

YEAR 9 RESISTANT MATERIALS HOMEWORK ENRICHMENT TASKS

PART 1 - Manufactured Boards

Work through these tasks using the information on pages 2 to 5

Task 1 Manufacturing: Explain, using notes and pictures how plywood and MDF are made.

Task 2 Properties/Characteristics : Explain what are the advantages and disadvantages about plywood, MDF and chipboard.

Task 3 Products : Give two examples of products that can be made from plywood, MDF and chipboard.

Extension task: Design a range of products that could be made from manufactured board. Sketch at least three ideas and label each on to explain what it is made from and why. You can use the information of the previous task to help you.

Lesson Objective: To look at how wood is processed into a type of timber referred to as manufactured boards or manufactured timber.

What you need to do: Read through the information on slides 2,4 and 6, and watch the videos on slides 3 and 5

Then answer the questions on slide 7

Word Bank:

Timber : Wood that has been cut from trees and turned into usable material

Manufactured Board: Timber that is made from wood that has been processed and glued to form solid sheets of timber.



Manufactured Board – Is when wood is combined or layered with resin or glue.

It lets manufacturers use up off-cuts of wood. It also enables very large sheets of wood to be made.

You can see three different types of manufactured board on this slide.



Plywood
(Manufactured Board)

Made from alternating thin layers (or plies) of wood. Strong, but a little more expensive. Comes in different colours and thicknesses



MDF
(Manufactured Board)

Inexpensive, fairly strong but heavy.



Chipboard
(Manufactured Board)

Inexpensive, fairly strong but lighter. Can be coated with a thin veneer or layer of wood or textured plastic. Used in worktops and flat-pack furniture (Argos)





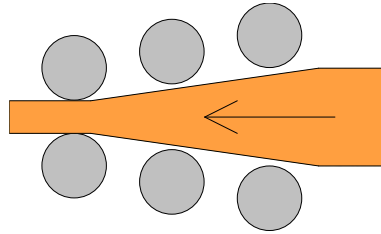
MDF (Medium Density Fibreboard)

MDF is made from ground up wood or fibres. These fibres are glued and squashed together to make a board called MDF. This type of wood is inexpensive, fairly strong but heavy. It does not always look very good.

Step 1: Fibres of wood are ground up and glued together to make a mat of wood fibres and glue.



Step 2: the wood and glue mat is squashed by rollers into a board. The glue then dries forming a board



MDF is often used for the inside of furniture or kitchens where it is not often seen



Chipboard (Manufactured Board)

Made by gluing chips of wood together to make a board. Inexpensive, fairly strong but lighter. Can be coated with a thin veneer or layer of wood or textured plastic.

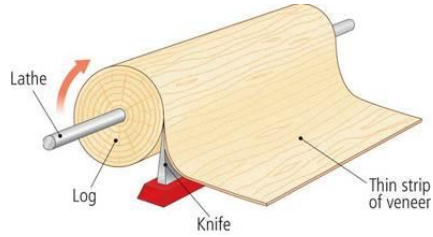
Used in worktops and flat-pack furniture (Argos)



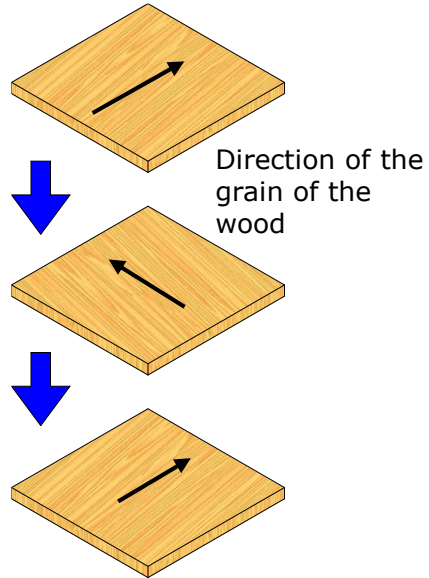
Plywood (Manufactured Board)

Plywood is made by peeling a thin veneer or layer of wood from a tree trunk. These thin sheets are cut up into sheets and then glued together. The layers stick together and make up a board of wood that is strong, long lasting and that looks good.

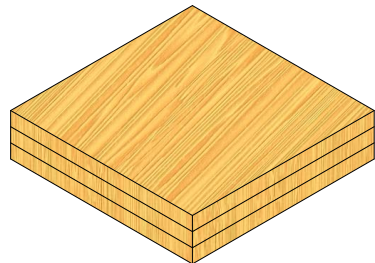
Step 1: Veneer is peeled or cut from a tree trunk



Step 2: Sheets of veneer are glued together



Step 3: The finished product – plywood board



Plywood is often used to make products where a large sheet or board of wood is required.



Plywood can also be formed into curves and so is often used to manufacture products that are shaped from curves.



PART 2 – HARDWOODS AND SOFTWOODS

Task 1 – Explain the difference between hardwood trees and Softwood trees using annotations and diagram

You need to sketch the different trees and add notes .

Task 2 – Describe, sketch and explain one type of softwood and two types of hardwoods.

You need to explain what are the advantages and disadvantages about each type of timber and give examples of where they are used.

Task 3 – For each of these products suggest a type of timber that it could be made from. Try and explain WHY(Justify) you would suggest that type of timber.

Task 4 – Use the internet to research two other types of timber – Birch and Teak. For each try and find good and bad points as well finding examples of products



Task Objective: To look at Timber products in everyday use and investigate why different types of timber are used.

What you need to do: Read through the information on slides 2 to 4

Then answer the questions on slide 5

Word Bank:

Timber : Wood that has been cut from trees and turned into usable material

Hardwood: Timber from trees that lose their leaves in winter (oak trees for example)

Softwood: Timber from trees that keep their leaves in winter (pine trees for example)



Different Types of Timber.

There are many different types of timber but generally we can group them into three categories or main types:

Hardwood

Softwoods

Manufactured Boards (We will look at these in homework)

Hardwood

These are timber materials such as planks and boards of timber that are made from trees that lose their leaves in winter. They tend to be stronger and harder than other types of timber (hence the name)



Softwood

These are timber materials such as planks and boards of timber that are made from trees that don't lose their leaves in winter. This means they grow quicker than hardwoods but tend not to be quite as strong.



Timber Types



Pine (Softwood)

Easy to work, inexpensive and light coloured. Reasonably strong. Most common timber used in the UK today. Used in internal products and furniture. Also in timber frames for buildings.

Softwood

Often from evergreen trees. Quick growing, less expensive but not as strong.



Larch (Softwood)

Tough and naturally resistant to weathering and rotting. Reddish in colour. Used for outdoors products such as fence panels and sheds.



Western Red Cedar (Softwood)

Lightweight but soft and not very strong. Weathers well. Often used for good quality outdoors products such as expensive sheds, summer houses and cladding for buildings.

Timber Types



Hardwood

Often from trees that lose leaves in winter. Grow slower so often stronger or harder wood. More expensive as longer to grow.



Oak

(Hardwood)

Strong, tough and durable, BUT expensive. Darker colour. Used for high quality furniture (inside and outdoors), high quality kitchen units and flooring. Looks very good.



Beech

(Hardwood)

Very Strong, and can take impacts well. Light colour. Fairly expensive. Used in furniture, kitchen ware and children's toys.



Ash

(Hardwood)

Very tough and flexible. Can absorb shocks and impacts well. Used in furniture, tool handles and sports goods (cricket bats).