

materials

Mixing materials

Lesson at a glance

Open with a home-mixing hook (porridge, pancakes, play dough) and a live flour-and-water model that names pour versus hold its shape. Uncover six ready trays so groups each visit two stations—sand and water, flour and water, or cornflour gloop—stir, tip-test, and micro-mark the Investigation Journal. Finish look-and-feel notes on paper, then run a short talk comparing mixes and home links before a full pack-away and hand wash.

Learning objectives

- Mix two safe materials and describe how the mix looks and feels
- Say whether a mix pours or holds its shape

Before the bell – prep

Before pupils arrive, set six labelled trays (two of each mix), dry material portioned, water cups filled, four spoons per tray, and cover them. Ready towels, cloths, warm soapy water, and printed Investigation Journal pages. Check flour/cornflour allergies. Optional: eight word cards (wet, sticky, pours, holds, and so on).

**Materials**

Item	Qty	Per	Source	Low-cost substitute
shallow plastic trays	6	class	classroom	large ice-cream tubs or roasting tins lined with a bag
clean play sand	2 cupfuls (about one cupful per sand tray)	class	school kit	dry soil from a clean garden tub (no glass or sharp grit)
plain flour	2 cupfuls (about one cupful per flour tray)	class	supermarket	plain porridge oats crushed a little
cornflour	2 cupfuls (about one cupful per gloop tray)	class	supermarket	extra plain flour for paste-only trays if cornflour is unavailable
cups or small jugs of water	6	class	classroom	recycled yoghurt pots of water
spoons	24	class	classroom	lolly sticks or craft sticks
station labels (Sand and water, Flour and water, Cornflour gloop)	6	class	classroom	sticky notes with the three station names
towels or cloths for spills and sticky fingers	6	class	classroom	newspaper layers under each tray plus spare scrap cloths
cloths or newspaper sheets to cover trays during the hook	6	class	classroom	large scrap paper sheets
mix recording page (two mixes: what mixed, look, feel, pour or hold, optional both for gloop)	1	pupil	classroom	plain paper headed with two mixes; for each mix write What I mixed, Look, Feel, and circle choices Pours / Holds its shape (plus Both for gloop)
word cards (full list authored in the step notes)	1	class	classroom	the same eight words written on the board for pupils to copy



Safety watch-point

Check flour/cornflour allergies first. No tasting; sleeves up; wipe spills; wash hands after. Tip cornflour gently—do not blow the dust.

Teaching moves

- **Getting Started:** Keep stations covered. Hold up only dry flour and water cups and take two or three ideas on what stirring might do. Link lightly to baking or porridge; do not open wet trays yet.
- **What happens when we mix?:** Model live: wonder, predict, stir flour into water, tip the spoon, and point clearly to pour versus hold its shape. Board shows only those two choice words. Flash a blank Investigation Journal page so pupils know the quick mark before trays open.
- **Mixing stations:** Send two groups to each mix type for about six to seven minutes, then rotate so every group meets two mixes—do not chase three full rotations. Stay mobile: gentle stir, no tasting, prompt pour or hold and feel words. Hands wipe on the tray cloth before any journal mark; keep pages on a dry edge.
- **Record what you noticed:** Pupils finish the paper page while mixes are fresh: what was mixed, look, feel, and pour or hold (plus both for gloop if noticed). Accept drawings plus a few words; scribe for those who need it. One station recorded well beats two half-done lines.
- **Talk about our mixes:** Revoice pupil words into mix, pour, and hold its shape. Draw out grit versus stickiness and celebrate gloop doing both when pressed then left still. Land one home link (porridge, pancake batter, play dough) without turning it into a cooking lesson.
- **What we learned and tidy up:** Two very short pupil voices only, then protect the remaining minutes for named pack-away roles—tray wipers, spoon collectors, hand-wash line. Pack-away is part of the science after sand, flour and gloop.

What it should show

Sand and water stays gritty and may pour when wet or clump when only damp. Flour and water goes cloudy, sticky and pasty and usually holds a soft blob. Cornflour gloop often feels firm under a quick press and soft when still—pupils may rightly say both. Amount differences change the result; treat that as useful talk, not a failed setup.



Misconceptions & interventions

- **Pupils say the mix has turned into a brand-new material forever.** — Keep it gentle: today we only notice how the mix looks and feels compared with the two materials alone. We are not naming permanent chemical change.
- **Pupils think every mix must either always pour or always hold its shape.** — At the gloop tray, have them press hard then stop and watch. Ask: Did it ever do both? When? Name both as a valid observation.
- **Pupils judge pour or hold from looking only, without tipping the spoon.** — Model the tip-test again at one tray: same spoon, slow tip, watch the stream or the blob. Have the group repeat before they mark the journal.



Differentiation

Emerging	Developing	Proficient
• Offer the word cards (wet, sticky, runny, pours, holds) at the tray and scribe the journal mark after they tip-test. • If flour or cornflour is off-limits, keep them at sand-and-water only, or let them observe and describe a partner's mix.	• Prompt one extra feel or look word beyond sticky/wet before they leave the station. • Confident groups add one extra spoon of water to a mix and say what changed for pour or hold.	• Ask them to explain when gloop held and when it poured, using press versus still. • In the talk, have them name one school or home mix this week and say whether it pours or holds its shape.

Cross-curricular hook

English oral language: build a shared bank of feel words (gritty, sticky, runny, lumpy) pupils reuse when describing each mix.