

Flat flops, folded holds

Lesson at a glance

Open by holding a flat paper strip from one end so the class sees it flop, and take hands-up guesses why. Pupils then test three fresh strips — flat, deep V, and zigzag fan folds — feeling which hold. They draw the three tries on the Investigation Journal page, then hunt in pairs for classroom folds and ridges that hold something up. Close with partner talk on why boxes use wavy card, linking shape to strength.

Learning objectives

- Show that folding a strip of paper can stop it flopping
- Find folded and ridged shapes that hold something up in the classroom

Before the bell – prep

Cut several plain A4 strips per child (about 3 cm × 20–25 cm) plus spares — a fresh strip for each of the three tries. Have one corrugated cardboard sample with the wavy edge visible. Before the bell, place six or more clear finds around the room (corrugated boxes, egg boxes, folded card or brochure stands, concertina displays) so pairs are not crowding one object.

Materials

Item	Qty	Per	Source	Low-cost substitute
paper strips (about 3 cm by 20–25 cm)	3	pupil	classroom	strips torn carefully from scrap paper or old worksheets
corrugated cardboard sample or small cardboard box	1	class	classroom	egg box or any ridged packing card
Investigation Journal page	1	pupil	provided printable	plain paper for a quick drawing record

Safety watch-point

Classroom hunt only — walk, no running; eyes and gentle hands; do not climb or pull fixed fittings. No unsupervised corridor searches.

**Teaching moves**

- **Getting Started:** Hold one flat strip out from your hand so the class sees it flop live — not on the board. Take hands-up guesses only; accept soft, thin or heavy ideas without correcting. Keep it to one surprise and the key question: why do you think the paper flopped?
- **Feel the folds:** Model the full cycle with three strips first, naming fold as a crease that bends the paper. Reveal only the current try on the board — flat, then deep V, then zigzag fan. Circulate asking what the hand feels and what changed. If a V still flops, have them press a sharper crease.
- **Record what you felt:** Send pupils to the Investigation Journal page to draw all three tries and show or write what the hand felt. Offer the sentence starters aloud if needed. Look for a clear contrast and at least one noticing word (floppy, stiff, strong). If time is tight, accept flat plus the strongest fold drawn, with the third try said aloud.
- **Spot folds that hold:** Hold up the corrugated sample and name ridge once before revealing the task. Form pairs and point each to a starting spot first. Give 3–4 minutes in the classroom only; each pair names two finds aloud. Ask listening pairs where the ridge is and what it is holding. Recording stays oral — no extra diagram.
- **Why wavy card?:** Protect one minute of partner talk even if the hunt ran long. Hold up the corrugated card and link back to the hand test: wavy ridges work like many little folds. Revoice ideas with fold and ridge; keep the talk oral only.

What it should show

Almost every flat strip flops at once. A deep V usually stays out; tight zigzag fan folds often feel strongest. Pupils should notice it is the same paper — the shape changed. A V that still flops is usually too shallow; press a sharper crease and re-try. On the hunt, expect corrugated boxes, egg boxes, folded stands and concertina displays as the clear holds.

Misconceptions & interventions

- **Pupils say the folded strip is heavier or thicker paper, so that is why it holds.** — Hold the unused flat strip beside the folded one and ask: is it the same kind of paper? Same amount? Steer them to name what changed — the shape, not the paper.
- **Pupils think cardboard boxes are strong because card is special or magic paper.** — Hold up the corrugated sample and point to the wavy middle. Link straight back to their hand test: ridges work like many little folds that stiffen thin material.



Differentiation

Emerging	Developing	Proficient
• Offer a pre-creased starter V or fan fold so pupils who struggle with fine-motor creasing can still feel the hold and compare it to the flat strip.	• After the three tries, ask them to hold one folded strip from the short end and then the long end and notice which feels stiffer.	• Challenge them to explain to their pair why the zigzag felt different from the single V using the words fold and ridge, then name which classroom find works most like their strongest strip.

Cross-curricular hook

Links to Visual Arts construction — folding and creasing change how a flat sheet behaves in a build.