

# Wood

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**What objects that are around you or you see everyday are made of wood?**



**01**

**Description**

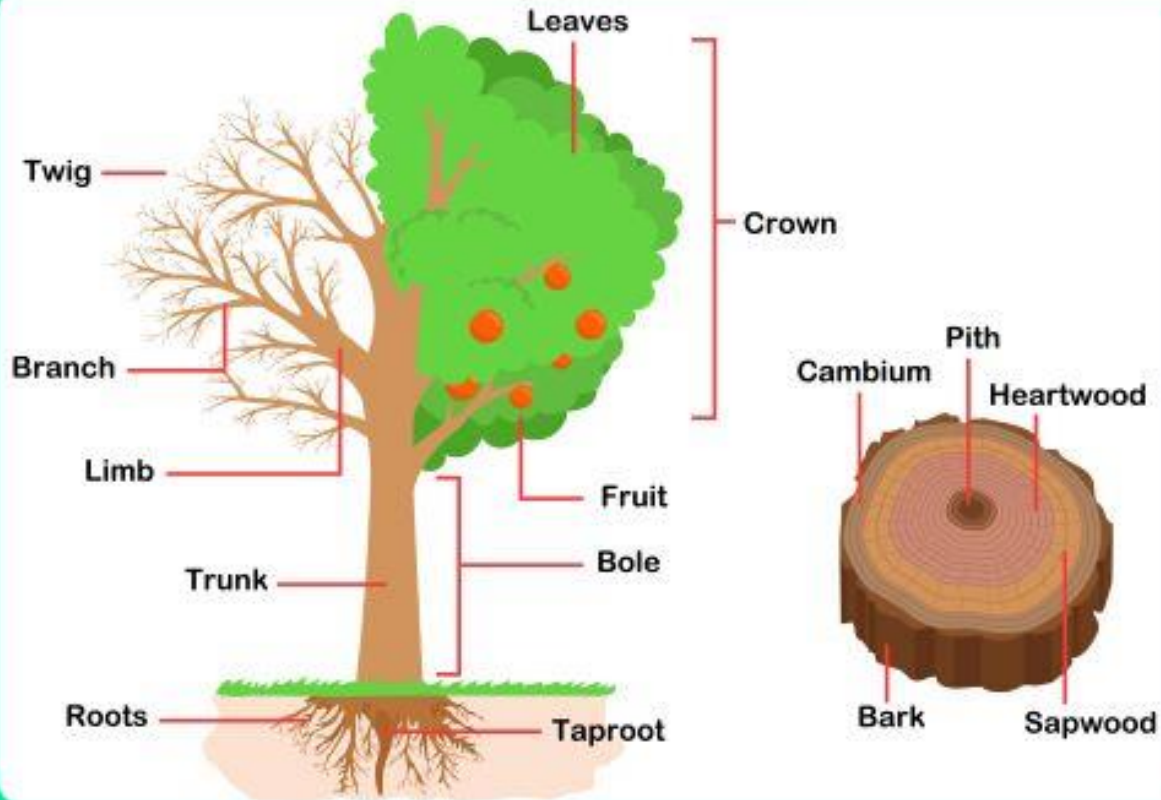
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# Wood

- raw material found under the bark of trees and bushes
- made up of cellulose fibres (skeleton of plants) and lignin (material that makes it hard and rigid)

# Parts of tree







# Wood Material



How wood is obtained from trees, its properties and objects made from wood material



# 02 Process

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<https://view.genial.ly/6034e24f9fd4c80da2b6d0cb/interactive-content-the-process-of-getting-wood>



# 03

# Classification

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[https://www.diffen.com/difference/Hardwood\\_vs\\_Softwood](https://www.diffen.com/difference/Hardwood_vs_Softwood)



# Hardwood

(madera dura)

Higher density

More expensive

Grow slower

Fire resistant

Shed leaves in autumn or winter (deciduous)

# Softwood

(madera blanda)

Lower density

Less expensive

Grow faster

Not resistant to fire or burns easily

Usually keep the leaves throughout the year (evergreen)



# 04

# Derivatives

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Wood that do not directly come from logs.



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## **ENGINEERED WOOD**

-comes from sheets, fibres, or chips of wood, which are pressed and glued together.

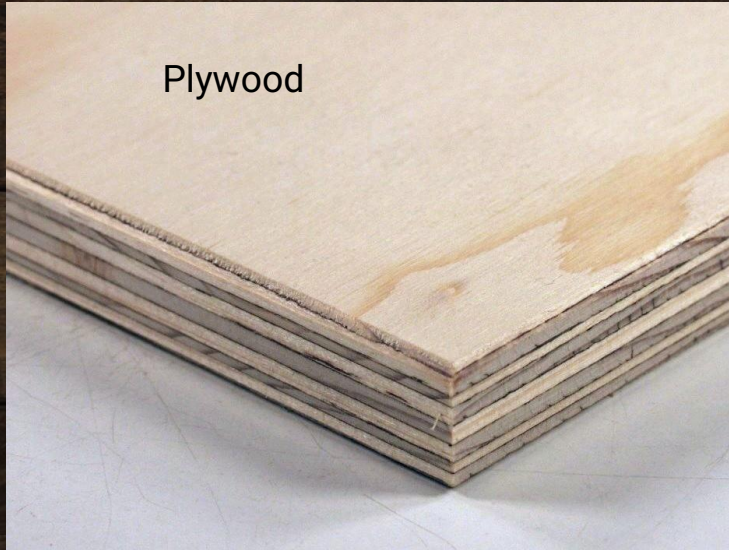
## **CELLULOSE MATERIALS**

-come from the cellulose of wood

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# Engineered Wood





# Cellulose Materials





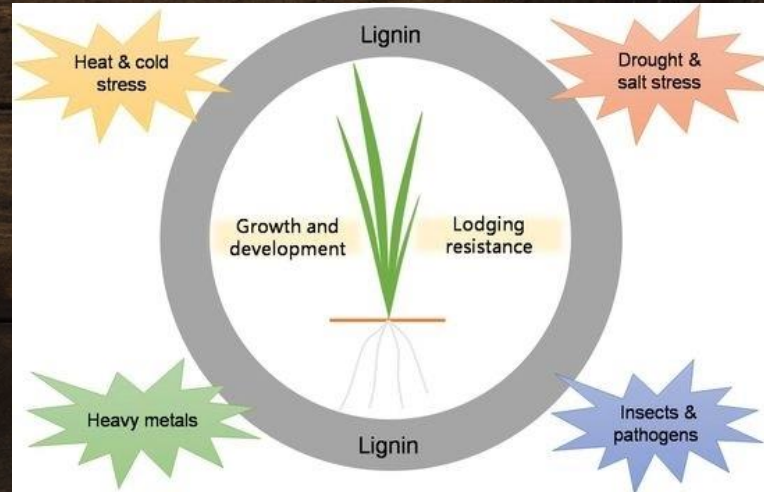
# TRUE or FALSE

Lignin is what makes wood hard.



**TRUE**

Lignin is what makes wood hard.





# TRUE or FALSE

Hardwood is denser than softwood and burns for longer



# TRUE

Hardwood is denser than softwood and burns for longer.







# TRUE or FALSE

NOT all wood is biodegradable.



**FALSE**

All wood is biodegradable because they are naturally grown and can be broken down by bacteria and fungi.





# TRUE or FALSE

Trees die of old age.



**FALSE**

Trees DO NOT die of old age. Insects, diseases, and people are usually the killer of trees.





# TRUE or FALSE

Wet wood can conduct electricity.









**TRUE**

Wet wood, unlike dry wood, can conduct electricity because of the moisture content.





# METALS



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**What everyday objects you see  
are made of metals?**





**Metallurgy - group of industries involved in mining and transforming metallic minerals**

# **METALS**

- minerals that are parts of rocks**
- useful materials (ore) and useless materials (gangue)**



# METALS

<https://www.youtube.com/watch?v=9I7JqonyoKA>





Pig Iron



Cast Iron



Wrought Iron



Steel

# Ferrous Materials

Materials which main component is iron (Fe).



## Pure Iron

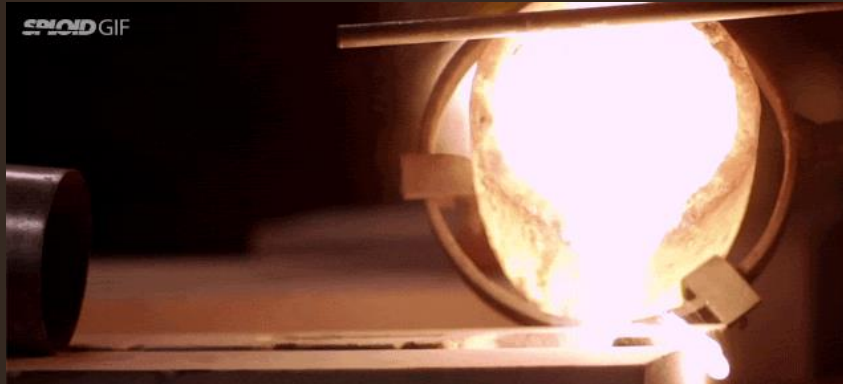
- Good magnetic properties
- High melting point
- Difficult to machine
- Soft and brittle
- Used in electrical and electronic components





# Steel

- Hard and resistant
- Used in construction and making cars
- Forms alloys (with chrome and nickel) to make stainless steel



## Cast Iron

- Hard and resistant
- Used in machine parts, lamp posts, pistons





Zinc (Zn)



Aluminum



Magnesium



Copper



Chromium



Titanium

# Non-Ferrous Materials

Materials that do not come from iron (Fe).



# Magnesium

- Ultra-light metals, soft, malleable, reacts violently with oxygen
- Example: fireworks, bicycles





# Aluminum

- Light metals, very soft, malleable, ductile, good conductor of electricity
- Example: kitchen utensils, drink cans



# Titanium

- Light metals, very hard and resistant
- Example: architectural structures and medical prostheses





# Zinc

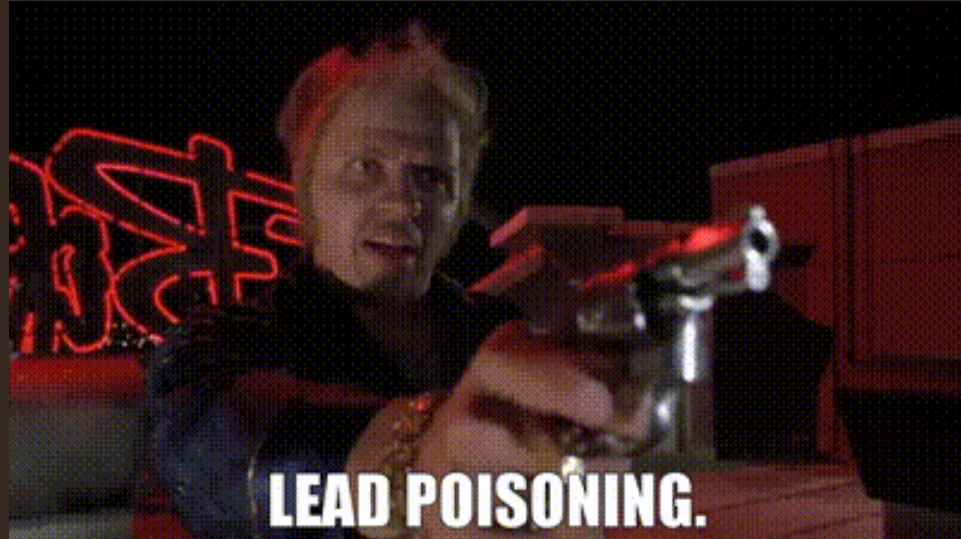
- Heavy metals, very hard and fragile
- Example: roofs, pipes



# Tin

- Heavy metals, very soft, malleable
- Example: tin foil, tin plating





## Lead

- Heavy metals, soft, very toxic when inhaled
- Example: batteries, paint for old materials



## Copper

- Heavy metals, soft, good thermal and electric conductor, ductile, and rusts easily
- Example: electric cables, engine coils, pipes, radiators





## Brass

- Heavy metals, rusts easily
- Example: ornaments, instruments,, pipes



## Bronze

- Heavy metals, resistant to wear and corrosion
- Example: boat propellers, bells



**Ferrous materials do not rust.**

**TRUE OR  
FALSE**

**Ferrous materials rust when exposed to moisture or acid.**



**FALSE**



**Non-ferrous materials do not  
come from Fe.**

**TRUE OR  
FALSE**

**Non-ferrous materials do not  
come from Fe.**

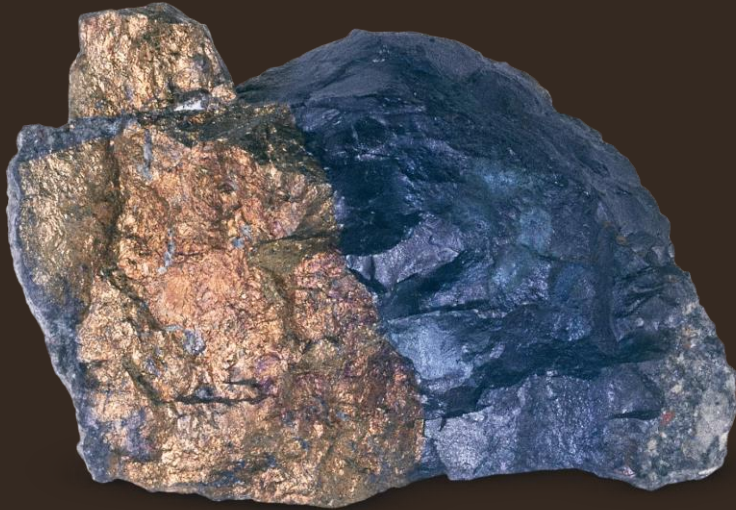
**TRUE**



**We get metals from plants.**

**TRUE OR  
FALSE**

**We get metals from the  
minerals of rocks.**



**FALSE**

**THANK YOU!**