

materials

Dissolving: what disappears in water?

Lesson at a glance

Open with a clear cup and a spoon of sugar: where does it go in tea? Pupils predict for sugar, salt, sand and flour, then sort change/measure/keep-the-same cards on the fair-test-planner interactive. Teacher pours warm water; groups add one level spoonful, stir twenty times, and jot quick/a while/not at all. They finish the Investigation Journal page, then a talk names solution and fairness.

Learning objectives

- Plan a fair dissolving test by sorting change, measure and keep the same
- Observe and record which materials dissolve in water and which do not
- Explain that dissolving is not the same as disappearing forever

Before the bell – prep

Night before: mark fill lines on identical clear cups and set one tray per group of four (sugar, salt, clean play sand, plain flour in labelled pots, spoons, towels, journals). Warm water ready (kettle cooled to hand-safe, or warm tap). Second jug or SNA pour helps a full 3rd class.

**Materials**

Item	Qty	Per	Source	Low-cost substitute
identical clear plastic cups	4	group	classroom	clean clear yoghurt pots or jam jars
warm hand-safe water in a jug	1	class	classroom	room-temperature water (dissolving is slower but still works)
sugar	1	class	supermarket	caster or granulated sugar from the staff room
table salt	1	class	supermarket	cooking salt from the staff room
clean play sand	1	class	school kit	clean fine grit from a washed plant pot saucer, fully dry
plain flour	1	class	supermarket	cornflour
teaspoons or craft spoons	4	group	classroom	one spoon per group, wiped between materials
paper towels	1	group	classroom	old tea towels
Investigation Journal page	1	pupil	provided printable	plain paper ruled into a simple results table

Safety watch-point

No tasting any cup. Teacher pours hand-safe warm water only. Wipe spills at once; tip flour gently (it puffs); stop wild stirring near faces; wash hands after tidy.

Teaching moves

- **Today's question and words:** Board the question and four materials only; say the short dissolve line once. Partner predictions, then a quick class vote. Keep solution and fair-test unpacking for later—model aloud only the wonder, a sugar prediction, and the method, not the result.
- **Plan the fair test:** Open the fair-test-planner interactive. Read each card aloud and drag: material → Change; does it dissolve/how fast → Measure; water amount, spoonful, stirring, cup → Keep the same. Narrate why each keep-the-same matters; land the phrase fair test here.
- **Run the dissolving test:** Trays out; model sugar once—level spoon, twenty slow stirs, agree quick/a while/not at all. Batch-pour warm water table by table to the fill line. Circulate for level spoons, calm stirring, no tasting; fold watchers in when a group reports.
- **Record what we saw:** Leave the I saw / I think example on the board. Pupils complete all four materials from their jots: dissolves or not, timing word, short observation. If sugar failed, check keep-the-sames with them—do not force the expected answer onto the page.
- **What does the evidence show?:** Pull two or three groups' results into a simple class table. Name solution with clear sugar/salt water; contrast cloudy flour and settled sand. Ask what would have made the test unfair and what surprised them.
- **Wrap up and tidy:** Fold the exit check into pack-away: which dissolved, and did the sugar vanish forever? Tip cups to the sink (sand to bin if traps are fussy), wipe, wash hands—prioritise a calm clear-up over a long recap.

What it should show

Sugar dissolves quickly (clear or slightly shiny water); salt dissolves, often a little slower; sand does not—grains visible and sink; flour clouds the water (suspension), may settle, not a true dissolve. Slow sugar usually means cool water or a heaped spoon—rematch keep-the-sames and retry one level spoon.

Misconceptions & interventions

- **Pupils say the sugar has disappeared or been destroyed forever.** — Point to the clear sweet-looking water and repeat: it is still there, mixed through—that mixture is a solution. Taste is not needed; the empty-looking cup is the evidence.
- **Pupils say flour dissolved because the water went white or cloudy.** — Stand a clear sugar cup beside the cloudy flour cup. Name grains or powder still there or settling: cloudy is not the same as dissolved like sugar.
- **Groups heap spoons, stir wildly, or add different water so results cannot be compared.** — Stop and re-voice the planner cards: only the material changes. Rematch fill line, level spoon and twenty slow stirs before the next cup.

**Differentiation**

Emerging	Developing	Proficient
• Let the group call out which planner bin each card goes in while you drag; pair for journal ticks using the board timing words only.	• Ask why a keep-the-same card cannot go in Change; prompt one extra observation note (clear, cloudy, or bits on the bottom).	• Justify each card placement; sketch one cup before and after on the journal or name one change that would make the test unfair.

Cross-curricular hook

Link to everyday Irish kitchens—salt in cooking and sugar in tea—and to Maths when comparing quick / a while / not at all across materials.