



Highsted Knowledge Organiser

Design and Technology Year 9 Term 5

What I need to know:

Explain the different categories and properties of timber.

Key Vocabulary:

Timber
Felling
Conversion
Seasoning
Air & Kiln Seasoning
MDF

Timbers; Sources & Origins

Wood from trees can be converted into different forms of natural timber and manufactured boards

Wood is the raw material used for timber-based materials. There are two main types:

Hardwood – maple, teak, oak, mahogany and balsa

Softwood – Spruce, redwood, larch, yew and pine

Felling

The 'felling' of a tree, is the first stage of preparing the timber for commercial use. This is normally carried out in winter, when the tree has less moisture content. In the summer months, trees can have more than fifty percent water content. This increased weight adds to the cost of transport, handling and initial preparation for the sawmill. Even in winter, trees have a high-water content.

Conversion

After being felled, tree trunks are stripped of their bark and cut into usable planks in a sawmill, where they become timber. Planks come in many different shapes and sizes.

Seasoning

Newly cut (green) timber contains a lot of moisture, which makes it liable to rot, split and warp. To counteract this, the moisture is removed through seasoning.

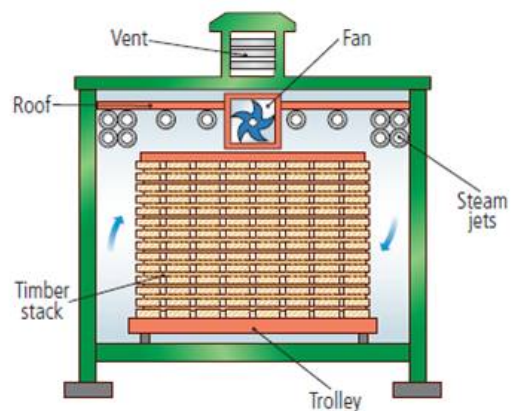
Air Seasoning.

Timber can be seasoned naturally through air seasoning. Planks are stacked under a roofed, unwallled shelter and separated by stickers (thin pieces of wood) to allow air to circulate between the planks. Air seasoning is cost effective but takes a long time.



Kiln Seasoning

Kiln seasoning is carried out in the same way as air seasoning, but heat, steam and pressure are used to speed up the drying process. The moisture in the kiln is reduced gradually to avoid damage to the timber. Kiln seasoning is faster but more expensive than air seasoning.



Manufactured Boards

Wood can be processed into manufactured boards, which are made from fibres, chips, blocks or sheets of wood bonded together with adhesives. Manufactured boards are often created from waste or recycled materials such as **plywood**, **medium-density fibreboards (MDF)** and **chipboard**.

Timber: Stock Forms, Types & Sizes.

Timber is available in a range of stock forms and sizes to suit different purposes. Timber planks, boards and strips are available in a range of stock, sizes with set lengths, widths and thicknesses. Measurements are usually as length x width x thickness (mm).

Planed Timber & Rough- cut Timer

Timber is available rough-cut and planed. Planed timber is smoother than rough- cut timber, but it is also more expensive.



Planing removes around 2-3mm of material from each side of the timber, so planed timber is slightly smaller than rough- cut timber.



Mouldings

Mouldings are specially shaped sections of wood that are commonly used for frames, architraves (moulded frames around doorways and windows) and skirting boards.



Dowels are cylindrical timber rods that come in a range of diameters. They are used to join pieces of wood together, often in furniture



Manufacture Boards

Manufactured boards are most commonly available in standard 2400x 1220-mm sheets; However, various smaller sizes are also available. The thickness of manufactured boards varies and generally increases in 3mm increments (e.g 6mm, 9mm, 12mm).



Challenge question:

Why might someone choose manufactured board over hardwood?

Suggested reading: BBC bitesize, Technology student.com

Challenge question:

Explain one reason why annotations are important when a designer passes their concepts to a manufacturer?

Suggested reading: BBC bitesize, Technology student.com



Highsted Knowledge Organiser

Design Technology

Year 9 Term 6

What I need to know:

To understand how to mark and cut joints accurately. How timber is available.

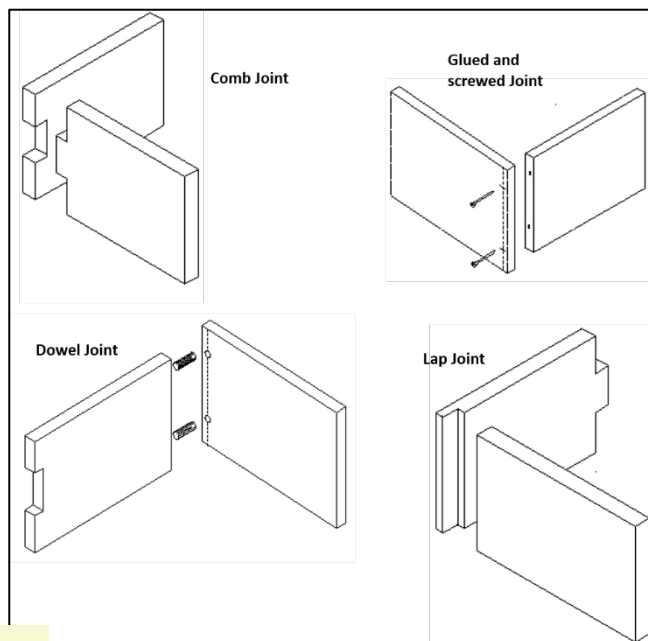
Key Vocabulary

Waste material, Stock form, Joints

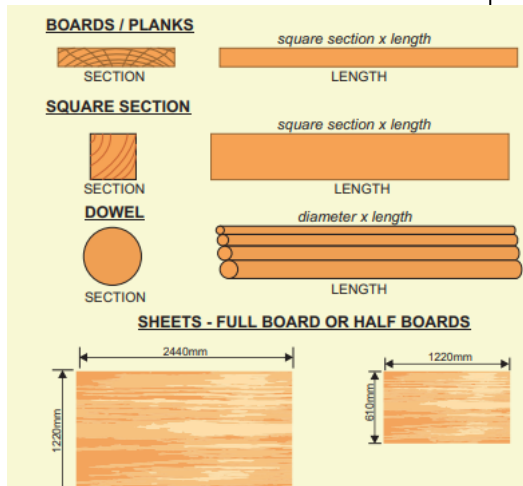
Student reference point:

Tool & Equipment

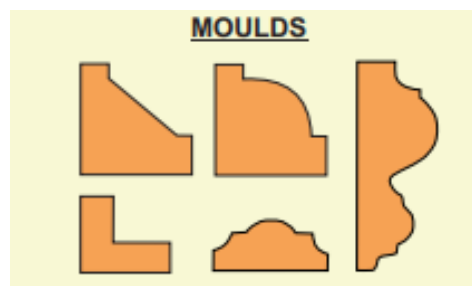
- Ruler/pencil
- Sandpaper
- Tenon Saw
- Coping Saw
- Try Square
- Pilar drill
- Marking Gauge



TIMBER STOCK FORMS



WOOD JOINTS



Challenge question:

Research into manufacturing techniques for timber.

Suggested reading:

www.technologystudent.com

www.bbc.co.uk/bitesize - Design Technology