

materials

Mixing materials

Lesson at a glance

Open with a dry cup of flour and a cup of water and ask what might happen if they are stirred together, linking lightly to porridge or pancakes at home. Model one flour-and-water stir live, tipping the spoon to show pour versus hold its shape. Uncover six ready trays so groups visit two stations each (sand and water, flour and water, cornflour gloop), mark pour or hold on the mix recording page, then finish look-and-feel notes and talk about what changed.

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 wipe-clean trays already labelled: two sand-and-water, two flour-and-water, two cornflour gloop. Portion dry material, fill water cups, four spoons per tray, cover trays until after the model. Towels, soapy basin, tray wipe cloths ready. Check flour/cornflour allergies. Print mix recording pages with pour/hold choices.

**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

No tasting. Sleeves up; wipe spills straight away; wash hands after the round. Tip cornflour gently—do not blow dust. Check flour/cornflour allergies; offer sand-and-water or observe-and-describe if needed.

Teaching moves

- **Getting Started:** Keep trays covered. Hold up only dry flour and water. Ask what might happen if we stir them, take two or three ideas, and link gently to home baking or porridge. Do not open wet stations yet.
- **What happens when we mix?:** Model live with flour and water: wonder, predict, stir, tip the spoon, and point to pour versus hold its shape on the board. Say mix once in passing. Flash a blank recording page so pupils see the pour/hold mark before trays are uncovered.
- **Mixing stations:** Line trays gloop–flour–sand and stand at the gloop end. Send two groups per mix type for six to seven minutes, then rotate so each group meets two mixes. Prompt: Does it pour? Hold a blob? How does it feel? Prefer spoon feel; wipe fingers before any mark. No tasting; sleeves up.
- **Record what you noticed:** Pupils finish look and feel words or drawings for the two mixes while fresh, and check the pour or hold mark. For gloop, ask if it ever did both and when. Scribe key words; accept drawings plus a few words. One well-recorded mix beats an invented second line.
- **Talk about our mixes:** Revoice pupil words into mix, pour, and hold its shape. Draw out grit versus sticky versus gloop that feels firm then soft. Celebrate the both observation. Keep it display-only talk; link lightly to porridge, batter or play dough without turning it into cooking.
- **What we learned and tidy up:** Two very short pupil voices only—one mix that poured, one that held or did both—then named pack-away: tray wipers, spoon collectors, hand-wash line. Keep clear-up realistic so wet stations are ready before the next lesson.

What it should show

Sand and water stays gritty and may pour when wet or clump when only damp. Flour and water goes pasty and sticky and usually holds a soft blob. Cornflour gloop often feels firm under a quick press and soft when left alone—pupils may rightly say both. Amounts change results; that is useful talk, not a setup error. Affirm look/feel words and a clear pour or hold choice.



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 pour and hold its shape cannot both be true for one mix.** — At the gloop tray, have them press hard then let go. Ask when it felt firm and when it went soft, and let them mark both / when on the page.
- **Pupils want to taste the mix or judge it like food rather than describe it.** — Stop tasting before it starts. Steer back to spoon tip and feel words: cloudy, gritty, sticky, runny, lumpy—and the pour or hold choice.



Differentiation

Emerging	Developing	Proficient
• Pair at one station with teacher or SNA support; scribe the pour/hold choice and one feel word while the pupil stirs and tips. • Use the word cards (wet, sticky, runny, pours, holds) as point-and-say prompts beside the tray.	• After the first mark, add one extra spoon of water and say what changed for pour or hold. • Prompt a second feel word (e.g. gritty and wet) before leaving the station.	• Ask why gloop can feel firm and soft at different times, and have them show both / when on the page. • Invite a home-link: name one everyday mix and say whether it pours or holds its shape.



Cross-curricular hook

Link to oral language: build a shared bank of feel words (gritty, sticky, runny, lumpy) pupils reuse in writing and talk.

