

Knowledge Organiser - Year 8 Textiles

Product Analysis

A	is for	Aesthetics
C	is for	Cost
C	is for	Customer
E	is for	Environment
S	is for	Size
S	is for	Safety
F	is for	Function
M	is for	Material
M	is for	Manufacturing

Stitching	Pattern
Quality	Neat
Fabric	Untidy
Colour	Sewn
Comfortable	High
Stretchy	Low
Appealing	Loose
Soft	Elastic
Smooth	Elasticated
Pocket	draw cord
Rough	waistband
Design	

Fabric Properties

Fabric properties are the characteristics of a specific fabric. The properties of a woven fabric are very different to a knitted fabric. We need to understand how fabric behaves and performs to pick the most suitable fabric for the end use. Key properties are: **weight, drape, strength, breathability, durability, softness.**

Construction Techniques

Plain Seam

A seam is the method of joining two pieces of fabric together with a line of stitching. Marking out **your seam allowance (1.5cms)** is vital.



Double folded hem

A finishing method where the raw edge of the fabric is folded under and stitched in place. **Tacking** is key to an accurate finish.



Patch Pocket

A pocket made from a separate piece of fabric and sewn onto the outside of a garment.

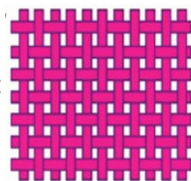


Fabric Construction

Fabric is made by weaving or knitting yarns together.

Woven

The yarns are interlaced at right angles creating a strong, stable fabric.



Knitted

The yarns are knitted together in loops to create a stretchy fabric.



CAD – Computer Aided Design

CAM – Computer Aided Manufacture



Functions of sewing machine parts

Needle	Creates stitching by piercing through the fabric and taking the upper thread and joining it with the lower thread.
Foot Pedal	Controls the machine. The harder you press, the faster the machine will go.
Presser Foot	Holds the fabric in place whilst sewing.
Presser Foot Lever	Lifts and lowers the presser foot.
Hand Wheel	Lifts and lowers the needle. Used to turn corners by lowering the needle into the fabric to make it the pivot point.
Spool Pin	Holds the upper thread in place.
Bobbin	Holds the lower thread on the sewing machine.
Reverse Sewing Button	Reverses the needle to reinforce your stitching at the beginning and end of your stitch line.

Production Systems – Batch Production



Batch production is a technique used in manufacturing, in which the object in question is created **stage by stage** over a series of **workstations**.

It is manufacturing **set quantities** of **identical** textile products to order in a range of **standard sizes**.

The quantity of products can vary from a set of four cushions made by a designer-maker, to 20,000 jumpers made for a department store.

Workers repeat tasks so can go quicker therefore produce more.

Each batch is completed before the next batch is started.

This system is used for fashion and seasonal items which are regularly changed and aren't required in continual large quantities.

Year 8 D&T Core Knowledge Organiser

Design Influences

Fashion, Trends, Taste and Style

All consumer products are subject to fashion, trends, taste and style. Popular colours, shapes, patterns and forms can all be identified through the analysis of existing products. Some materials are more fashionable than others for different products. Market research is an important factor in understanding trends and taste. Designers also need to be aware that trends can change quickly.



Marketing and Branding

A product's success is partly due to how it is introduced to its target market group. If a consumer is made to feel that they need a product and it will somehow help them, or improve their lives, they are more likely to consider buying it. Some of the best-designed products have not been branded or marketed properly and therefore people are not aware of their existence!



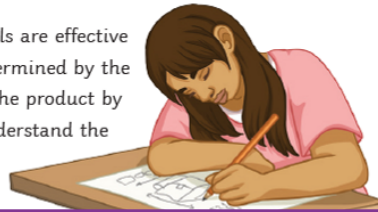
The Impact on Usability

As products evolve, with the use of better manufacturing techniques and new technology, usability is enhanced. This impacts different products in different ways. For devices like mobile phones, the usability of modern smart phones is enhanced beyond measure with the introduction of the internet, app software and Wi-Fi connectivity.



Materials, Components and Processes

Through product analysis, a designer can determine which materials are effective or necessary for a particular need. The function of a product is determined by the components used and a designer can evaluate the performance of the product by looking at these. Through careful consideration, it is possible to understand the manufacturing processes used to create parts of a product and to assemble it.



Design Thinking and Communication

User-Centered Design

Good design carefully considers the end user and the experience they will have with any product. A designer will seek to understand and involve the target user in all stages of the design process through exploration, creation, evaluation etc.

Exploration:

- creating mood-board to explore the user's lifestyle;
- conducting questionnaires and surveys;
- studying the design situation from the user's point of view.

Creation:

- gaining the user's views on iterative models and drawings.

Evaluation:

- carrying out user trials and evaluating the finished prototype;
- the designer conducting an evaluation of the user's experience with the product.

Sketch Modelling

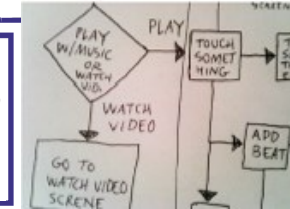
Sketch modelling can help a designer develop a design through looking at in in three dimensions. Different types of sketch model include:

- clay models;
- toiles (paper models of clothing);
- paper models;
- blue styrofoam models;
- CAD models;
- card models.



Flow Charts

In design engineering, a flowchart can help explore the function and operation of a product. A designer can use the blocks to identify possible components that could be used in the system.



Computer Aided Design

In various forms, CAD allows designers to develop complex, high quality design drawings that can either be in 2D or even 3D formats. The drawings can be easily edited and worked on by multiple users before being sent to a printer, laser cutter or embroidery machine for example. CAD packages include 2D Design, Photoshop or Publisher,



Maths in D&T

Graphical Data

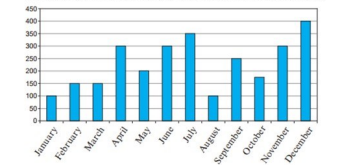
Data which is collected is often presented in graphical form. This could be anything from a pie chart to a bar chart. The data is often colour coded with added percentages to easily demonstrate the collected information.

In exams this is often tested for your understanding of being able to read and answer questions relating to the collected data in the form of a context.

The pie chart shows the breakdown of the costs that will determine the final selling price of a toaster.



The graph below shows the sales of an electronic device.



Remember we measure in (mm) NOT (cm)
To convert add a 0.
E.g. 10cm = 100mm
2.5cm = 25mm

There is plenty of Maths in DT:

- Measuring
- Scale
- Proportions
- Shapes

To name but a few.

by multiplying half the value of the base by its height.

AREA = 1/2 X BASE X HEIGHT

AREA = $\frac{40 \times 50}{2}$

AREA = $\frac{2000}{2}$

AREA = 1000mm²

AREA = 1/2 X Base X Height

Health and Safety

When moving on to practical work for your projects. You should also know the different categories of safety symbols used through the various D&T rooms and be able to work out the meaning of different safety symbols. The use of PPE (Personal Protective Equipment) is also one important way of staying safe when undertaking certain work.



For example, what might this student be doing wrong when operating the Pillar Drill? Should they be wearing anything more to protect them?