Name:

Teacher:

Form:

Textiles Year 9 Homework Booklet 2 Spring term

My teacher is going to test me on all of my homework at the start of each lesson.

For my technical knowledge I need to know:

- How to spell the word correctly
- What the meaning is
- How and where it is used.

Date	Test number & total mark	My mark	%
	Test 1 - 8 marks		
	Test 2 - 12 marks		
	Test 3 - 14 marks		
	Test 4 – 6 marks		
	Test 5 – 8 marks		
	Test 6 – 4 marks		
	Test 7 – 12marks		
	Test 8 – 8 marks		
	Test 9 – 11 marks		
	Test 10 – 5 marks		

Date	Test number & total mark	My mark	%
	Test 11 – revision		
	Test 12 – 88 marks End of module test		
Learning towards excellence UPUR			
How I have performed What I need to do			

Homework 1 – Read and learn from the extract "The impact of Technology on Fashion"- from the booklet page 38

The main technological developments in textiles have been in new and improved fibres and fabrics, and automated clothing manufacture.

Viscose rayon, the first man-made fibre, was invented in the late Victorian era and called *artificial silk*. It was first produced in the UK in 1905 and was used for clothing in the 1920s.

In the 1940s the development of *high tenacity rayon* and *high wet-modulus rayon* in the 1950s gave improved strength to the fibre.

Viscose started to become more popular during the 1980s when there was a consumer backlash against the use of synthetic fibres. It is a useful alternative to cotton and the rising cost of cotton in 2010 led many manufacturers to use rayon fabrics for their newest designs. Isaac Mizrahi is one of the designers to use rayon fabrics in his latest designs.

Synthetic fibres were developed during the 1930s and 1940s and came into general use during the 1950s and 1960s. They have been important in the development of easy-care fabrics.

Nylon was the first synthetic fibre developed as an alternative to silk in 1935. It was used for many products after silk became scare during WW2; nylon stockings in 1940, parachutes and other military applications.

Polyester was developed in the 1940s as a result of the work done into the development of nylon. It was initially known as *Terylene* in the UK. Polyester fibres came into general use in the 1950s.

Acrylic was first made by Du Pont in 1941 when it was known as *Orlon* and *Acrilan*. *Dralon* is a brand name still in use today.

Elastane fibres were developed in America in 1959 and were called *Spandex* which is an anagram of *expands*. It is also known as *Lycra*. These fibres became very popular during the 1960s and have revolutionised many areas of clothing.

Chemists continue to improve fibres. **Microfibres** were developed in Japan during the 1960s and *Ultrasuede* was one of the first uses in the 1970s. They began to be used for a wider variety of applications in the 1990s, including sportswear and underwear.

Fabrics were developed specifically for sportswear:

Membrane systems such as Gore-Tex and Sympatex were developed in the late 1960s and began to be used in the 1970s.

Polyester **Polar Fleece** began to be produced in the 1980s.

Moisture management fibres such as Tactel (1983) and Coolmax (1986).

Tyvek developed in the 1960s is a non-woven fabric which allows water vapour to pass through but not water in liquid form.

Smart materials and electronic textiles are developing all the time and have a variety of health and well-being, sports, safety and fun applications.

Nano-fibres are being developed for a number of applications including self-cleaning textiles and sportswear applications.

Modern fabric finishes have allowed fabrics to be more suited to their end uses and easier to care for. **Water-repellent fabric finishes** are based on the use of fluoro-carbons rather than the older wax treatments. New finishes mean that **wool fabrics** can be machine washed and tumbled dry. The inclusion of thermoplastic fibres, such as polyester, allows fabrics to be shrink and crease resistant.

Homework 1 – Test – Fill in the gaps "The impact of Technology on Fashion"

Question	Answer
When was nylon developed and what was it an alternative for?	
Why was viscose popular in the 1980's. What is it an alternative for?	
Give two examples of a modern fabric finish	
What applications do smart materials have?	

Total /8 marks

Homework 2 – Environmental impact of textiles.

Research the 6’rs, what are they and find examples to discuss each one.

Homework 2 – Test : Environmental impact of textiles

Name and explain each of the 6r’s

Total	/12marks

Homework 3 – Environmental impact of cotton.

Research from the fibre to a textile product in the home, ensure you have one positive and one negative

- Fibre – growing
- Fibre production
- Fabric production
- Dyeing & Finishing
- Garment Production
- Retail
- Homecare & disposal

Reading on next slide and for additional research see links below

https://wearnothingnew.typepad.com/wear-nothing-new/2010/12/environmental-impacts-of-fabric-cotton.html

https://www.worldwildlife.org/magazine/issues/spring-2014/articles/handle-with-care

https://www.organiccotton.org/oc/Cotton-general/Impact-of-cotton/Risk-of-cotton-processing.php

Risks of cotton processing

Environmental risks

All major processing stages along the cotton value chain such as dyeing, bleaching and finishing use large amounts of chemicals of various toxicity and hazardous

Most of these chemicals, such as heavy metals, formaldehyde, azo dyes, benzidine or chlorine bleach, cause environmental pollution by the mills' waste water and many can be found as residues in the finished product. Some of them affect consumers' health and are suspected of causing allergies, eczema or cancer (PAN UK, 2006).

Over the past two decades, many improvements have been made: chemicals are increasingly recycled or replaced by safer alternatives, and waste water is treated so as to reduce pollution. However, these improvements mainly concern processing mills in rich countries, and sub-standard environmental practices are common in developing countries, where most clothes are made. In Northern countries, many hazardous chemicals have been restricted or banned. Recently, the European Union prohibited the use of azo dyes and restricted the use of formaldehyde.

Different textile standards define the production of cotton, its trade and strict limits concerning the use of harmful chemicals in the processing of cotton. Important for the production of organic cotton textiles is the "Global Organic Textile Standard" (GOTS) which was developed by the "International Working Group on a Global Organic Textile Standard". The standard sets criteria for all stages of production and processing along the entire textile value chain.

Energy use in cotton processing is high due to two main factors. Firstly, there are many different, highly mechanised processing stages that mainly depend on finite energy sources. Secondly, due to the increasing globalisation of the cotton value chain, the processing mills of different stages are located in far-flung regions of the world. For this reason, transport distances from the place where the cotton is harvested along the various processing steps to the final cotton product are normally huge.

Socio-economic risks

There has recently been a strong trend among retailers to shift their processing mills to low-wage countries in order to increase their competitiveness. However, many textile factories in these countries do not comply with national and international minimum regulations regarding labour rights.

Common problems for workers in textile processing factories include:

Low wages: Workers are paid wages below the minimum required to guarantee decent living conditions for them and their families.

Long working hours: Many employees have to work more than 48 hours a week, which is the maximum number of working hours according to Convention 1 of the International Labour Organisation (ILO)

Risks at work: Workers often face health risks due to a lack of safety precautions and appropriate equipment. The workers are exposed to hazardous chemicals used for cotton dyeing or finishing, to dust and to equipment without safety mechanisms.

Employee participation: Freedom of assembly and the ability to participate in trades unions, which allow employees to express their view in a company, are often restricted or banned.

Child labour: It is still common to find children employed not only in cotton processing mills but also in large-scale cotton production. An alarming example is Uzbekistan where every year the government closes schools down and sends children to pick cotton in the pesticide-contaminated fields.

Discrimination: There is frequent discrimination against women, elderly or disabled people in factories. The lack of binding labour agreements adds to the problem.

Homework 3 – Test: Environmental impact of cotton.
Fill in the impact, do not repeat any points.

Total /14 marks

Cotton	Positive	Negative
Fibre – growing		
Fibre production		
Fabric production		
Dyeing & Finishing		
Garment Production		
Retail		
Homecare & disposal		

Homework 4 : - Maths in Design Technology – Textiles Percentages

Complete on Mr Hegarty: Maths 84 Find percentages of amounts 1 (common % non-calc)

https://hegartymaths.com/find-percentages-of-amounts-1-common-non-calc

Watch the video and make notes below.

Complete the quiz, you must achieve 80%

- Quiz – Your teacher will upload your results to monitor your performance, however you record it below.

My quiz result is…….

Homework 4 - Test: Mr. Hegarty Maths

Test

Show your calculations:

1 – 90% of £250

2- 30% of 520 metres

3- 30% of 25mm

……. Marks/6

Homework 5: Pattern symbols

Learn the symbols below

Layout Markings

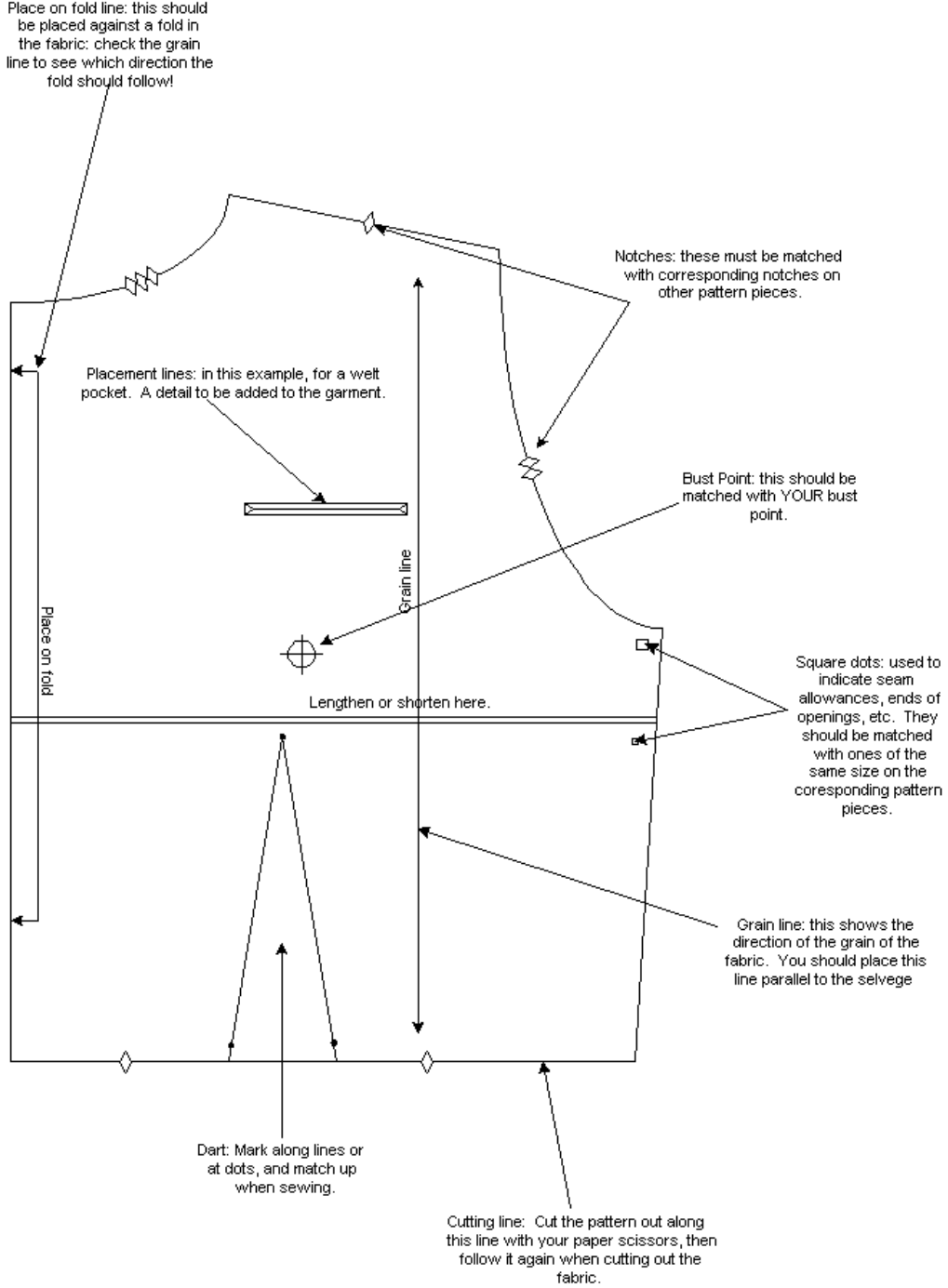
Grainline: This heavy, solid line with arrows at both ends is usually in the center of the pattern, although it can appear anywhere within the pattern piece. Use it to ensure the pattern is positioned along the straight grain of the fabric, so that the garment or project hangs properly. Unless otherwise indicated, pin the pattern piece so the grainline is parallel to the fabric selvage.

Place on Fold Bracket: This solid line with arrows that point to the pattern piece edge, indicates that the piece should be positioned along the fabric fold. This usually applies to garments that do not have a center front or center back seam.

Notches: Diamond or trapezoidal shaped symbols along the seamline are used both in pattern layout and during construction. When you are laying out the pattern pieces to match a plaid, stripe or large design, position adjoining notches so that the fabric at the seamlines (not the cutting lines) will match when the seams are sewn.

Cutting Markings

Cutting Line (single size): The outer line of the pattern piece provides a guide for cutting the fabric. The line sometimes has an illustration of tiny scissors on it.



Homework 5: Test Pattern symbols

Total /8 marks

Explain the symbols the symbols below

Symbol	Explanation
	
	
	
	

Homework 6: Production systems

Research what is: one –off, batch and mass production, positives , negatives and an example.

Production system	Explanation and example	Positive	Negative
One-off		1 2	1 2
Batch		1 2	1 2
Mass		1 2	1 2

Homework 6: Test Production systems

Draw a line to link **each** product description to the production system used to manufacture the product.

Product description	Production system
Summer 2013 dresses for a high street store	One-off production
Wedding dress made for a royal wedding	
Supermarket school uniform gingham summer dress	Mass production
Wedding dress made for a high street wedding dress shop	Batch production

Homework 7: Production systems

Research what is: one –Sub-assembly and JIT , positives , negatives and an example.

Production system	Explanation and example	Positive	Negative
Sub assembly		1 2	1 2
Just in time (JIT)		1 2	1 2

Homework 7: Test Production systems

Total /12 marks

Research what is: one –Sub-assembly and JIT , and 2 positives , negatives

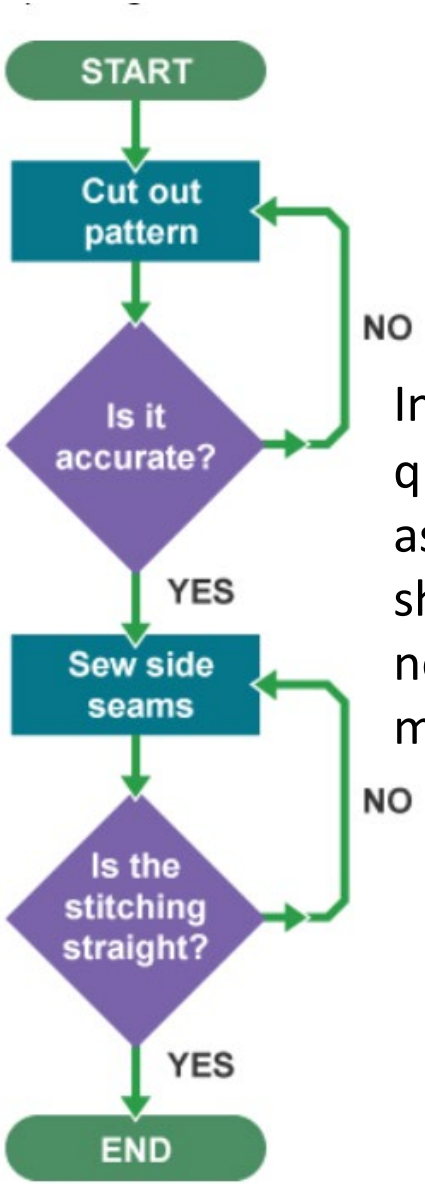
Production system	Explanation and example	Positive	Negative
Sub assembly		1 2	1 2
Just in time (JIT)		1 2	1 2

Homework 8: Quality Control (QC)

- Quality control (QC) is the system of checks throughout the manufacturing process to make sure each step is completed to a high standard.

Quality control checks might be carried out:

- before manufacture to ensure fabric has no faults or misprints
- during manufacture to ensure seams are sewn straight, stitching is even in length and neat
- after manufacture to ensure components are sewn on straight and sewing is strong



In manufacturing **flowchart,** quality control checks are placed as decisions in diamonds to show where a step would be need repeating if there was a mistake.

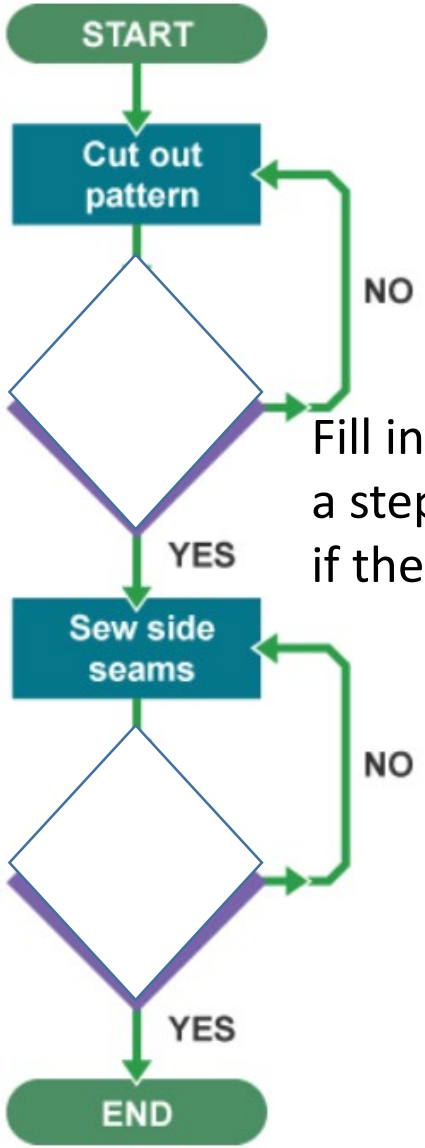
Homework 8: Test: Quality Control (QC)

Total / 8 marks

Quality control (QC) is the system of checks throughout the manufacturing process to make sure each step is completed to a high standard.

Quality control checks might be carried out, list 3 below.

1	
2	
3	



Fill in diamonds to show where a step would be need repeating if there was a mistake.

Homework 9: Costing

Learn the key components of a costing are:

Fabric: the main one

Trims: any other fabric or component

Labour: the cost per minute for sewing multiplied by the length of time to sew.

Overhead: Fixed and Indirect e.g. electricity, transport, advertising

A costing example below

	Draw String Bag			1 unit one off
	Component list	Usage mt/mins	cost /metre	Price
Fabric	Basic cotton ref 123 - A Rowe	0.25	£5.00	£1.25
				£0.00
Trims	Cord	1	£0.50	£0.50
				£0.00
Thread	Coats	5	£0.10	£0.50
Labour	Lockstitch	4	£0.15	£0.60
	Over locking	1	£0.15	£0.15
			Sub total	£2.85
Overheads	at 50% of cost			£1.43
		Total cost		£4.28

Homework 9: Test: Costing

Total	/ 7 marks

What are the key components of a costing:

1	
2	
3	
4	

From the costing total cost below work out 10% profit and together for the selling price Show your calculations.

	Draw String Bag			1 unit one off
	Component list	Usage mt/mins	cost /metre	Price
Fabric	Basic cotton ref 123 - A Rowe	0.25	£5.00	£1.25
				£0.00
Trims	Cord	1	£0.50	£0.50
				£0.00
Thread	Coats	5	£0.10	£0.50
Labour	Lockstitch	4	£0.15	£0.60
	Over locking	1	£0.15	£0.15
			Sub total	£2.85
Overheads	at 50% of cost			£1.43
		Total cost		£4.28

10% profit =

Selling price =

Homework 10: Costing – Material usage

Calculation sizes

When calculating the amount of fabric needed for a project, a seam allowance of 1.5 cm should always be taken into account.

Example

A double-sized duvet cover must measure 200 cm × 79 cm when sewn. How much fabric is needed to make it?

With a seam allowance of 1.5 cm either side:

$200 + (1.5 \times 2) = 203$

$79 + (1.5 \times 2) = 82$

Area:

$203 \times 82 = 16{,}646\ cm^2$

For both sides of the cover:

$16{,}646 \times 2 = \mathbf{33{,}292\ cm^2}$

Using the example as a model answer work out the **question** below:

A quilt for a bed must measure 120 cm × 190 cm when sewn and will be made from patchwork squares of fabric.

If each patchwork square measures 9.5 cm × 9.5 cm,

How many pieces are needed to make the finished quilt?

Note: Don't forget to allow for the seam allowance of 1.5cm.

Homework 10: Test: Costing – Material usage

Total	/5 marks

Question

A quilt for a bed must measure 120 cm × 190 cm when sewn and will be made from patchwork squares of fabric. If each patchwork square measures 9.5 cm × 9.5 cm, how many pieces are needed to make the finished quilt?

Note: Don't forget to allow for the seam allowance of 1.5cm.

Homework 11 – End of module test.

How to revise - strategies:

- Mind maps
- Q & A Cards
- Practice and repeat past questions