UNIDAD 5. LA MADERA.
UNIT 5. WOOD

WHAT IS WOOD?

- RAW MATERIAL
- MATERIAL
- TECHNOLOGY PRODUCT

THE ORIGIN OF WOOD IS....

- ANIMAL ORIGIN
- VEGETABLE ORIGIN
- MINERAL ORIGIN
WHAT IS WOOD MADE OF?

Wood is made of grains (fibras) called cellulose (celulosa) that are stuck with another material called lignine (lignina).

A lot of these substances together are what we call trunk (tronco) and branches (ramas); or all joined a tree (árbol).
QUESTIONS?

The name of the grains that are made of the wood are called: **cellulose**

The name of the substance that join the grains is: **lignin**
PARTS OF A TRUNK

If we cut a tree, we can see that the trunk is formed by several rings, every ring has a name and several properties.
PARTS OF A TRUNK

BARK:
Protect the tree from dangers such as animals, fire,...

CAMBIUM:
Thin and transparent is situated between: bark and sapwood

SAPWOOD:
Is young wood and very soft, because of this, it is very difficult to work with it because it breaks easily.

HEARTWOOD:
Is dry wood, its colour is dark and very hard and strong. This part of the trunk is the best to make chairs, tables, etc.

PITH:
Is situated in the middle of the trunk and it is not used for anything.
PROPERTIES OF THE WOOD

DENSITY:
Wood has less density than the water, for this property the wood stays a float.

POROUSITY:
Wood is porous like a sponge, it absorbs water. This makes wood change its shape and swell (hincharse).

INSULATOR:
Wood is a good electric and thermal insulator.

MECHANICAL PROPERTIES:
Wood is ductile, malleable and tenacious.

ECOLOGICAL PROPERTIES:
Wood is recyclable, biodegradable and renewable.
QUESTIONS ABOUT PROPERTIES OF WOOD

• Wood is used in houses to insulate the walls because it is a:
  - A good thermal conductor
  - A bad thermal conductor

• What property makes wood stay a float on water?:
  - Porosity
  - Density

• Why a table of wood can not get wet? :
  - Because wood is an electrical conductor and it´s dangerous in a storm
  - Because the table is porous and it swells with water

• What property makes wood have shape of sheets?:
  - Malleability
  - Ductility
1. FELL (TALAR):
We fell the tree with an axe or a power saw (sierra mecánica).
2. PRUNE (PODAR):
With axe or power saw we cut its branches
3. TRANSPORT:
The logs are transported by road transport, train transport or river transport.
4. TAKE BARK OFF (DESCORTEZADO):
We take off the bark of a tree with mechanical rollers (rodillos mecánicos).
5. CUT INTO BOARDS (TRONZADO):
The branches and trunks: we cut them into boards of different sizes.
6. THE WASHING (LAVADURA):
Boards are submerged in water to eliminate the sap and to protect wood from bugs (insectos),...
7. DRYING (SECADO):
We dry the boards to eliminate water.
8. PLANE (CEPILLADO):
We plane boards to make the surface softer.
SUMMARY

1. FELL
2. PRUNE
3. TRANSPORT
4. TAKE BARK OFF
5. CUT INTO BOARDS
6. THE WASHING
7. DRYING
8. PLANE

- ARTIFICIAL DRYING
- NATURAL DRYING
CLASSIFICATION OF WOOD

We can classify wood in two kinds:

1. HARD WOOD (MADERA DURA)

2. SOFT WOOD (MADERA BLANDA)
HARD WOOD

CHARACTERISTICS:
- IT COMES FROM TREES WITH DECIDUOUS LEAF (HOJA CADUCA)
- IT GROWS VERY SLOWLY
- AND HAS VERY LITTLE RESIN (RESINA)

EXAMPLES:
- BEECH (HAYA)
- OAK (ROBLE)
- CHERRY TREE (CEREZO)
- MAHOGANY (CAOBA)
SOFT WOOD

CHARACTERISTICS:
- MOST OF THEM COME FROM TREES WITH PERENNIAL LEAF (HOJA PERENNE)
- IT GROWS FASTER THAN HARD WOOD TREE
- AND HAS A LOT OF RESIN (RESINA)

EXAMPLES:
- PINE (PINO)
- FIR (ABETO BLANCO)
- SPRUCE (ABETO ROJO)
- POPLAR (CHOPO)
We can use grains or shavings to do other materials:

1. PREFABRICATED WOOD
   (MADERA PREFABRICADA)

2. CELLULOSIC MATERIALS
   (MATERIALES CELULÓSICOS)
1. PREFABRICATED WOOD

We can classify fabricated wood in 4 kinds:

Plywood (contrachapado)

Chipboard (aglomerado)
1. PREFABRICATED WOOD

Grain board
(tableros de fibras)

Tablex
(Táblex)
2. CELLULOSIC MATERIALS

These materials are made of **cellulose**.

**Examples:**

The most important is **paper**
- **cardboard** (cartón)
- **thin cardboard** (cartulina)
- **tissue paper** (papel de seda)
TOOLS

BENCH VISE  HOT GLUE GUN  CLAMP
TOOLS

FILE

RASP

RASP PAPER OR SANDING RASP
TOOLS

- UNIVERSAL PLIERS
- WIRE CUTTERS OR DIAGONAL PLIERS
- NEEDLE NOSE PLIERS
An **INSULATOR** is a material that insulates something. Fat is an excellent insulator against the cold.

**SHAVINGS** are small very thin pieces of wood or other material which have been cut from a larger piece.

**PLAYWOOD** is wood that consists of thin layers of wood stuck together.

**CHIPBOARD** is a hard material made of very small pieces of wood which have been pressed together.

**TABLEX** you can find it on the back of your wardrobe or usually in whatever furniture.