Papers and boards

Unit 3 · Materials · matches the "Papers and boards" 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 "GSM" means in their own words before the lesson ends. Grams per square metre, a measure of paper or board mass per unit area. 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.

GSM:
Grams per square metre, a measure of paper or board mass per unit area.

Corrugated board:
Board with a fluted core that gives high stiffness for low mass.

Duplex board:
Multi-layer board often with a smooth printable face.

Foam board:
A lightweight foam core faced with card, often used for models.

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: "Number of sheets per ream" is correct.
Why it is wrong: the correct answer is "Mass per square metre". GSM is grams per square metre. Paper and board classifications overlap, so GSM alone does not create a universal boundary.

Pupils may think: "Foam board" is correct.
Why it is wrong: the correct answer is "Corrugated board". The fluted core makes corrugated board stiff and protective without high mass.

Pupils may think: "It bends easily around tight curves" is correct.
Why it is wrong: the correct answer is "It is light, rigid and easy to cut". Its card-faced foam core gives low mass and useful rigidity.

Pupils may think: "Chalk mixed with starch" is correct.
Why it is wrong: the correct answer is "Cellulose fibres from wood". Paper is made mainly from cellulose fibres, commonly from timber and recycled paper.

Pupils may think: "It makes the board fully biodegradable" is correct.
Why it is wrong: the correct answer is "It gives a smoother, higher-quality print finish". Coatings can improve print quality, appearance and sometimes protection.

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 "GSM": say — Grams per square metre, a measure of paper or board mass per unit area. Ask: "can someone give me an example?"

When the deck reaches "Corrugated board": say — Board with a fluted core that gives high stiffness for low mass. Ask: "can someone give me an example?"

When the deck reaches "Duplex board": say — Multi-layer board often with a smooth printable face. Ask: "can someone give me an example?"

When the deck reaches "Foam board": say — A lightweight foam core faced with card, often used for models. 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. What does GSM measure?

a) Number of sheets per ream, b) Thickness of the sheet, c) Mass per square metre, d) Strength per sheet

Answer: c) Mass per square metre. GSM is grams per square metre. Paper and board classifications overlap, so GSM alone does not create a universal boundary.

2. Which material is well suited to a strong, light shipping box?

a) Foam board, b) Cartridge paper, c) Bleed-proof paper, d) Corrugated board

Answer: d) Corrugated board. The fluted core makes corrugated board stiff and protective without high mass.

3. Why is foam board useful for presentation models?

a) It bends easily around tight curves, b) It gives the best surface for photo prints, c) It is light, rigid and easy to cut, d) It is waterproof and very hard-wearing

Answer: c) It is light, rigid and easy to cut. Its card-faced foam core gives low mass and useful rigidity.

4. What is the main raw material in most paper?

a) Cellulose fibres from wood, b) Chalk mixed with starch, c) Polymers from crude oil, d) Silica sand and soda

Answer: a) Cellulose fibres from wood. Paper is made mainly from cellulose fibres, commonly from timber and recycled paper.

5. Why might a coated board be selected for retail packaging?

a) It makes the board fully biodegradable, b) It can then be recycled with no further processing, c) It gives a smoother, higher-quality print finish, d) It lets the board fold without scoring

Answer: c) It gives a smoother, higher-quality print finish. Coatings can improve print quality, appearance and sometimes protection.

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.