

Which join holds?

Lesson at a glance

Open by pointing at the classroom door and a chair leg and asking what job each join must do. Groups of three or four make three joins from same-size card strips (sticky tape, paperclip, pre-opened split pin) and also test a ready glue join the teacher set earlier. They pull gently, sort into firm / swings / holds loosely, then match firm and swinging joins to classroom jobs. Recording is two sketches plus a job label each 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

Night before or morning: cut card strips (~15×3 cm) and glue one pair per group with PVA; leave flat to set fully — wet glue will not count as firm in-lesson. Pre-open split pins slightly. Tray per group: tape, paperclips, pins, ready glue join. Print Investigation Journal pages.

**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	classroom	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? Keep materials out of sight.
- **Firm joins and swinging joins:** Project the short board definitions only. Name firm (locks still, like a chair leg) and swinging (holds on but can move, like a door). Head off “broken” talk: a door needs to swing on purpose.
- **Make three joins:** Quick 1–2 min model: show ready glue stays stiff on a gentle pull; split-pin two strips so they swing but stay linked. Share roles — one child tape, one paperclip, one split pin, one minds the ready glue. Same-size strips only.
- **Pull gently and notice:** Demo one gentle pull so strips do not fly. Same pull each time. Chorus the three outcomes: stay stiff, slide/come apart, or swing while still linked. If anyone tries wet spare glue, say it needs drying time and point back to the ready glue join.
- **Sort: firm, swinging, or loose:** Three hoop or table zones: holds firm, swings (stays linked), holds loosely / slides. Match jobs only to firm and swinging — chair leg, shelf, book stand; door, lid, ring-binder, lunchbox lid. Keep swinging language for the split pin.
- **Record your joins:** Five-minute minimum: draw two joins only (prefer ready glue as firm, split pin as swinging), mark firm or swinging, label one classroom job each. Say the sentence starters aloud. Fast finishers may sketch a loose join on the back — no device typing.

What it should show

Ready glue should stay stiff (firm). Split pin stays linked and swings. Paperclip often slides or comes apart; tape may hold then peel — name these holds loosely / slides, not swinging. If glue “fails,” it is usually still wet; use the pre-set join so the class does not conclude glue is never firm.

Misconceptions & interventions

- **Pupils call any join that moves “broken.”** — Hold up the split-pin gate and the door hinge: name it a useful swinging join that stays linked on purpose, like a door that must open.
- **Pupils treat a sliding paperclip the same as a door hinge.** — Place paperclip in holds loosely / slides and split pin in swings (stays linked). Reserve swinging-join and door/lid jobs for the pin only.
- **Pupils decide “glue is not firm” after testing a wet spare pair.** — Say firm joins often need time to set and redirect to the ready glue join that was made earlier and left to dry.

**Differentiation**

Emerging	Developing	Proficient
• Pair at the teacher table for the split pin; match jobs only from the named examples you say aloud (door, chair, shelf, lid). • Sentence starters spoken for the two Journal sketches: glue held firm; split pin could swing.	• Whisper a prediction before each pull, then check against the three sort zones. • Name one extra classroom job from the room (hall door, lunchbox lid, book stand).	• Invent a third classroom job for firm or swinging and say why that join type fits. • On the back of the Journal page, sketch the loose/sliding join and say how it differs from a true swinging join.

Cross-curricular hook

Oral language: pupils use because to justify matching a join type to a real classroom job (door, chair, lid).

