

Which join holds?

Lesson at a glance

Open by pointing at the classroom door hinge and a fixed chair leg and ask what job each join must do. Groups of three or four make three joins on same-size card strips—sticky tape, paperclip, and a pre-opened split pin—plus one ready PVA glue join the teacher set earlier. They pull each gently, sort into firm / swings-linked / holds-loosely, then match a firm and a swinging join to a classroom job. Recording is two quick sketches on the Investigation Journal page.

Learning objectives

- Try different ways of joining two pieces and say which held firm
- Match a firm join and a swinging join to a simple classroom job

Before the bell – prep

Cut 15 cm × 3 cm card strips the day before (four pairs per group). Morning of: glue one pair per group with PVA and leave flat to set fully—wet glue will not harden in time. Pre-open split-pin legs slightly; load each tray with tape, paperclips, pins, and the ready glue join.

**Materials**

Item	Qty	Per	Source	Low-cost substitute
card strips (about 15 cm by 3 cm)	8	group	classroom	strips cut from cereal boxes or scrap card
sticky tape	1	group	classroom	masking tape
teacher-prepared glue joins (PVA, fully set)	1	group	classroom	double-sided tape join made just before the lesson if PVA was not set in time
PVA glue	1	class	classroom	glue stick for morning pre-set joins only if PVA is unavailable (allow full set time; may still peel if rushed)
paperclips	4	group	classroom	bulldog clips or clothes pegs
split pins	4	group	classroom	treasury tags or string through punched holes
sorting hoops or labelled table zones (holds firm / swings (stays linked) / holds loosely or slides)	3	group	classroom	three sheets of paper labelled on the desk
Investigation Journal page	1	pupil	provided printable	a blank page with space to draw two joins

Safety watch-point

Split pins are fiddly even when pre-opened—help younger fingers. No running with pins; collect pins and paperclips carefully at pack-up.



Teaching moves

- **Getting Started:** Point only at the real door hinge and a fixed chair leg or taped poster edge. Ask one question—What job does each join need to do?—and keep materials out of sight so hands stay off the strips.
- **Firm joins and swinging joins:** Project the short board text only. Talk through firm (chair leg locks still) and swinging (door holds but moves) in words; save the live card-and-pin model for the make step when every tray is loaded.
- **Make three joins:** Open with a 1–2 minute model: hold up split pin beside paperclip, pull the ready glue join (stays stiff), then pin two strips so they swing but stay linked. Share jobs—Child A tape, B paperclip, C split pin, D minds the ready glue—so four joins are ready inside ten minutes.
- **Pull gently and notice:** Demo one gentle pull so strips do not fly, then ask Does it stay stiff, slide, or swing? If anyone tests a still-wet spare glue pair, say it needs drying time and point them back to the ready glue join as the firm example.
- **Sort: firm, swinging, or loose:** Set three hoop or table zones—holds firm, swings (stays linked), holds loosely / slides. Groups place each join. Match jobs only to firm and swinging (chair leg, shelf, door, lid); reserve swinging talk for the split pin so a sliding paperclip is never matched to a hinge.
- **Record your joins:** Ask for two sketches only—prefer ready glue as firm and split pin as swinging—plus one classroom job each. Say the starters aloud: The glue join held firm. The split pin could swing. A chair needs a firm join. A door needs a swinging join.

What it should show

Ready glue should stay stiff (firm). Split pin stays linked and swings like a little gate. Paperclip usually slides or comes apart; tape may hold then peel. Name peels and slides as holds loosely / slides, not swinging. A wet spare glue pair that fails is a drying-time issue—redirect to the ready glue join so the class does not conclude glue is not firm.

Misconceptions & interventions

- **Pupils say a swinging join is broken because it moves.** — Point at the classroom door: a door needs to swing on purpose. Keep swinging-join language for the split pin that stays linked and turns like a hinge.
- **Pupils call a paperclip that slides apart a swinging join, like a door.** — Say the plain phrase once—holds loosely / slides—and place that join in the loose zone. Reserve swings (stays linked) for the split pin only.
- **If a wet spare glue pair pulls apart, pupils conclude glue is not firm.** — Say firm joins often need time to set, then hand them back the ready glue join that was made earlier and already holds stiff.

**Differentiation**

Emerging	Developing	Proficient
• Pair at the teacher table for the split-pin join; match jobs only from the named examples said aloud (door, chair, shelf, lid, book stand).	• After sorting, name one extra classroom job for firm or swinging from the room they can see (hall door, lunchbox lid).	• Invent a third classroom job for one join type, or add a back-of-page sketch of a join that held loosely / slid.

Cross-curricular hook

Link to Maths measures—same-size strips make the pull a fair comparison of the join, not the card length.

