

materials

Which material is waterproof?

Lesson at a glance

Open with a rainy walk-to-school hook: paper bag or raincoat — hands-up, then feel a real coat if you have one. Name waterproof and absorb, hold up four dry squares (soft fabric, paper, foil, plastic), and have pupils mark predictions on the Investigation Journal. Groups drip the same small amount of water on each square over a tray, then record what they saw beside their guesses. Close with a talk linking tray evidence to raincoats and everyday waterproof jobs.

Learning objectives

- Predict which materials will keep water out and say why
- Observe and record which material squares let water through and which do not

Before the bell – prep

Cut four same-size dry squares per group the night before: soft fabric, paper, foil, plastic. One tray and dropper or spoon per group; water ready off-table. Optional real raincoat on a peg. Newspaper, cloths for spills, and a sink plan for tray water after.

**Materials**

Item	Qty	Per	Source	Low-cost substitute
fabric squares (cotton scrap or old t-shirt, about 10 cm)	1	group	classroom	a scrap from an old tea towel or sock
paper squares (copy paper, about 10 cm)	1	group	classroom	newspaper squares
foil squares (kitchen foil, about 10 cm)	1	group	supermarket	the foil lid from a clean yoghurt pot, flattened
plastic squares (cut from a clear document wallet or clean food bag)	1	group	classroom	a piece of clean plastic packaging or a zip-bag panel
shallow tray	1	group	classroom	a baking tray or large plastic lid
dropper or small spoon	1	group	classroom	a clean medicine syringe without needle, or a teaspoon
small jug of water	1	group	classroom	a cup of water from the tap
raincoat or waterproof jacket to show	1	class	classroom	a picture of a raincoat, or a plastic book bag
cloths or paper towels for spills	4	class	classroom	old tea towels
Investigation Journal page	1	pupil	provided printable	plain paper with teacher-led oral prompts

Safety watch-point

Wipe floor spills at once; sleeves rolled up; no tasting water from trays. Wash hands after tidy.

Teaching moves

- **Today's words and our question:** Board only two short lines: waterproof keeps water out; absorb soaks it up. Hold each dry square as you name it and say material means what something is made of. Keep trays and water off tables. Head off 'thick means waterproof' — stick to what the drip test will show.
- **Predict first:** Show the four dry squares once, one short partner whisper, then hands-up per material with a board tally while every pupil makes one quick journal mark (tick or dry-face/wet-face). No water yet. If time is tight, drop the whisper and go straight to hands-up-and-mark.
- **The drip test:** Model the full I wonder / I predict / I test / I observed / I think cycle on paper only. Then groups of four: paper → soft fabric → foil → plastic, same drip amount, roles rotate. Circulate asking where the water is now. If a group is slow after two, drip the last two while they watch so all four have evidence.
- **Record what we saw:** Journal still open with predictions already marked. Oral rehearse I observed... then one mark or short phrase per material — stay on top, soak in, or go through. Check they record the drip test, not only their first guess; honest notes if foil leaked at a tear.
- **Make sense together:** One prompt at a time about 1–1.5 minutes each. First revoice what groups saw; then link raincoat material to plastic or a coated coat, not ordinary cloth; then one or two everyday waterproof uses. Tidy: pour trays, dry or bin wet squares, wipe, wash hands.

What it should show

Paper usually darkens, soaks and often drips through; many soft fabric squares darken and let some water through; foil and plastic usually hold beads on top. A surprising leak on foil or plastic is often a hole, crease or join — name it and record what happened, not a failed test. Soft fabric split predictions are useful talk fuel.

Misconceptions & interventions

- **Thick things are always waterproof — if it feels thick it will keep water out.** — Point back to the tray: some thin plastic held beads while thicker soft fabric let water through. Thickness is not the rule; stick to what they saw.
- **Our soft fabric square should work like a raincoat because both are fabric.** — Return to tray evidence and the real coat if you have one: raincoat material is often coated so water runs off; ordinary cloth absorbs like their fabric square.

**Differentiation**

Emerging	Developing	Proficient
• Pair for holding and dripping; scribe or accept dry-face/wet-face marks after oral I observed... • If a group is slow, teacher-drips the last squares while they watch and agree one word each.	• Prompt one spoken because for a material that matched their prediction. • Ask where the water is now — on top, inside, or on the tray — after each drip.	• Add one everyday object that matches a waterproof square they tested (spoken or quick spare-paper sketch). • If foil leaked at a tear, ask what that tells us about joins and damaged coats.

Cross-curricular hook

Link to Irish weather and outdoor gear — wellies, school-bag covers and coats chosen for waterproof materials.