

**GCSE**

**Textiles**

**Technology**

**THEORY**

**BOOKLET**

Name:

Group:

---

# PROPERTIES AND CHARACTERISTICS

1. What are natural fibres?

2. Complete the table below:

FIBRE	SOURCE
Cotton	
	Flax plant
Wool	
	Silkworms

3. What are synthetic fibres?

4. Complete the table below:

FIBRE	SOURCE
	Oil and coal

5. What are regenerated fibres?

6. Complete the table below:

FIBRE	SOURCE
Viscose	
	Cotton fibres and acetic acid

# Fibres and Fabrics

---



# PROPERTIES AND CHARACTERISTICS

NATURAL – Cellulose (from plants)		
FIBRE	GOOD PROPERTIES	BAD PROPERTIES
Cotton		
Linen		

How are they used?

NATURAL – Protein (from animals)		
FIBRE	GOOD PROPERTIES	BAD PROPERTIES
Wool		
Silk		

How are they used?

# Fibres and Fabrics

# PROPERTIES AND CHARACTERISTICS

SYNTHETIC		
FIBRE	GOOD PROPERTIES	BAD PROPERTIES
Polyester		
Acrylic		

How are they used?

REGENERATED		
FIBRE	GOOD PROPERTIES	BAD PROPERTIES
Viscose		
Acetate		

How are they used?

# Fibres and Fabrics



# PROPERTIES AND CHARACTERISTICS

## MICROFIBRES

1. What is a microfibre? Give a definition and an example.
2. How are microfibres used?
3. What type of fibre can be heat treated to make textured yarns?
4. What are textured yarns used for and why?

## FIBRE BLENDS

1. Blending fibres can improve:
  - 
  - 
  - 
  -
2. Fill in the table below:

FIBRE BLEND	USE	ADVANTAGE
Cotton / Polyester		
Cotton / Elastane	Jeans	More comfortable and fit better with stretch
Acrylic / Wool	Trousers	

## MODERN MICROFIRES

1. Fill in the table below:

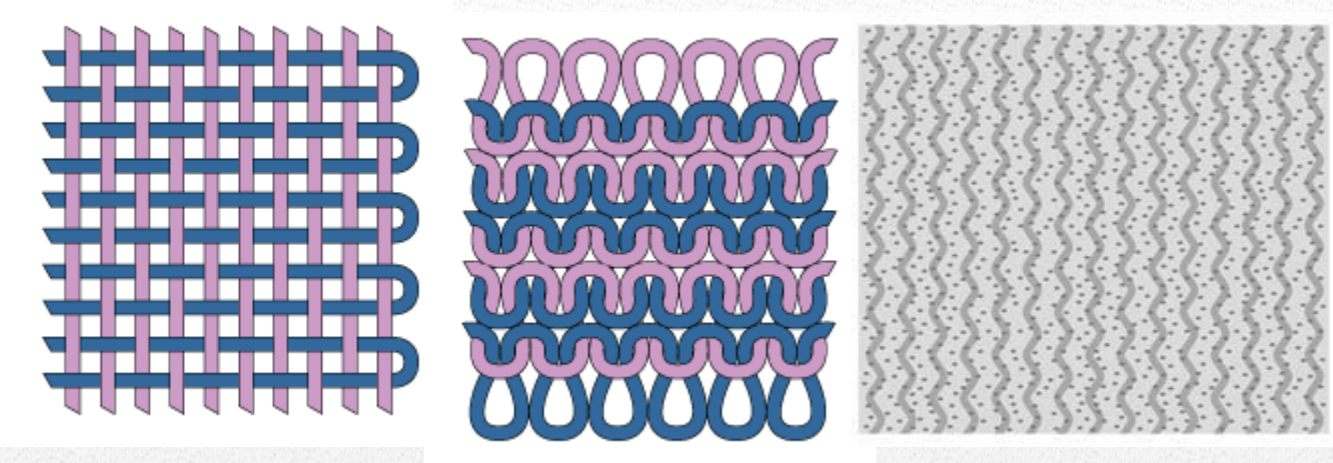
FIBRE BLEND	USE	PROPERTIES
Elastane (Lycra)		
Tencel		

# Fibres and Fabrics

# PROPERTIES AND CHARACTERISTICS

## CONSTRUCTION

1. Label the construction methods below:



2. Fill in the able below:

CONSTRUCTION METHOD	ADVANTAGES	DISADVANTAGES
Woven		
Knitted		
Non – Woven (Bonded)		

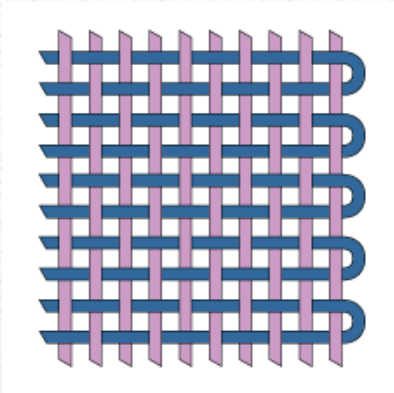
# Fibres and Fabrics



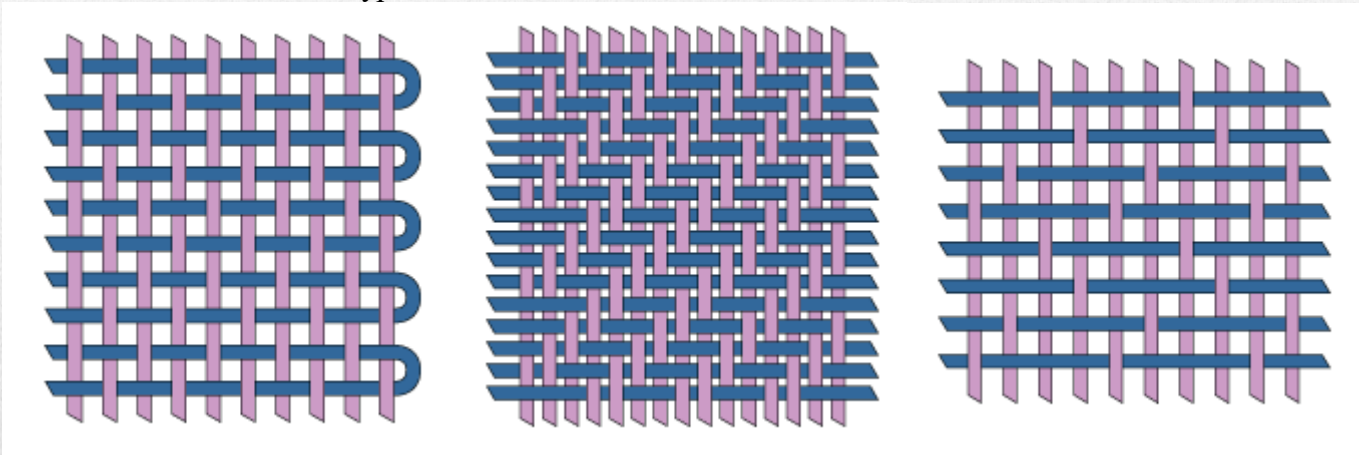
# PROPERTIES AND CHARACTERISTICS

## WOVEN

1. Label the diagram below with the WEFT, WARP, SELVEDGE.



2. Label the three types of weave below:



3. Fill in the table below:

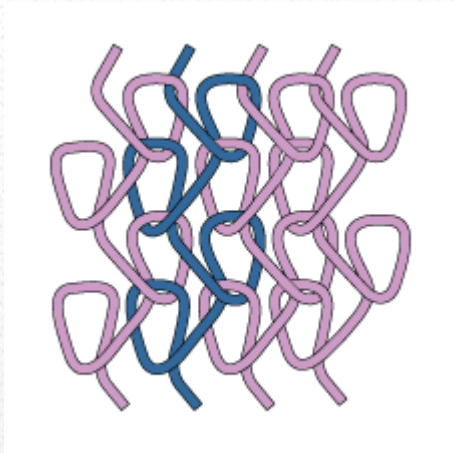
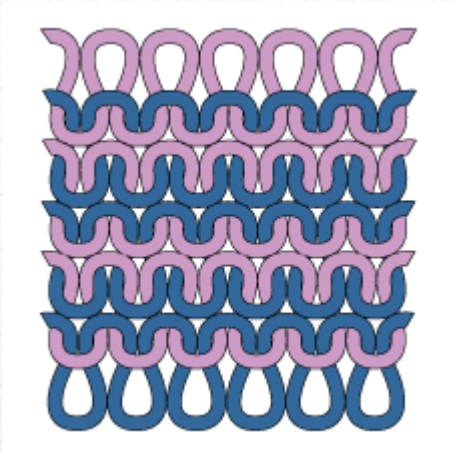
WEAVE	USE	PROPERTIES
Plain		
Twill		
Satin		

# Fibres and Fabrics

# PROPERTIES AND CHARACTERISTICS

## KNITTED

1. Label the two types of knit below:



2. Fill in the table below:

KNIT	USE	PROPERTIES
Weft		
Warp		

## BONDED

1. How are bonded fabrics created?

2. Fill in the table below:

CONSTRUCTION METHOD	ADVANTAGES	DISADVANTAGES	USES
Bonded			

3. Name a bonded fabric and explain how it is created and what it is used for.

# Fibres and Fabrics



# PROPERTIES AND CHARACTERISTICS

## MODERN AND SMART MATERIALS

1. What are the definitions of the following:
  - Smart fabrics :
  - Modern fabrics:

2. Fill out the table below:

	TECHNOLOGY	PROPERTIES	USE
Microfibre	Woven polyester		
Polar Fleece			
Gore – Tex			
Microencapsulated			
Heat sensitive		Micro-encapsulated dye can change colour in response to heat (lasts for 5-10 washes)	
Light sensitive			T-shirts military clothing

# Fibres and Fabrics

# PROPERTIES AND CHARACTERISTICS

## COMBINATION FABRICS

1. What is meant by a ‘combination’ fabric?

1. Fill out the table below:

FABRIC	PROPERTIES	END USE
Interfacing		
Quilted		
Gore – Tex		
Kevlar		
Thinsulate		

# Fibres and Fabrics

---



# PROPERTIES AND CHARACTERISTICS

## TECHNOLOGY IN TEXTILES

1. What fabric technology could we use to make us more stream line in water?
2. Where have we gained the inspiration in developing this technology?
3. What are the benefits of using memory form and in what products?
4. How and why do we use smart-shape-memory alloy in textiles?

## CHOOSING MATERIALS

1. Match the product to the correct set of fibre properties:

Cycling jackets	needs to be strong, durable, flame resistant and water resistant. It may also need to be breathable and elastic.
Children's jumpers	need to be made from strong, durable, flame-resistant materials.
Seat belts	need to be made from fabric that is warm, breathable, elastic, windproof and water resistant.
Fire-protective clothing	need to be strong and durable so they stop embankments from slipping.
Geotextiles	need to be made from fabric that is soft, colourful, stretchy, warm and easy care.

2. What set of properties would be needed of a fabric that would be used to make a toddlers educational toy?

# Fibres and Fabrics

# DYEING AND PRINTING

## DYEING

1. How is fabric prepared before dyeing?
2. What effects the strength of a dye colour?
3. What are the **two** types of commercial dying and can you describe them?

## PRINTING

Fill in the below table about **two** types of printing:

Printing Method	Equipment Needed	Good Points	Bad Points

Below, describe the process of using one of these printing methods. Use diagrams if needed.

# Finishing Processes



# DECORATION AND ENHANCEMENT

## APPLIQUE

1. What is the definition of ‘applique’?
2. What stitch is used and why?

## RESIST DYING (TYE DYE AND BATIK)

Fill in the below table about **two** types of resist dying:

	Equipment	How it works	End uses
Tie Dye			
Batik			

## EMBROIDERY

1. Name three embroidery stitches
- - 
  -

Below, describe how one of these embroidery stitches are created. Use diagrams if needed.

# Finishing Processes

# FINISHES

Finishing is.....

## MECHANICAL FINISHING

Mechanical finishing is...

Examples of mechanical finishing (fill out the table):

Type of Finish	Description
Brushing	
	used for thermoplastic fabrics (polyester and nylon). The fabrics are set in permanent shapes or pleats.
	is the industrial equivalent of ironing. It smoothes the fabric and improves its lustre. Engraved calendar rollers are used to emboss relief patterns on the fabric surface.

## CHEMICAL FINISHING

Chemical finishing is...

Examples of chemical finishing (fill out the table):







Type of Finish	Description
	Cotton and synthetic fabrics are bleached before ..... This makes it easier to dye pastel shades.
Mercerising	
Shrink resist	
	Cotton and viscose fabrics are given a ..... finish using resin. This makes them easy care. They dry fast and smooth and need little ironing.
	Children's nightwear and cotton/viscose furnishings must by law be given a ..... finish. This often makes the fabric stiffer and weaker.

# Finishing Processes

---



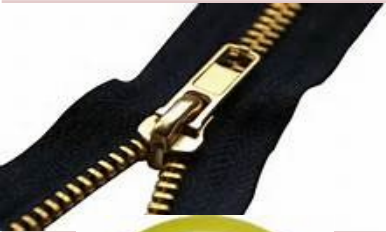






	Name of equipment	How and why it is used
		
		
		
		
		
		

# Equipment

---

# FASTENING COMPONENTS

	Name of component	How and why it is used?
		
		
		
		
		

Discuss the advantages and disadvantages of one of the above components.

# Components

---



1. What is the definition of a 'trend forecast'?
2. How do trend forecasts influence a designers future designs?
3. List 5 types of research a designer could do before designing:
  - 
  - 
  - 
  - 
  -
4. List 5 types of design criteria for a product that a designer must consider:
  - Size
  - 
  - 
  - 
  -
5. Analysis the product below.



The target market is 16 – 21 males.  
It is for casual use in the summer.  
It is made from 100% cotton.

ADVANTAGES:

DISADVANTAGES:

ALTERNATIVES:

# Product Analysis

---



1. What is the definition of the following terms?

- Sustainable:

- Fair trade:

- Organic cotton:

- Bio fibres:

- Biodegradable fibres / fabrics:

2. What is the difference between a recycled and reused product?

3. Discuss why parents would prefer to buy organic and fair trade clothing for their children?

4. What do the logos below mean?

















# **Social, Cultural, Moral, Health and Safety and Environment Issues**

---



1. What information does a care label contain and why are they important for textile products?

2. Fill out the table below about care symbols:

Care Label	Instruction	Care Label	Instruction
			
			
			
			
			
			
			

# Social, Cultural, Moral, Health and Safety and Environment Issues

---





1. What is the definition of the following terms?

- JIT (Just In Time) :

- Sub assembly:

2. Fill out the table below about types of production methods:

Type of manufacturing process	Example of product made	Target market	Companies / stores
Mass			
Batch			
One off			

3. Discuss the advantages and disadvantages of one of the types of manufacturing process's above.

4. How could you neaten the edges of raw seams? What equipment would you need? How does it work? Why is it beneficial?

# Processes and Manufacture

---

1. What is the definition of a working drawing and how is it used in Textile design?
2. What is a prototype and how is it used within the design process?
3. Create a flow chart to show the making of the cushion below.  
It has a zip fastening as well as applique and printed decoration.

**TIP:** For the highest marks add as much information as possible including potential hazards and quality control checks.



Use the following boxes in your flow chart:

START / FINISH

INSTRUCTION

?

# Production Planning

---





	CAD	CAM	CNC
Definition			
Equipment			
Advantages			
Disadvantages			

# Information, Communication Technology

---





## FIBRES AND FABRICS

Date:

- |    |     |
|----|-----|
| 1. | 6.  |
| 2. | 7.  |
| 3. | 8.  |
| 4. | 9.  |
| 5. | 10. |

Score: /10

Retest? Y / N

Date:

Score: /10

Area to improve:

## FINISHING PROCESS

Date:

- |    |     |
|----|-----|
| 1. | 6.  |
| 2. | 7.  |
| 3. | 8.  |
| 4. | 9.  |
| 5. | 10. |

Score: /10

Retest? Y / N

Date:

Score: /10

Area to improve:

## EQUIPMENT / COMPONENTS

Date:

- |    |     |
|----|-----|
| 1. | 6.  |
| 2. | 7.  |
| 3. | 8.  |
| 4. | 9.  |
| 5. | 10. |

Score: /10

Retest? Y / N

Date:

Score: /10

Area to improve:

## SMCE

Date:

- |    |     |
|----|-----|
| 1. | 6.  |
| 2. | 7.  |
| 3. | 8.  |
| 4. | 9.  |
| 5. | 10. |

Score: /10

Retest? Y / N

Date:

Score: /10

Area to improve:

# Mini Tests

---



## FIBRES AND FABRICS

Date:

- |    |     |
|----|-----|
| 1. | 6.  |
| 2. | 7.  |
| 3. | 8.  |
| 4. | 9.  |
| 5. | 10. |

Score: /10

Retest? Y / N

Date:

Score: /10

Area to improve:

## MANUFACTURING PROCESS

Date:

- |    |     |
|----|-----|
| 1. | 6.  |
| 2. | 7.  |
| 3. | 8.  |
| 4. | 9.  |
| 5. | 10. |

Score: /10

Retest? Y / N

Date:

Score: /10

Area to improve:

## ICT

Date:

- |    |     |
|----|-----|
| 1. | 6.  |
| 2. | 7.  |
| 3. | 8.  |
| 4. | 9.  |
| 5. | 10. |

Score: /10

Retest? Y / N

Date:

Score: /10

Area to improve:

## SMCE

Date:

- |    |     |
|----|-----|
| 1. | 6.  |
| 2. | 7.  |
| 3. | 8.  |
| 4. | 9.  |
| 5. | 10. |

Score: /10

Retest? Y / N

Date:

Score: /10

Area to improve:

# Mini Tests

---