

Softwoods.

Coniferous trees with needle like leaves and cones.



Seasoning

Before we can use it we have to season timber to reduce the water content. If we don't it may warp, twist or bow.

Hardwoods

Broad leaved trees that are usually slower growing



HARDWOODS

Oak	Strong, durable attractive grain	Garden furniture, gateposts
Mahogany	A stable timber. Polishes well. Strong and fairly durable	High quality furniture
Beech	Tough and hard Not suitable outdoors	Work benches, toys
Balsa	Very lightweight and easy to cut	Model making
Jelutong	Light colour and straight grain	Model making and moulds for casting
Birch	Straight grain, easy to work	Used as a veneer for plywood
Ash	Strong, tough, flexible Used as a veneer	Tool handles, sport equipment

Properties of timber

Hardness	Timber is generally softer than other
Toughness	Timber is generally tough. When hit it will dent but not easily break
Durability	Properly seasoned timber lasts a long time. Some timber has natural oils
Elasticity	Timber is not generally elastic and will splinter when thin
Strength	Timber is stronger when pulled. Some timbers are denser so withstand crushing better

Stock forms

PAR—Planed all round

PSE—Planed square edge

Mouldings

Dowel

Sheets:

2440x1200

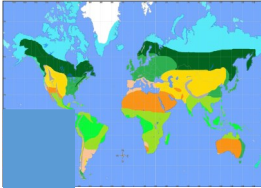


Sources of timber

Cold climate: **Alpine**, softwoods

Temperate climate: **European**, soft & temperate hardwood

Tropical climate: **Tropical** hardwood



SOFTWOODS

Larch	Tough, durable and resists water	Cladding, yachts
Cedar	Very durable and easy to work Contains natural oils	Fences, sheds
Pine	Lightweight and easy to work but splinters	House construction, indoor furniture

Manufactured boards

Plywood	Veneers of timber glued together with the grain running at 90 degrees to the last Very structurally strong.	Laminate floors, furniture panels
MDF	Wood fibres compressed with glue to give large, smooth, flat sheets	Flat pack, curved furniture, building construction
Chipboard	Wood chippings compressed with glue into sheets Uses waste material	Kitchen and bedroom furniture. Shelving

Questions

- State 2 stock forms of timber
- Give 2 reasons why oak is suitable for outdoor use
- I want to make a rounders bat, what timber could I use? Why?
- Discuss the advantages and disadvantages of making a log store from pine

Find the meaning of: Veneer, grain, evergreen, warp, deciduous.

Also revise the meanings of : Hardness, toughness, durability, elasticity, tensile and compressive strength.

Timber sustainability and the environment

Sustainability— Our ability to keep making or using products without too much harm to our environment.

Some timber is more sustainable than others. The Forestry Stewardship Council promotes the responsible management of forests. Where damage to the environment is kept to a minimum, trees are replanted and the rights of forest communities are respected.



Deforestation

Deforestation happens when we cut down or destroy large areas of trees faster that we can grow them. This can cause:

Habitat destruction: Deforestation can cause the loss or destruction of the homes of many plants and animals. 80% of animals and plants live in forests. Some animals risk extinction as a result of deforestation.

Soil erosion : As trees and roots are destroyed the soil is more easily eroded which can in turn lead to flooding or river pollution.



Increased CO² : Trees absorb CO². Without trees we increase the amount of it in our atmosphere and in turn the rate of climate change. Green house gasses increase.

Wastage: Most of a tree can be turned into planks and other parts may be chipped for use in manufactured boards. Small branches and roots are wasted, if these are burnt then this process will increase pollution also.

Once cut down

Seasoning and processing

Once trees have been cut down we need to process them to turn them into timber that we can use. The first stage of this process is called seasoning.

Seasoning reduces the water content of the timber down to around 12 percent.

Timber can be seasoned by leaving it covered outdoors in stacks — this takes a long time.

Timber can also be seasoned in a kiln, this uses a lot of energy which is released as heat into our atmosphere.



Transport

If timber is transported down a river to the lumber mill this can increase pollution in rivers. Once processed timber is then transported around the world in ships or by road. This increases fossil fuel use and in turn global warming.

Logging and communities

In North America logging is treated as an industry and in many cases this brings jobs and wealth to communities. However, if logging companies do not work in a sustainable way then these benefits can be short term.

In some areas of the world like South America, timber is cut down on a “slash and burn” principle. This unmanaged deforestation destroys the habitat in which indigenous people live. They may be forced from their homes/communities and lose the environment they depend on to survive.

Recycling and upcycling

Old or used natural timber that hasn't been treated will rot and biodegrade in the ground. This means it can also be used for biomass energy or burnt to produce heat, and in turn, power a boiler or turbine for electricity.

Some timber products can be re used or upcycled. For example using old pallets in the garden as furniture or shelving.

Social cultural and ethical factors

Fashion: Trends and changes in technology can effect the popularity of timbers eg: Oak becomes more fashionable than pine. MDF and chipboard are popular timbers for mass producing kitchen furniture.

Some timber may appeal to different groups, this might depend on people's age, the cost of the timber or culture. As designers we need to choose materials that don't offend certain cultures, this includes the finish or colour we may use.

Ethical design: Good design will consider the impact of a product on society and the environment. Many people would consider it wrong to design a product with a short life span. Ethical design will also consider sustainability of materials as well as the 6R's.

Questions

- Give an example of a current trend in timber use.
- Describe a positive and negative impact that logging might have on a community.
- How is timber different to plastic in terms of its impact if disposed of in landfill?
- Suggest 2 ways we can process or reuse timber once a timber product comes to the end of its life.

Find the meaning of: Trend forecasting and planned obsolescence.

You could revise the following in more depth: The 6 R's, sustainability, how trees are cut and processed into timber.