YEAR 9 RES MAT KNOWLEDGE ORGANISER

QEMS
CURIOSITY · COMPASSION · COURAGE

Finishes

Finishing Natural Timbers
Timbers can be treated with a number of surface finishes these include Paint, Stain, Wax & Varnish. Applying these finishes can:

- Seals the wood to protect the surface from heat and water
- Enhance the grain & surface
- To colour the surface

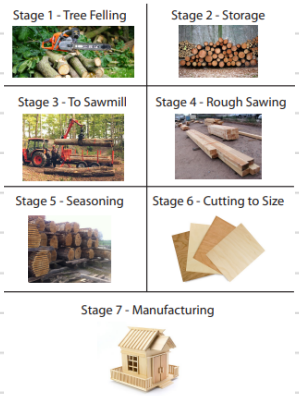
Finishing Manufactured Boards

Veneer
A sharp blade cuts very thin layers wood called veneer. A layer of veneer can be glued onto less expensive manufactured board to produce a more attractive finish and imitate natural timbers but maintain the properties of a manufactured board.

Lamination
This involves bonding by gluing strips of materials together in layers to create a strong structure. An example of this is wooden beams. If thinner materials are used for lamination the curves can be more complex

timber classification

Processing wood for use in manufacture



HARDWOODS

Hardwoods come from broad-leaved, deciduous trees.

TYPES OF HARDWOOD
ash, beech, birch, cherry, elm, mahogany, oak, sapele and teak.

SOFTWOODS

Softwoods come from coniferous trees which are evergreen, needle-leaved, cone-bearing trees, such as cedar, fir and pine

TYPES OF SOFTWOOD
cedar, fir, pine and spruce.

MANUFACTURED BOARDS

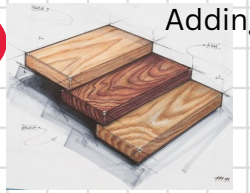
Manufactured boards are timber sheets which are produced by gluing wood layers or wood fibres together. Manufactured boards often made use of waste wood materials.

TYPES OF MANUFACTURED BOARD
plywood, chipboard, blockboard, medium density fibreboard (MDF), and hardboard.

Knowledge

- Health and safety
- Timber classification
- Finishes
- Isometric drawing
- Rendering
- CAD/CAM
- Independent use of tools and equipment

Rendering



Adding shade, texture & tone to make your design look realistic

Tools & equipment

HAND FILES

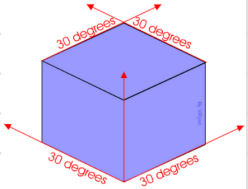
FRETSAW / SCROLL SAW

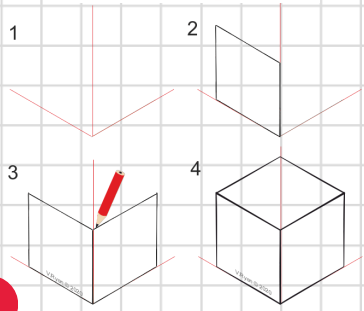
Tenon saw

Coping saw

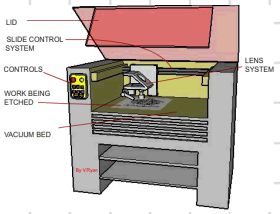
Isometric drawing

Isometric drawing is way of presenting designs/drawings in three dimensions. In order for a design to appear three dimensional, a 30 degree angle is applied to its sides. The cube opposite, has been drawn in isometric projection.

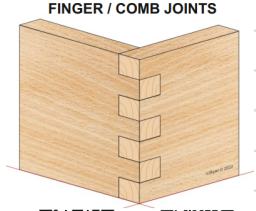




Production methods

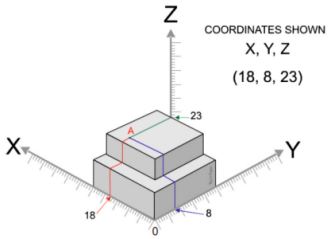


FINGER / COMB JOINTS

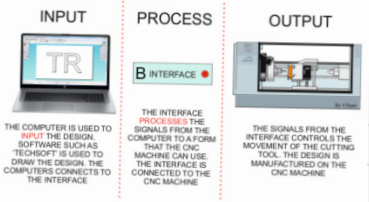


CAD/CAM

WHAT IS CAD / CAM?

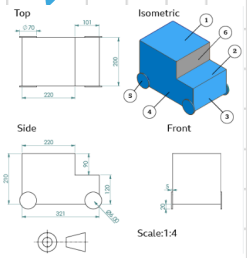


INPUT, PROCESS, OUTPUT



2D CAD is still an important tool for commercial designers. Graphic design will always be a 2D activity and any project using a laser or knife-cutting CNC machine will need 2D data to work from. 2D shapes are always quick to machine - important in a classroom situation.

Ergonomics & Anthropometrics



Anthropometrics are the measurements of the human body that are used by designers.
Ergonomics relates to the design of a product that functions well and is optimised for human use and interaction.
Custom products are designed as 'one-of-a-kind' and made for a specific client.

Scoring is the use of pressure along a line into sheet material in order to make it easier to fold.
Dimensions refer to sizes in a design.
Scale model is a physical representation of a product where sizes are proportionate.