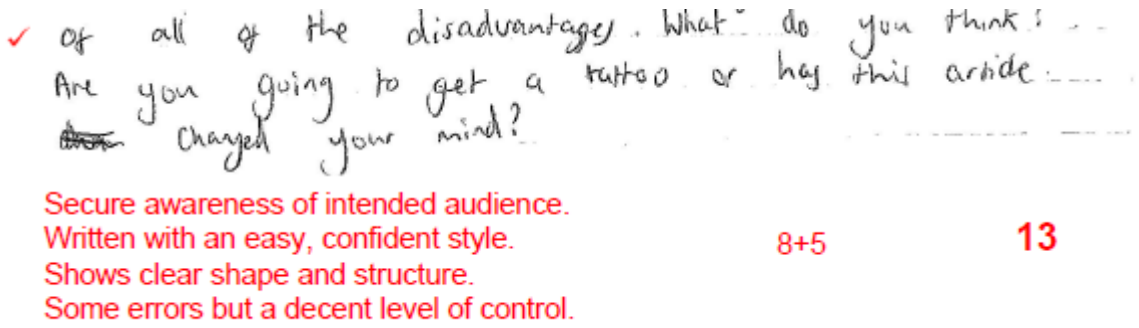

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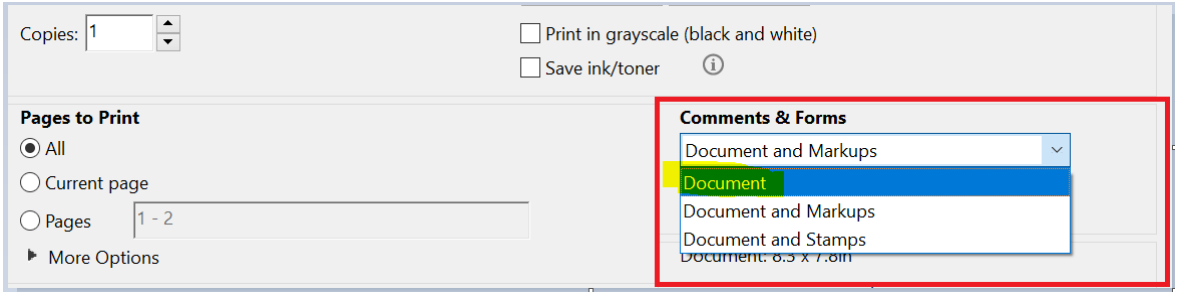
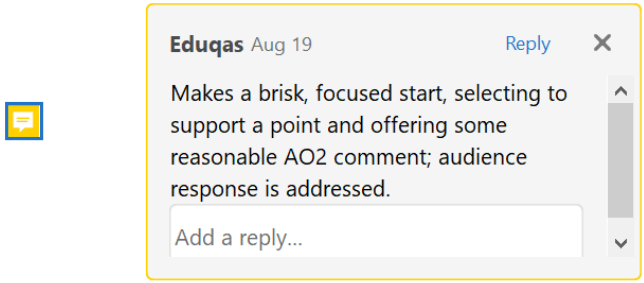


Printing comments with sticky notes

If you are printing the exemplar in this document, the Principal Examiner comments contained in the sticky notes will not automatically be printed.



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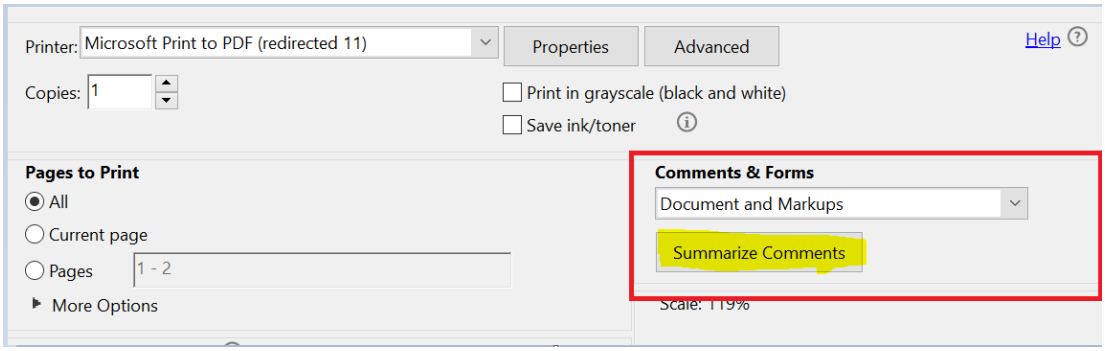
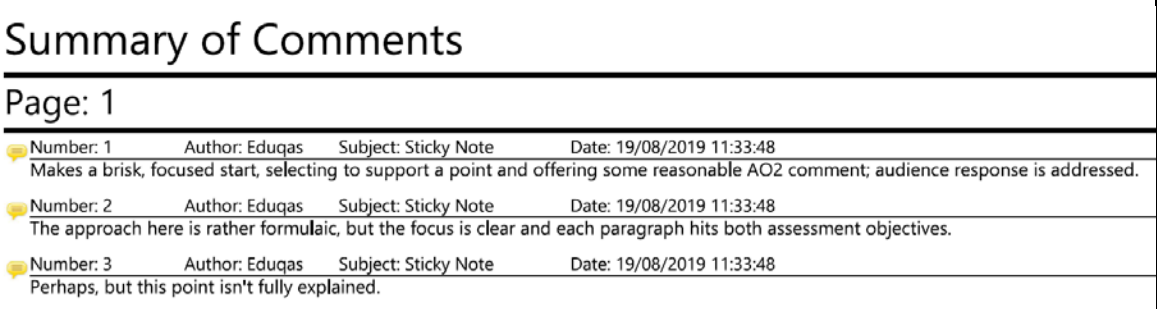


The Principal Examiner comments will then be printed at the end of each page of exemplar:



Examiner only

3. Technological developments present many opportunities for innovative new products.

(a) Explain how technology-push has led to the creation of the fabric keyboard shown below. [4]

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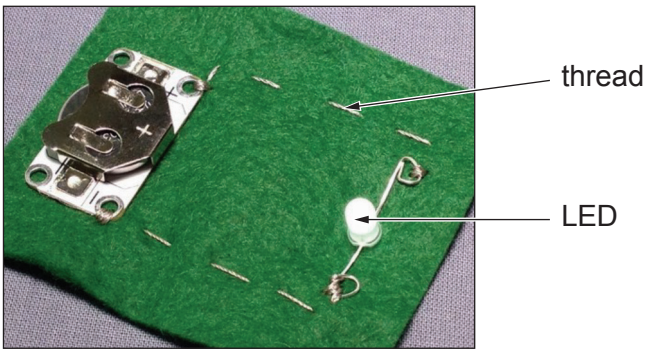
(b) Study the simple e-textile circuit shown below and describe the significance of the thread. [2]



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Examiner only

(c) Describe the most suitable scale of production for a limited number of children's winter jackets that include a GPS tracking system. *Fully justify your answers*. [6]

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Question 3

		AO3	AO4	Mark
(a)	Explain how technology-push has led to the creation of the fabric keyboard shown below.		✓	4

*Answers that indicate an understanding of technology-push should be awarded up to **4** marks based on:*

- The development and emergence of new technologies leads to new products being 'pushed' into the market place.
- Micro or Nano technology opens up endless opportunities for innovative new products such as the keyboard – reinvention of products.
- Technology – linking of several devices wirelessly/ ease of use.
- Portable electronic devices that can be stored more easily – rolls up and stored easily during transport – technology supports this.
- Technology push - improving the functionality of products by embedding technologies such as electronics and computing into fabrics.
- Technology-push relating to textile material development.
- Consumer lifestyle – acceptance and thirst for new technology and associated products.

Guidance to markers

Incorrect / no answer	0
Brief description, very little understanding for example: Developments in technology allow new products to be made and sold that were not possible before.	1
Some detail with some understanding of technology-push for example: New technology offers opportunities for designers to develop innovative products that consumers didn't really know they needed or wanted, technology drives this.	2
A more detailed explanation with clear understanding of technology -push for example: New technology offers opportunities to develop innovative products that consumers didn't really know they needed or wanted. Advances in technology is pushing these products into the market place and used on products that were not previously possible – the keyboard for example, reinventing it.	3
Fully detailed explanation with clear understanding of technology-push for example: The emergence of new technology in both the electronic side and in textile materials developments allows products such as the keyboard to be pushed into the market place. In the absence of such technology product like these are not possible, it's the size relating to Nano technology makes these products possible and is pushing designers to embrace the technology and improve products, thus redefining the keyboard.	4

Question 3

		AO3	AO4	Mark
(b)	Study the simple e-textile circuit shown below and describe the significance of the thread.		✓	2
	*Answers that indicate an understanding of the thread's properties should be awarded up to **2** marks. based on:* • The thread is conductive. • The battery is the source on power. • The energy travels along the thread to the LED. **Guidance to markers** *Incorrect/no answer* 0 *A basic response for example*: The thread is conductive. 1 *A fully explained description for example*: As the thread is conductive it allows the energy from the battery to travel to light the LED. 2			

Question 3

		AO3	AO4	Mark
(c)	Describe the most suitable scale of production for a limited number of children's winter jackets that include a GPS tracking system. *Fully justify your answers.*		✓	6

*Answers that indicate an understanding of batch production with electronic features included should be awarded up to **6** marks based:*

- Batch is most suitable scale of production as it is usually associated with a smaller production run.
- Factors for a smaller run include: testing the market place prior to mass production; niche market or gimmick; seasonal factors – no large scale demand.
- Complex nature of product could make it unsuitable for other scales of production, in particular when including electronic devices into clothing – expertise and a niche market.
- Seasonal clothing suits batch production – demand is lower.
- May require specialist machinery and skilled workforce better suited to batch production – relates to GPS system. Manufacturing costs.
- Age related seasonal children's clothing restricts sales potential making batch production preferable.

Guidance to markers

• Incorrect/no answer	0
• Candidate has a simplistic knowledge. • The use of terminology and technical language is basic. • Brief description of batch production and the impact of including a GPS system on scale of production.	1-2
• The candidate has a basic understanding of the issues associated with the question. • The use of terminology and technical language is reasonably accurate. • More detailed description batch production and the impact of including a GPS system on scale of production.	3-4
• The candidate demonstrates a clear understanding of the issues associated with the question. • Uses correct terminology and technical language. • Detailed understanding of batch production and the impact of including a GPS system on scale of production.	5-6

	Total	**12**

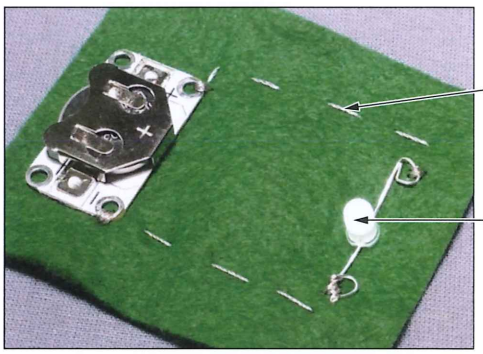
Examiner only

3. Technological developments present many opportunities for innovative new products.

(a) Explain how technology-push has led to the creation of the fabric keyboard shown below. [4]

New technology creates technology push as we are able to imagine, create and event new ideas. Technology has improved and helped us create better technology such as this fabric keyboard. As the world changes and demands change technology is constantly changing and improving.

(b) Study the simple e-textile circuit shown below and describe the significance of the thread. [2]



The thread helps the e-textile circuit to work as it holds it all together and lets the LED light up. It keeps the fabric in place and other components. Without the thread it wouldn't work.

Examiner only

(c) Describe the most suitable scale of production for a limited number of children's winter jackets that include a GPS tracking system. *Fully justify your answers.* [6]

Batch production would be suitable as there will need to be a lot produced however for a limited time. By doing it batch it will create the children's winter jackets faster and more efficiently. Batch production is cheaper than one off as it's one person doing each stage and the machines are constantly running instead of turning on and off for each item. It is also better financially as a person doesn't have to be trained in everything but only one specific area.

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Examiner only

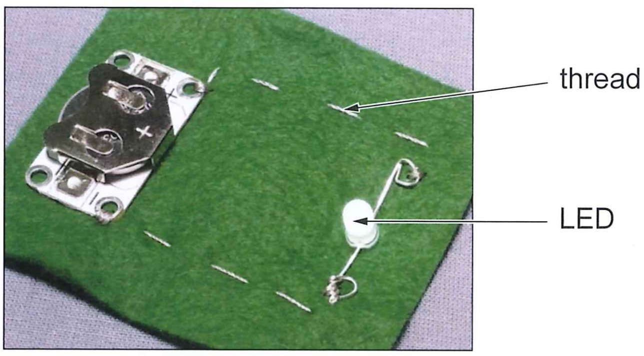
3. Technological developments present many opportunities for innovative new products.

(a) Explain how technology-push has led to the creation of the fabric keyboard shown below. [4]

Market research has allowed the companies to research into fabric keyboards e.g. questionnaire

Technology-push has allowed the fabric keyboard to be made as technology has developed keyboards are becoming an innovation that changes due to lifestyle changes. Fabric has become around to provide the most comfort when using the keyboard as people are perhaps putting keyboards on their laps as technology becomes more portable as it develops.

(b) Study the simple e-textile circuit shown below and describe the significance of the thread. [2]



The thread would ensure the LED light is attached to the green (wool?) and that the circuit is able to run smoothly as the current from the metal adaptor is able to go into the LED for it to switch on. Secure the components onto the fabric

Examiner only

(c) Describe the most suitable scale of production for a limited number of children's winter jackets that include a GPS tracking system. *Fully justify your answers.* [6]

The suitable scale of production for a limited number of winter jackets would be a batch production as you would be able to make a suitable number of jackets until they sold out (almost limited edition) due to the fact this production would be more cost effective as it would be expensive to generate mass number of jackets with the technology needed to go into the GPS tracking system. The jacket wouldn't be needed to be manufactured all year round or in the summer therefor it would be time effective to only produce the jackets for the winter when people would purchase and use. The Gore-Tex fabric needed would be ~~con~~ difficult to get large supplies meaning they are reducing waste. The GPS system would probably need to be manufactured abroad where cobalt and lead exists and the GPS tracking system would need to be put in the jacket by hand to ensure it's secure ~~due to the wires~~. Trips to go skiing and winter jackets are very seasonal purchases meaning only a limited supply needs to be made and they would probably be expensive. The time for the GPS system to be made could be a while.

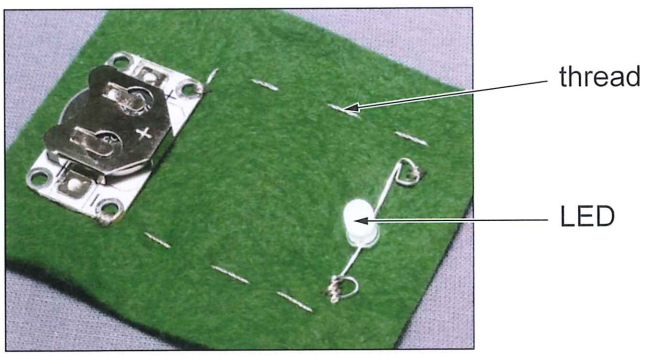
Examiner only

3. Technological developments present many opportunities for innovative new products.

(a) Explain how technology-push has led to the creation of the fabric keyboard shown below. [4]

A fabric keyboard like above was made using technology push because with this fabric keyboard the idea is that it can be rolled up and stored away, where as with an ordinary plastic keyboard you can't move it out of the way.

(b) Study the simple e-textile circuit shown below and describe the significance of the thread. [2]



The thread is there to hold everything in place and also to get the power from the metal to the LED.

Examiner only

(c) Describe the most suitable scale of production for a limited number of children's winter jackets that include a GPS tracking system. *Fully justify your answers.* [6]

Batch production, because if it is a limited number then this would be the best option. Batch production produce products ~~between~~ in a group, roughly between 2 and 100 at a time. If some of the children's wear is leftover and not selling then they could be recycled and changed into another product.

Examiner only

5. Fibres are the raw materials of textiles, each with specific properties depending on its structure and source.

(a) A wool fibre is both hydrophilic and hydrophobic. Using notes and sketches explain how the structure of wool fibre allows for both of these properties. [5]

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(b) When fibres are spun into yarn describe the effect the twist has on the finished yarn. [3]

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Question 5

		AO3	AO4	Mark
(a)	A wool fibre is both hydrophilic and hydrophobic. Using notes and sketches explain how the structure of wool fibre allows for both of these properties.		✓	5

*Answers that indicate an understanding of the structure and characteristics of a wool fibre should be awarded up to **5** marks based on:*

<u>The diagram(s) needs to show a cross section of the fibre as it is the internal protein bundles that are most relevant.</u>

- The scales on the wool fibre are critical to the function of absorption - they move apart.
- The wool fibre is made from long chains of protein bundles – internal view seen in cross section.
- The protein bundles swell as moisture is absorbed – labelled as hydrophilic (they are not hollow) but regain shape as they dry out.
- The interior of the wool fibre is hygroscopic (attracts water).
- Exterior of wool fibre labelled as hydrophobic – repels water. May include reference to natural oils on wool being water repellent.

Guidance to markers

Incorrect / no answer	0
A basic diagram of a wool fibre possibly shows scales, very little detail, limited knowledge.	1
Some detail with some understanding, a simple diagram with more detail in the annotation. Some important details missing.	2
A more detailed level of knowledge and understanding evident in one or two diagrams, cross section may be evident. Some aspects covered.	3
A detailed level of knowledge and understanding evident in one or two clearly annotated diagrams, cross section is evident and shows area where absorption occurs. Most aspects covered.	4
Full and detailed knowledge and explanation related to absorbtion; clear and detailed diagrams fully explained process. All important aspects covered.	5

Question 5

		AO3	AO4	Mark
(b)	When fibres are spun into yarn describe the effect the twist has on the finished yarn.		✓	3

*Answers that indicate an understanding of the effect of twist in yarn production should be awarded up to **3** marks based on:*

- Twists are put into yarns to make them stronger.
- The number of turns is a deciding factor for the end-use of yarn.
- A lower number of turns gives a softer, weaker and more bulky yarn suitable for knitting.
- A higher number of turns give a much stronger yarn suitable for weaving.

Guidance to markers

Incorrect/no answer	0
Brief description, very little detail for example: Twist makes yarns stronger.	1
Some detail with some understanding related to the twist in yarn for example: Whilst the twist generally makes yarns stronger, the number of twists determines the end use of the yarn.	2
Detailed level of understanding related to the twist in yarn for example: A low number of twists gives a weaker yarn suitable for knitting, for a stronger yarn more twists are needed for example a yarn suitable for weaving.	3

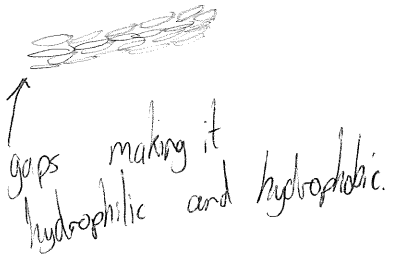
		Total	**8**

Examiner only

5. Fibres are the raw materials of textiles, each with specific properties depending on its structure and source.

(a) A wool fibre is both hydrophilic and hydrophobic. Using notes and sketches explain how the structure of wool fibre allows for both of these properties. [5]

wool is made with gaps throughout. This makes it breathable but how it is created also makes it an insulator as the heat can be trapped in the wool. It is made from sheep fur which is many hairs. This can keep the user warm and cool and comfy.



(b) When fibres are spun into yarn describe the effect the twist has on the finished yarn. [3]

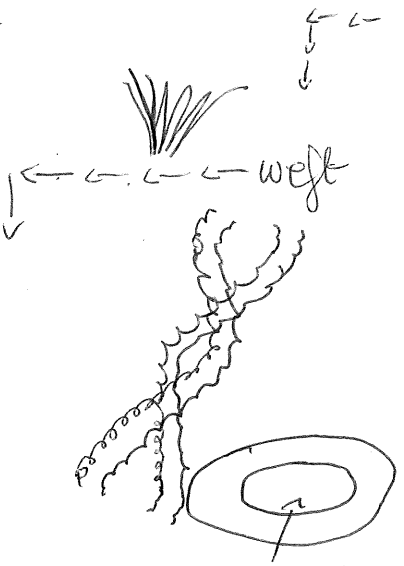
Spinning fibres into yarn makes the finished yarn stronger. The way the yarn is spun can depend on the effect it has on the twist and also which fibres are being spun. The fibres being spun make it less likely for the twist to break and fray.

Examiner only

5. Fibres are the raw materials of textiles, each with specific properties depending on its structure and source.

(a) A wool fibre is both hydrophilic and hydrophobic. Using notes and sketches explain how the structure of wool fibre allows for both of these properties. [5]

Wool is a natural fabure that is made from animal cellulosic protein and comes from animals such as sheep. The wool fibre is hydrophilic as it's strong and durable due to being spun on a S twist with more elasticity as it goes over & down which is why wool is more textured. It is hydrophobic due to the fact that it ~~doesn't~~ ~~have~~ absorbs water due to it's hollow fibre



(b) When fibres are spun into yarn describe the effect the twist has on the finished yarn. [3]

The amount of times that a fibre is pun around on a coil effects the finished yarn. If the fibre has been spun on a S twist (weft) it tends to be more textured fibre and if the fibre has been spun using a Z twist (warp) gives the yarn a more smooth finish and If it has been spun on the bias it creates a yarn like a satin which is ~~elas~~ non elastic and is more durable. ~~w not very~~ weak.

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Examiner only

5. Fibres are the raw materials of textiles, each with specific properties depending on its structure and source.

(a) A wool fibre is both hydrophilic and hydrophobic. Using notes and sketches explain how the structure of wool fibre allows for both of these properties. [5]

The wool fibre allows both hydrophillic and hydrophobic using its structure.

(b) When fibres are spun into yarn describe the effect the twist has on the finished yarn. [3]

When the fibres are twisted the yarn gets stronger, this is because several pieces of yarn have been joined together which makes it stronger.

Examiner only

9. All furnishing materials must comply with a range of standards and regulations before being considered suitable for use in textile products.

Evaluate the role of the British Standards Institute (BSI) in the commercial sector of the textile industry. [8]

Question 9

		AO3	AO4	Mark
	Evaluate the role of the British Standards Institute (BSI) in the commercial sector of the textile industry.	✓		8

*Candidates should provide evidence of appraisal and/or make judgements and show an understanding of the role of the BSI to be awarded up to **8** marks based on:*

- The British Standards Institution (BSI) is a service organization that produces standards across a wide variety of industry sectors including the textile industry. Its codes of practice and specifications cover management and technical subjects ranging from business continuity management to quality requirements.
- BSI sets the safety and technical standards for a wide range of products including those products made from flame-resistant materials – it is the law.
- BSI kitemark: when it is awarded and for what purpose.
  For example: Product standards in soft furnishings e.g. curtains, duvet covers, sofa covers – companies must ensure that their products are durable, can withstand a reasonable amount of wear and tear, withstand a reasonable amount of surface abrasion before pilling occurs.
  (*Accept other factually correct standards offered to exemplify the work of BSI/Kitemark*)
- Furnishing fabrics must be considered in terms of their ability to melt or burn.
- In any place where the public collect together furnishings must have flame resistant materials on them – a flame resistant finish can be sprayed onto these.
- The Furniture and Furnishings (Fire safety) Regulations states: all fabrics and padding materials used to cover or make settees, cushions, pillows and loose furnishings must be resistant to 'smouldering from cigarette ignition.'
- Standards ensure that materials live up to expectations for example colour fastness.
- Numerous tests have been set up and are in place to ensure all manufacturers abide by same rules and standards – consistency in the industry.

Accept other appropriate and factually responses.

Guidance to markers

• Incorrect/no answer	0
• Candidate has a simplistic knowledge. • The use of terminology and technical language is basic. • Brief description of the role of the BSI has in the furnishing sector • Little understanding evident; basic.	1-2
• Candidate has some basic understanding of the role the BSI has in the furnishing sector • The use of terminology and technical language is variable. • Some detail is evident; little evidence of appraisal or making judgements.	3-4
• The candidate has clear understanding of the issues associated with the question. • The use of terminology and technical language is mostly accurate. • More detailed description of the role the BSI has in the furnishing sector, clear evidence of appraisal and/or making judgements.	5-6
• The candidate demonstrates very clear understanding of the issues associated with the question. • Uses correct terminology and technical language. • Full and detailed description and understanding of the role the BSI has in the furnishing sector, very clear and highly relevant evidence of appraisal and/or making judgements.	7-8

Total	**8**

Examiner only

9. All furnishing materials must comply with a range of standards and regulations before being considered suitable for use in textile products.

Evaluate the role of the British Standards Institute (BSI) in the commercial sector of the textile industry. [8]

British Standards institute is in place to keep individuals from harm. Everything should be tested for example a flammibility test will take place. If it passes the product is good to sell. Many stores do have to recall many products because of complaints/concerns even if they did pass. The role is to protect individuals in the commercial sector to make sure they arent in risk of any harm to themselves. Health and safety assessments can also take place in the commercial sector. Every standard and regulation done before being considered suitable is put in place to ensure safety of the user and the maker. The BSI should only be on a product if it has been through everything and passed. If it is used and not passed the designer can lose the product all together.

Examiner only

9. All furnishing materials must comply with a range of standards and regulations before being considered suitable for use in textile products.

Evaluate the role of the British Standards Institute (BSI) in the commercial sector of the textile industry. [8]

The role of the BSI in the commercial sector would be to ensure that all safety regulations and labels on textiles products are correct so that constmers are not being falsely advertised and all precautions are taken place before using a product. Ensure that flammability from sofas and childrens toys are taken into consideration when labelled any flammable product in textiles. BSI make sure all care symbols are correct on products meaning that a product won't get damaged if it's looked after incorrectly. Even including TV commercials, that constmers are aware of safety precautions such as chemicals, dyes, sharpness so to reduce any chance of illness or injuries as cancers and long term illnesses can occur from chemicals and dyes. To make a consumer aware of a product (especially in cosmetics) if it's been tested on animals or if the product is Vegan and Cruelty free for no mistakes to occur for Vegans as constmers may have be a Vegan. BSI check if a textiles product is suitable to be advertised and if the commercial is appopriate to the product with no mis leading.

Aswell as in the commercial sector, in the manuf acturing process the BSI check if there's no safety issues during the making such as slavery, loose threads, machinery is used correctly, gloves and goggles are used in a work place and that everyone is safe in a work place. The BSI set out a risk assessment to ensure safety of

Examiner only

For continuation only.

9 Jexhites product. They make sure all sharp edges are hidden. The nsk assessment entail identifying the nsk, recording the nsk and who is at nsk, ~~taking actions~~ figuring out how to reduce the nsk, take actions and apply safety precautions and then over time evaluate the nsk for improvements.

Examiner only

9. All furnishing materials must comply with a range of standards and regulations before being considered suitable for use in textile products.

Evaluate the role of the British Standards Institute (BSI) in the commercial sector of the textile industry. [8]

British standards are ~~—~~ an institute / industry that check all products before they leave to go out to stores across the world. They check if the product is safe, for example no loose buttons on childrens clothes or no loose threads on anything to stop blood circulation. They also check if the fabric is durable for what it is made to go out to the stores to do. Most things pass the BSI but there's always one or two products that don't get by from each batch.