

Section Six — Knowledge Organiser

With textiles, there are a lot of threads to follow. Thankfully, we've gathered the key points on these pages...

Properties of Fabrics

Fabrics are sold in standard widths.

	Fabric	Properties
Sportswear	polyester	light, breathable, resists abrasion, strong (even wet), dries quickly
	elastane	light, breathable, very stretchy, not absorbent
	polyamide	light, breathable, thermal insulator, easy to wash
Furnishings	cotton	soft, durable, resists abrasion
	acrylic	soft, durable, warm, resists fading
	wool	soft, durable, strong, warm

Textile Treatments

Flame retardance — makes fabric **less likely** to catch fire. May be **washed out**. Uses: e.g. children's pyjamas.

Stain protection — stops **grease/dirt** penetrating fabric. E.g. **silicone** and **fluorine** compounds or **Teflon™** coating.

Water-resistant finishes — stops water droplets passing through fabric, e.g. in coats and tents.

Laminated Fabric

Two or more layers of material **stuck together**. E.g.

- add **foam** layer to make fabric **insulating**
- add fabric layer to **delicate fabric** for **strength**
- add **PVC** layer to fabric to make **waterproof**

PVC layer will rot-proof fabric too.

Standard Tools

Cutting Tools

paper scissors



used to cut out patterns

dressmaking scissors



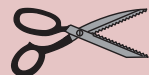
used to cut fabric

embroidery scissors



used to cut thread and seams

pinking shears



used to prevent fraying

craft knife



used to cut stencils from paper and card

seam ripper



used to cut stitched thread and unpick seams

Sewing Tools



Needles — hand stitching, embroidery, attaching, tacking. Different **sizes** for different fabric/thread **thickness**.

Pins — hold fabric pieces **together**.

Measuring and Marking Tools

Measuring tape — flexible to follow curved surface.



Tailor's chalk — for marking out.



Pattern master — for making patterns.



Pressing Tools

- **Dry irons** — heat and pressure remove creases and flatten seams.
- **Steam irons** use water and steam as well — **more effective**.

Also used to **apply designs** — e.g. from transfers, fixing fabric crayons/pens.



Standard Fastening Components



Zips

secure, simple, hard-wearing, can be decorative

can snag delicate fabric



Toggles and buttons

easy to attach and replace, decorative

can fall off, can be damaged in wash

Hook and loop (e.g. VELCRO®)



safe, soft, machine washable, hard-wearing

hooks get less sticky, not decorative



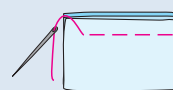
Press studs (poppers)

open/close quickly, many sizes/strengths

not decorative

Pinning and Tacking

Pinning — hold fabrics together by putting pins at **right angle** to **edges** of fabric.



Tacking — hand sewing **long running stitches** to temporarily hold fabrics together. **More secure** than pinning.

CAD/CAM and Fabrics

Embroidery machines — use CAD to **sew designs**. Many needles and threads, changed **automatically**.

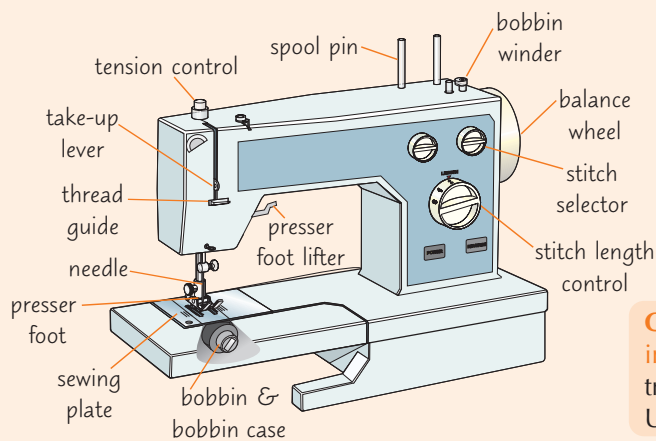
Knitting machines — CAD **controls stitch pattern**. Make rolls of **knitted fabrics** or **one-piece garments**.

Cutting machines — automatically **cut many layers** of fabric **at once**, following CAD instructions.

Industrial sewing machines — can carry out **tricky processes** (e.g. sewing buttons/pockets) **automatically**.

All very **fast**, **accurate** and easily adapted.

Sewing Machines

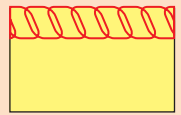


Sewing machines use **two threads** — one on **bobbin** under sewing plate, one on **spool pin** at top. Threads **interlock** to make **stitches**.

Before starting:

- choose the **right needle** for **fabric/thread**.
- make sure needle and thread fastened **securely**.
- stitch on a **sample** of fabric to check **thread tension**, **stitch type** and **stitch length**.

Overlocker — finishes edges by **enclosing in thread** to prevent **fraying**. Can sew, trim and neaten seams all at once. Used for **side seams** in **stretchy** clothes.



Seams and Piping

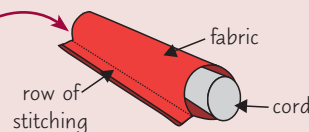
Plain (flat) seam — simplest, not very strong.

French seam — encloses raw edges, **strong** but **not bulky**.

Flat-felled seam — plain seam **edges enclosed** by **wrapping** one edge around other. All ironed flat then **second line** stitched on top. **Strong** but **bulky**.

Piping — **cord/folded fabric** sewn **inside** strip of material. Gives **decoration**, **strength** and **definition** to seams.

1. Pin fabric with outward-facing sides touching.
2. Stitch about 1.5 cm from edge of fabric.
3. Reverse back over seam for a few cm to strengthen.
4. Finish edges to prevent fraying and iron flat.



Dyeing Fabrics

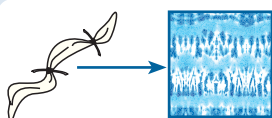
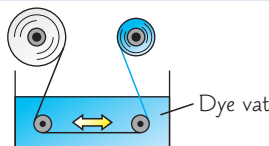
Natural dyes — from fruits, flowers, etc.

Chemical dyes — invented in 1850s. **Brighter**, **cheaper**, **more consistent** than natural dyes, but can be **toxic**.

Mordant — substance, e.g. salt, that **fixes colour** to fabric so it doesn't wash out.

Resist — something that **stops dye** reaching fabric.

Batch dyeing — dyes **lots** of fabric at once by passing fabric through dye between two rollers. Used **commercially**.



Tie-dyeing — fabric tied with **string/rubber bands** to form resists. Untied after dyeing. Forms **unique** patterns.

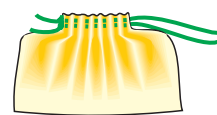


Batik — fabric stretched over frame. **Wax resist** painted on to form **pattern**. **Dye** painted on. Wax removed with **iron**.

Natural fibres are easier to dye than synthetic fibres.

Shaping Fabrics

Quilting — soft material (**wadding**) stitched between two layers of fabric. **Warm**, as air **trapped** between layers.



Gathers:

- 1) **Knot** threads at start of stitching.
- 2) Sew **two parallel rows** of small **running** stitches.
- 3) **Pull** threads and **ease** fabric along.
- 4) **Knot** the threads to **fix** gathering.



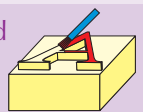
Pleats:

- 1) **Mark** positions of pleats **evenly** along fabric.
- 2) **Fold** pleats, **pin** in position.
- 3) **Stitch** across **top** to **fix** pleats in place.
- 4) **Press** pleats with iron to give **sharp creases**.

Printing Techniques

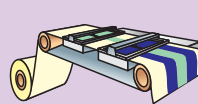
Hand printing

Block printing — ink applied to **raised surface** on block. **Pressed down** on fabric, leaves **reversed image**.



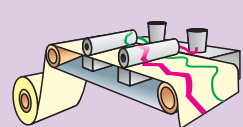
Flat-bed screen printing — **stencil** of design put under a **fine mesh screen**. Ink **pushed** through screen onto fabric with **squeegee**, printing design.

Industrial printing



Flat-bed screen printing — automated. Fabric on **conveyor belt** under screens. Multiple screens apply **multiple colours**.

Rotary screen printing — as flat-bed, but screens are on **cylinders** with dye and squeegee **inside**.



Finish your revision so you don't get frayed in the exam...

Be sure you know the tools, techniques and components you need to make and finish a textile product.