Timbers

Unit 3 · Materials · matches the "Timbers" lesson slides (about 60 minutes)

Teacher notes for someone teaching this lesson without a Design and Technology background, including a cover or supply teacher standing in for the usual class teacher.

IF YOU ONLY DO ONE THING (RUSHED COVER LESSON)

If you only do one thing: make sure every pupil can say what "Hardwood" means in their own words before the lesson ends. Timber from broad-leaved angiosperm trees, such as oak and beech. Ask two or three pupils to explain it back to you - do not just ask "does that make sense?".

Key facts in plain language

These are the facts this lesson depends on. They are written in plain English, not subject jargon, so you can say them in your own words while you teach.

Hardwood:
Timber from broad-leaved angiosperm trees, such as oak and beech.

Softwood:
Timber from coniferous gymnosperm trees, such as pine and spruce.

Manufactured board:
Sheet material made from veneers, particles or fibres, such as plywood or MDF.

Grain:
The direction and pattern of wood fibres.

Common misconceptions

Drawn from the wrong answers pupils pick in this lesson's own question bank, paired with the explanation that is already written for the right answer.

Pupils may think: "Balsa" is correct.
Why it is wrong: the correct answer is "Pine". Pine is a coniferous softwood. Balsa is very soft but is botanically a hardwood.

Pupils may think: "It is naturally waterproof" is correct.
Why it is wrong: the correct answer is "It is smooth, uniform and comes in large stable sheets". MDF has a smooth, uniform surface and no natural knots or grain, so it machines and finishes consistently.

Pupils may think: "Softwoods are too weak for structural use" is correct.
Why it is wrong: the correct answer is "The names describe tree groups, not hardness". The hardwood/softwood distinction is botanical. Balsa, for example, is botanically a hardwood despite being very soft.

Pupils may think: "It has a metal mesh between the layers" is correct.
Why it is wrong: the correct answer is "Layers are glued with alternating grain directions". Cross-laminated veneers improve dimensional stability and resistance to splitting; plywood is not equally strong in every direction.

Pupils may think: "Unfinished chipboard" is correct.
Why it is wrong: the correct answer is "Oak". Oak can provide useful hardness, durability and appearance; the final choice should still consider construction, source, cost and finish.

Talking points to follow the slide deck

The slide deck for this lesson follows the usual DT Classroom shape: a retrieval starter, then each key term below in turn, worked examples, exam-style practice, then an exit ticket. Use these lines as you reach each part - they are the same facts as above, just phrased as something you can say out loud.

When the deck reaches "Hardwood": say — Timber from broad-leaved angiosperm trees, such as oak and beech. Ask: "can someone give me an example?"

When the deck reaches "Softwood": say — Timber from coniferous gymnosperm trees, such as pine and spruce. Ask: "can someone give me an example?"

When the deck reaches "Manufactured board": say — Sheet material made from veneers, particles or fibres, such as plywood or MDF. Ask: "can someone give me an example?"

When the deck reaches "Grain": say — The direction and pattern of wood fibres. Ask: "can someone give me an example?"

Worked answers to this lesson's questions

The same question bank used for this lesson's knowledge organiser self-check and worksheet exam practice. Use this page as the answer key, or cover the right-hand explanation and hand out the questions as a silent task (see the cover lesson box below).

1. Which is a softwood?

a) Balsa, b) Pine, c) Oak, d) Mahogany

Answer: b) Pine. Pine is a coniferous softwood. Balsa is very soft but is botanically a hardwood.

2. Why is MDF useful for painted furniture and cabinet panels?

a) It is naturally waterproof, b) It is smooth, uniform and comes in large stable sheets, c) It has an attractive natural grain, d) It is a dense hardwood

Answer: b) It is smooth, uniform and comes in large stable sheets. MDF has a smooth, uniform surface and no natural knots or grain, so it machines and finishes consistently.

3. Which statement about hardwoods and softwoods is most accurate?

a) Softwoods are too weak for structural use, b) The names describe tree groups, not hardness, c) Hardwoods are always physically harder, d) Hardwoods always grow faster than softwood trees do

Answer: b) The names describe tree groups, not hardness. The hardwood/softwood distinction is botanical. Balsa, for example, is botanically a hardwood despite being very soft.

4. Why does plywood resist splitting and warping better than a single wide solid-timber board?

a) It has a metal mesh between the layers, b) Layers are glued with alternating grain directions, c) It is made from compressed wood fibres, d) It is always cut in one piece from a single hardwood log

Answer: b) Layers are glued with alternating grain directions. Cross-laminated veneers improve dimensional stability and resistance to splitting; plywood is not equally strong in every direction.

5. Which material is a sensible choice for a durable, quality dining tabletop?

a) Oak, b) Unfinished chipboard, c) Hardboard, d) Balsa

Answer: a) Oak. Oak can provide useful hardness, durability and appearance; the final choice should still consider construction, source, cost and finish.

READY-TO-RUN COVER LESSON

Project the existing lesson slides as normal; read the key facts and talking points above before the lesson starts.

Low-prep silent task (needs no workshop tools or machinery): write or display the numbered questions above without the "Answer:" line, and have pupils answer them in silence on paper. Mark from the answers above at the end, or next lesson.

If the lesson plan calls for tools, machinery, heat or anything hands-on, do not run that part as a non-specialist cover teacher - set the silent task above instead and leave the practical for the subject teacher. See the general workshop safety guide in the Teachers hub.