Wood Conversion
Learning Objectives

- To understand the need for wood conversion.
- To be able to explain the term wood conversion.
- To be able to identify the various methods of conversion.
- To be able to compare the advantages and disadvantages of the various methods.
What is wood conversion?

Wood Conversion is the cutting of logs into planks of wood.

Logs are converted for two main reasons:
- To reduce the wood to a workable size
- Small planks are easier to dry out than large logs
How is wood converted?

- Trees are transported to a saw mill
- Branches and bark are removed
- After these stages there are three ways that logs are converted:
  - Through and through method
  - Quarter sawn
  - Tangential sawn
The conversion process

1. Tree Felling
2. Transport to sawmill
3. Conversion
4. Sawmill
Through and Through Sawing

- This method involves taking parallel cuts through the log
- Heartwood and sapwood are not separated
- Timber cut this way is used for
  - Garden Furniture
  - Fencing Posts
  - Pallets

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Through and Through Sawing

**Advantages**
- Very cheap method
- Very fast method
- Very little waste produced

**Disadvantages**
- Planks contain heartwood and sapwood
- Planks are not very strong
- Planks are prone to warp, cup, split and twist
- No distinctive grain pattern
Through and Through
Quarter Sawing

- In this conversion method the log is cut into quarters
- This requires a lot of turning of the log
- Heartwood and sapwood can be separated using this method
- This method is used on hardwoods
- It shows silver grain in oak
- Timber cut this way is used for floorboards and furniture.
Quarter Sawing

Advantages

- The planks are very strong
- The planks are very hard wearing
- It exposes an attractive grain pattern
- Silver grain in Oak

Disadvantages

- Is a very expensive method
- A lot of waste is generated
- Planks tend to be narrow
Quarter Sawing
In this conversion method the cut is made tangential to the annual rings. This requires a lot of turning of the log. Heartwood and Sapwood are separated using this method. Timber from this conversion method is used for furniture and veneers.
Tangential Sawing

**Advantages**

- The planks are very strong
- The planks have an attractive grain pattern (Flame figure)
- Heartwood and Sapwood are separated

**Disadvantages**

- The planks are prone to swelling and shrinking
- Costly and slow
- Lots of waste
The waste produced from converting logs to timber can be reused

1. Sawdust: Used to make MDF
2. Bark: Used for flower beds
3. Small strips of wood: Burnt to heat the sawmill
What’s next?

The timber is stacked on a trolley and brought to a kiln to be seasoned.
Felling = 8min
http://www.youtube.com/watch?v=-57xOdPWX9E

Conversion = 3 ½ min
http://www.youtube.com/watch?annotation_id=annotation_508088&feature=iv&src_vid=bqP-d_8Zahg&v=PB3-ekIW2EY