

**Design and technology** EOYE knowledge organizer. Year 8 exam preparation has 4 areas of **Design and technology**. These are Investigating, Designing and making, Analysing and evaluating, demonstrating and applying knowledge.

**1. ACCESS FAME**

To help us remember key bits of information for investigating, designing, analyzing and evaluating we use:

**Aesthetics** What the product looks like in terms of the colour, design shape, texture.

**Cost** How much the product will cost including cost of the materials, designing time, tools and machinery.

**Client** The company or person who has asked the designer/manufacturer to create a product.

**Consumer** The person that uses the product.

**Customer** the person that buys the product. (This person could be different to the consumer)

**Environment** The environmental impact of the product including how the product is disposed of, the materials used and how sustainable it is.

**Size-** The reasons for the product being this size, This relates to anthropometrics and ergonomics. (Dimensions)

**Safety** Knowing the safety issues associated with the product

**Function** How the product works and is used. What is the product used for?

**Anthropometrics-** Body measurements collected of the target market to inform size decisions.

**Materials and manufacture** What it is made from and how it is made?

**Ergonomics** The design of a product so it is easier to use and made more comfortable.

**2. Specification** a list of requirements that your product must meet/include.

**Design Context** Gives you the background of the problem and the design brief so you have more information about why the design brief needs addressing.

**Design brief** The instructions that a client gives to a designer about what they want a product to be like and why they need/want it.

**User profile** knowing what the person who you are designing the product for likes/dislikes. This is used to inform design decisions.

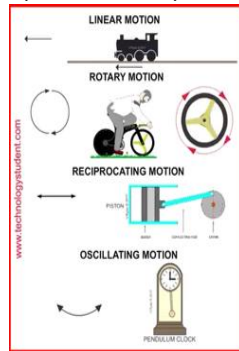
**3. Types of motion...**

**Linear motion** – is movement in a straight line and in one direction.

**Rotary motion** - This is movement following a circular path, around a fixed point.

**Oscillating motion** - occurs when an object swings left and then right (or visa-versa), from a fixed point.

**Reciprocating motion** - is a repetitive movement left to right OR up and down.



**4. Batch production** The production method used to make a specific quantity( batch) of identical products. Normally 3-100 products

**One off production-** each product is unique/ its own individual design

**5. Tools and what they are used for.**

**Tenon saw** for cutting straight pieces of wood across the wood grain.



**File** this has hundreds of teeth to cut away at the wood. This used for smoothing and can also be used on metals and plastic.



**Marking gauge** for scribing parallel lines on wood on timber.



**Coping saw.** For cutting curves in wood or plastic.



**Bench hook** for keeping wood steady so it can be cut safely and accurately.



..... **Steel rule** Square edge ruler that starts at the very end



**Clamp** Holds wood and other materials in place when drying or working on the material itself.

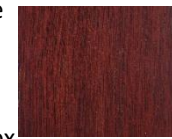
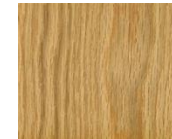


**6. Wood-Expensive hardwood**

Warmer climates  
Slow growing=more expensive  
Broad leaves Tighter grain denser and harder than soft wood

**Oak-** tough, very strong, attractive grain, finishes well.

**Mahogany-**red/brown in colour  
Easy to work with, expensive, good quality furniture/ jewelry box.



**7. Health and safety-**

1. Apron on to protect your clothes
2. Long hair tied back so it does not get caught in the machinery.
3. Listen carefully to instructions so you know how to use the tools and machinery
4. Only one person in the yellow zone so you do not distract students using the machinery.
5. Ensure all tools are put back safely and report any damaged tools so they can be mended for next lesson.
6. Wear goggles if using machinery like a pillar drill so saw dust does not get in your eye.

**8. Planned obsolescence** When a product is designed to become useless quickly. E.g. disposable razor/ phone

**9. Wood-Cheap Softwood**

Grown in colder climates  
Fast growing=cheap and plentiful, Needles for leaves Evergreen

**Pine-** Cheap but knotty uses cheap furniture



### 10. Materials:

**Manufactured boards** a material made by compressing a mixture of glue and processed pieces of wood into panels.



**MDF Medium density fiber board.** Made from tiny fibers held together by glue.

**Plywood** made up of layers of soft or hardwood glued together with their grains facing different ways.



**Chipboard** is made by compressing wood chips, shavings and sawdust together with glue.



### 12. Textiles construction

**Temporary construction** is using pins and tacking thread to hold 2 pieces of fabric together.

**Permanent constructions** is using the sewing machine.

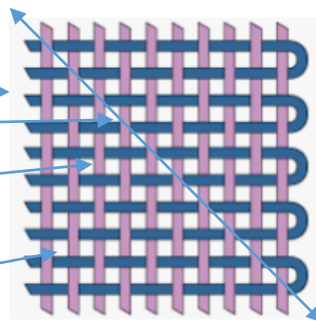
### 13. Woven fabric.

**Selvage**- the edge

**Bias**- the diagonal

**Warp**- yarns running from top to bottom

**Weft**- a continuous year running right to left then left to right weaving in and out of the warp



**15. CAD/CAM** stands for Computer aided design/ computer aided manufacture.

The advantages of using CAD. You can email the designs, You can make changes easily, you can work on the same designs all over the world.

Explain the process.

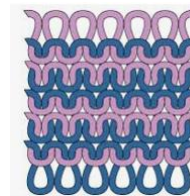
**CAM** – Machinery used to create products from CAD files. I.e. laser cutter. Produces identical products multiple times. Advantages – fast make more than one at a time and can produce difficult designs.

### 16. Bonded fabric/ Non woven fabric

Examples are **Felt** which is made from wool. The fibres are bonded together with pressure, moisture and heat. This fabric is not very strong or they do not stretch.



Knitted fabrics are made by interlocking one or more yarns together using loops.



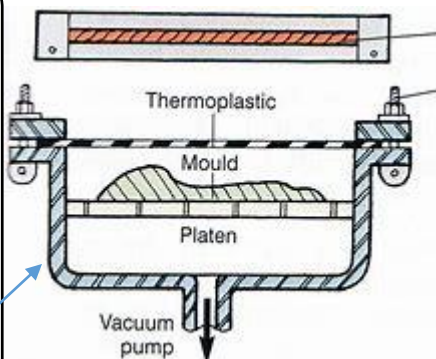
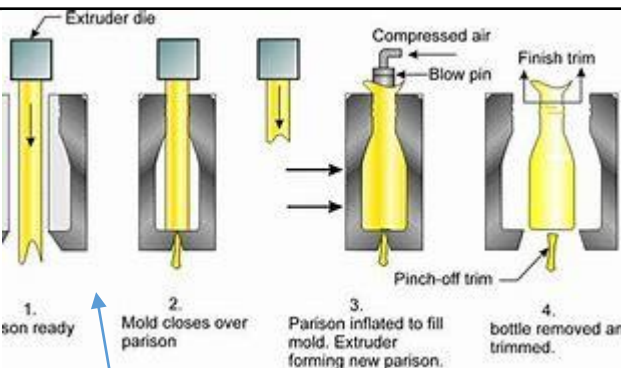
They stretch more than woven fabrics.

**17. Overlockers** are used to finish the edges of fabric to stop them from fraying. They do this by enclosing the edges. The edges are trimmed during this process as well to neatening them. This also acts as a finish as it allows knitted fabrics to stretch.



### 14. Types of polymers

Blow moulding  
Vacuum Forming



### Plastic Resin Identification Codes

1 PETE	2 HDPE	3 PVC	4 LDPE	5 PP	6 PS	7 OTHER
<b>Polyethylene Terephthalate</b>	<b>High-Density Polyethylene</b>	<b>Polyvinyl Chloride</b>	<b>Low-Density Polyethylene</b>	<b>Polypropylene</b>	<b>Polystyrene</b>	<b>Other</b>
Common products: soda & water bottles; cups, jars, trays, clamshells	Common products: milk jugs, detergent & shampoo bottles, flower pots, grocery bags	Common products: cleaning supply jugs, pool liners, twine, sheeting, automotive product bottles, sheeting	Common products: bread bags, paper towels & tissue overwrap, squeeze bottles, trash bags, six-pack rings	Common products: yogurt tubs, cups, juice bottles, straws, hangers, sand & shipping bags	Common products: to-go containers & flatware, hot cups, razors, CD cases, shipping cushion, cartons, trays	Common types & products: polycarbonate, nylon, ABS, acrylic, PLA; bottles, safety glasses, CDs, headlight lenses
Recycled products: clothing, carpet, clamshells, soda & water bottles	Recycled products: detergent bottles, flower pots, crates, pipe, decking	Recycled products: pipe, wall siding, binders, carpet backing, flooring	Recycled products: trash bags, plastic lumber, furniture, shipping envelopes, compost bins	Recycled products: paint cans, speed bumps, auto parts, food containers, hangers, plant pots, razor handles	Recycled products: picture frames, crown molding, rulers, flower pots, hangers, toys, tape dispensers	Recycled products: electronic housings, auto parts,

**Design and technology** EOYE knowledge organizer Year 8 exam preparation.

The 4 areas of **Design and technology** are Investigating, Designing and making, Analyse and evaluate, Demonstrate and apply knowledge

To help us remember key bits of information for investigating, designing and analysing, we use:

Word What does it mean?

- A.....
- C.....
- (C).....
- (C).....
- (C).....
- E.....
- S.....
- S.....
- F.....
- A.....
- M.....
- E.....

What are the following?

- Specification.....
- Design Context.....
- Design brief.....
- User profile.....

Productions: page. 47.

Batch production is .....

One off production is .....

Health and safety- What 5 things do you need to consider when in the work shop to keep you and others safe?

- 1.....
- 2.....
- 3.....
- 4.....
- 5.....

What do you remember about sound?

- Waves .....
- .....
- Curves.....
- .....
- Echo.....
- .....

What is CAD/CAM.....

What are the advantages of using CAD?

Explain the process.

- 1.....
- 2.....
- 3.....
- 4.....

Name the Tools and what they are used for.

Tool.....  
Used for .....



Tool.....  
Used for .....



Tool.....  
Used for .....



Tool.....  
Used for .....



Tool.....  
Used for .....



Tool.....  
Used for .....



Tool.....  
Used for .....



Materials: Timber page 21

A hardwood is

A soft wood is

Manufactured boards are  
page 27

MDF

Plywood

MDF

Pline

Chipboard  
blockboard

Mahogany  
oak

Textiles construction

Temporary is

Permanent is  
Natural fibres are  
Plant

Animal

A property is

Properties of

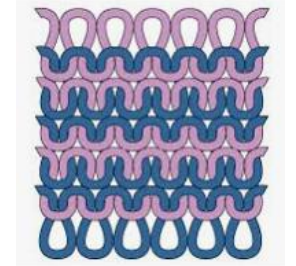
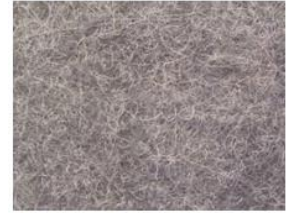
Fibres appearance good points bad points  
Cotton

Elastane

Polyester

Wool

**Fabric**  
**How are**  
**these**  
**Fabrics**  
**made?**



Page 25 for more information

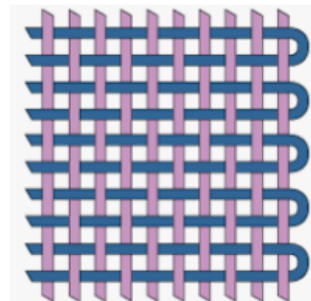
Label the diagram: Woven piece of fabric.

Selvage

Bias

Warp

Weft



What is overlocking?

What are the specific health and safety rules for  
textiles?