

AS LEVEL Section A

FACT FILES

Technology & Design

For first teaching from September 2011

For first award in Summer 2012

Wood Part 1



tech  
nology  
and  
design

## 1.2 Wood Part 1



### Learning Outcomes

#### Students should be able to:

- Demonstrate knowledge of hardwoods and softwoods;
- Demonstrate knowledge and understanding of the properties, working characteristics and uses of the following woods – Pine, Ash, Beech, Oak and Mahogany;
- Demonstrate knowledge of the available form of supply of woods.



### Course Content

#### Hardwoods and Softwoods

There are two main types of wood:

- Softwoods
- Hardwoods



**Coniferous** trees stay green all year round and have cones or needle shaped leaves. The timber that comes from these trees is known as **softwood**

**Deciduous** trees lose their leaves in autumn and generally have broad leaves. The timber that comes from these trees is known as **hardwood**.

The following are examples of both types of wood.

#### Softwoods

- Scots Pine
- Parana Pine
- Western Red Cedar
- Spruce
- Hardwoods








#### Beech

#### Hardwoods

- Mahogany
- Elm
- Walnut
- Oak
- Obeche
- Ash



Properties, working characteristics and uses of– Pine, Ash, Beech, Oak and Mahogany;

Name	Origin/ Colour	Properties and working Characteristics	Uses	Pictures
<b>Pine (scots)</b>	Northern Europe, Russia  Cream, pale brown	<ul style="list-style-type: none"> <li>• Straight fine grained</li> <li>• Knotty</li> <li>• Quite Strong</li> <li>• Easy to work with</li> <li>• Cost effective</li> <li>• Easy to get hold of.</li> <li>• Can shrink</li> <li>• Prone to twisting</li> </ul>	<ul style="list-style-type: none"> <li>• Constructional work</li> <li>• Joinery</li> <li>• Paints well</li> <li>• Shelves</li> <li>• Cupboards</li> <li>• Fitted furniture</li> </ul>	 <small>iStockphoto/Thinkstock</small>
<b>Ash</b>	Europe  Pale cream colour and light brown	<ul style="list-style-type: none"> <li>• Strong</li> <li>• Durable</li> <li>• Flexible</li> <li>• Open Grained</li> <li>• Easy to work with</li> <li>• Well finished.</li> </ul>	<ul style="list-style-type: none"> <li>• Furniture,</li> <li>• Handles of tools</li> <li>• Sports goods</li> <li>• Construction</li> <li>• Ladders.</li> </ul>	 <small>iStockphoto/Thinkstock</small>
<b>Beech</b>	Europe  White to pinkish brown	<ul style="list-style-type: none"> <li>• Close Grained</li> <li>• Hard</li> <li>• Tough</li> <li>• Strong</li> <li>• Easy to work with</li> <li>• Finishes well but can warp.</li> </ul>	<ul style="list-style-type: none"> <li>• Furniture</li> <li>• Kitchen utensils</li> <li>• Toys</li> <li>• Tool handles</li> <li>• Chairs</li> </ul>	 <small>Hemera/Thinkstock</small>
<b>Oak</b>	Europe,  Light brown	<ul style="list-style-type: none"> <li>• Hard</li> <li>• Tough</li> <li>• Very Strong</li> <li>• Durable</li> <li>• Easy to finish</li> <li>• Open grained</li> <li>• Expensive.</li> </ul>	<ul style="list-style-type: none"> <li>• High class furniture</li> <li>• Boat building</li> <li>• Garden furniture</li> <li>• Posts</li> <li>• Flooring</li> <li>• Shelving</li> <li>• Veneers</li> <li>• Panelling</li> <li>• Windows</li> <li>• Roofs</li> </ul>	 <small>iStockphoto/Thinkstock</small>
<b>Mahogany</b>	Central- South America, West Indies, West Africa.  Pink reddish brown	<ul style="list-style-type: none"> <li>• Fairly strong</li> <li>• Quite hard</li> <li>• Durable</li> <li>• Easy to work with</li> <li>• Medium weight</li> <li>• Available in long, wide boards</li> <li>• Prone to warping</li> <li>• Not easy to finish</li> </ul>	<ul style="list-style-type: none"> <li>• Furniture</li> <li>• Yachts</li> <li>• Boats</li> <li>• Pool cues</li> <li>• Panelling</li> <li>• Veneers</li> </ul>	 <small>iStockphoto/Thinkstock</small>

## Available form of wood

Commercial forms and sizes are available. After seasoning, timber can be reduced into smaller sections of sizes and shapes.

## Wood

It can be purchased as:

- **Rough-sawn** (also called nominal, full size)
- **Ready machined** (planer thickened)
- **PBS** (planed both sides)
- **PAR** (planed all round)

Planed timber is described as the nominal (rough sawn) size, but will actually be approximately 3mm smaller.



iStockphoto/Thinkstock

Wood is available in '**square section**' and **board** which come in different widths, lengths and thickness.



iStockphoto/Thinkstock

**Moulds** are available in a range of unusual shapes.



Hemera/Thinkstock

**Dowel rod** is circular sections of wood which can be bought in different diameters.



## Revision questions

1. Hardwood such as oak and softwood such as pine are widely used for domestic purposes.
  - (i) Briefly explain the difference between hardwood and softwood.
  - (ii) Briefly outline **two** main characteristics of oak which make it suitable for furniture.
  - (iii) Briefly outline **two** main characteristics of pine which make it suitable for floorboards.
2. Beech and oak are widely used for household products.
  - (i) Give **one** main reason why:
    - Beech is used for kitchen utensils,
    - Oak is used for kitchen units.