'Manufactured boards'

Manufactured boards are made from the waste sections of felled trees. The wood is reduced to pulp, particles or thin strips and bonded together using special adhesives or resins.

They offer advantages over natural timbers:

- They are available in much larger sheets (2400mm x 1200mm)
- They have consistent properties throughout the board
- They are more stable, meaning they are less likely to have faults
- They make sure of lower-grade timber, so can have environmental and economic benefits
- They can be faced with veneer or a laminate to improve their aesthetic appearance
- Due to their consistent quality, they are well suited to CNC machining and volume production

Disadvantages include:

- Adhesives used in manufacture can be hazardous when inhaled
- Adhesives used in manufacture can blunt tools quickly
- Many traditional woodworking joints cannot be used and the edges are hard to finish
- Boards are prone to absorbing moisture

Manufactured boards fall into two categories:

- Laminated boards are produced by gluing large sheets of veneers
- Compressed boards are manufactured by gluing particles, chips or flakes together under pressure

Manufactured board	Description	Properties	Uses
Medium density fibreboard (MDF)	Made from compressed fine wood fibres bonded together with resin	This board is relatively inexpensive and has a flat, smooth surface	Flat packed furniture, kitchen units and interior panelling; comes moisture-and-fire resistant varieties.
Plywood	Made from wood veneers glued together with alternating grain	Very strong, with a flat, smooth surface	 Construction (roofing and cladding) and furniture Comes in water resistant marine grades for use on boats
Chipboard	Made from wood chips bonded together with resin	Inexpensive construction material. Limited strength	Low cost furniture, kitchen worktops and shelving
Hardboard	Made from compressed fin wood fibres bonded together with resin. Has one smooth side and one textures side	Very inexpensive material used for drawer bases and backs of wardrobes	Drawer bottoms and cabinet backs

<u>60 mins</u>

30 mins: read

information and make notes.

10 mins

Watch the videos and take notes

15 mins Complete the questions

boards
Timber in
sheets that
have been
manufacture
d to give
certain
properties
Veneers

Manufactured

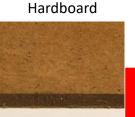
Thin sheets of natural timber

MDF



Plywood





60 mins

'Timber properties'

Different types of wood have varying working properties such as:

Strength - The ability to withstand force without breaking

Hardness - The ability to resist wear

Toughness – The ability to absorb energy without fracturing

Malleability – The ability to be bent and shaped without breaking

Durability – How long it will last

Ductility – The ability to be stretched and pulled without breaking It makes them suitable for different purposes and commercial products. Considering the properties of wood, designers must also consider how easy the materials are to manufacture.



Manufactured boards are well suited to self-assembly products

They are generally less expensive than hand-made items

Arrives boxed making it easier

to store and transport

Relatively straightforward to assemble

with a basic tool kit



Wooden toys

Wooden toys need to be durable to withstand being thrown, hit and dropped.

Small children are likely to chew on toys, so the material should be hard enough not to splinter easily and cause harm to the child.

Hardwoods such as beech and oak are commonly used for toys due to their hardness and durability.

They are also easy to paint and unlikely to break into small parts that may pose a choking hazard.

https://www.youtube.com/watch?v=Lpz4nX1KZGg

Manufactured boards
Timber in sheets that have been manufacture d to give certain properties
Veneers
Thin sheets of natural timber

Questions:

1. Different types of wood have varying working prope	erties such as:				
• – The ability to with	- The ability to withstand force without breaking				
• The ability to resis	The ability to resist wear				
• — The ability to abso	— The ability to absorb energy without fracturing				
• – The ability to be bent	– The ability to be bent and shaped without breaking				
• – How long it will last					
• — The ability to be stre	etched and pulled without	breaking			
It makes them suitable for different purposes and com- wood, designers must also consider how easy the mate	mercial products. Consider Prials are to manufacture.	ring the properties of			
2. What properties of manufactured board make it suital	ble for flat-pack products?				
3. Why do you think it may be less aesthetically appealir	ng?				
State TWO properties or characteristics that make medium urniture.	density fibreboard (MDF) sui	table for use in flat packed			
1.					
5. Give THREE advantages of using Medium Density Fibreboot timber.	ard (MDF) instead of solid nat	tural			
Advantage:	6. Correctly name the tv	wo types of manufactured board.			
Advantage:					
Advantage:					