Defects in Timber
Defects in timber can affect its:

- strength,
- appearance,
- and durability.

Defects in timber are either:

1. **Natural**: defects that may be present in the growing tree.

2. **Artificial**: defects caused by the seasoning, conversion and felling process.
Natural Defects - Knots

- Caused when the branches of a tree are cut off or stop growing.
Two types of knots

Dead Knots

- Dark in colour and shows sign of decay
- Weaken the timber and often become loose and fall out.

Live Knots

- Light in colour and do not generally fall out.
Natural Defects

Resin canals

- Some trees which are exposed to high winds, develop internal splits.
- Splits fill with resin or gum to make the wood resinous.

Heart rot

- Occurs when fungus attacks and rots the pith of the heartwood.
Natural / Felling Defects

- Cracks or splits in the wood are called shakes

Types of Shakes

1. Heart and Star shakes

- Deep, wide cracks which radiate out from the centre of the log
- Caused by shrinkage through old age or by too rapid drying after felling
Types of Shakes

Cup and ring shakes

- Gaps between growth rings, that can be very deep, are known as cup or ring shakes.

- Caused by:
  - Old age,
Types of Shakes

Frost shake

- This is where the wood splits inwards towards the centre and is caused by very cold weather

Radial shakes

- A split along the outside of the wood caused by rapid drying (shrinkage) of the log before conversion
Artificial Defects: Seasoning

Cupping
- When you look at the end of the board it appears as a curve.
- Caused by unequal amounts of shrinkage along the growth rings.

Bowling
- When you look at the edge of the wood it appears curved.
- Caused by poor stacking.
  - Not enough stickers!
Artificial Defects: Seasoning

Twisting/warping

- When the ends of the boards are twisted in opposite directions.
- Caused by shrinkage along spiral or interlocking grain.

Springing

- When the face of the board remains flat and the edge bends inwards to form a curve.
- Caused by shrinkage longitudinally along irregular grain.
Seasoning Defects

End splits

- Occur at the exposed ends of the boards.
- Caused by rapid drying out from the sun
- Prevented by painting the ends of the timber with bitumous paint (water proof)
Seasoning Defects

Surface splits/checks

- Usually lie along the grain.
- Caused by rapid drying out on the surface of the wood.

Honeycomb splits/checks

- Occur inside the board.
- Reduces strength.
Seasoning Defects

Case hardening

- Where the outside of the board is dry and hard but moisture is trapped in the centre cells of the wood.

- Caused by rapid drying.
CONVERSION DEFECTS

Waney Edge

- Occurs when the bark is left on during conversion

Sloping grain/short grain

- Grain does not run parallel to the edge of the board because of bad conversion
  - seriously weakens the timber