

materials

Waterproof or not

Lesson at a glance

Open with Irish rain and a raincoat: does water sit on top or go through? Children thumbs-guess on four dry squares — fabric, paper, foil and plastic — then watch you model one drip on paper. In groups they take turns guessing and dripping each square on a tray, notice beads versus soak-through, and sort on the Investigation Journal page. Close with a coat-maker talk: why plastic-like material, not paper, for Irish weather.

Learning objectives

- Guess whether a material will keep water out before testing
- Drip water onto material squares and notice what happens
- Sort materials into keeps water out and lets water through

Before the bell – prep

Day before: cut hand-sized squares of fabric, paper, kitchen foil and plastic (document wallet or clean bag), plus a spare dry set per group. Set one shallow tray, dropper or teaspoon, small water cup and towel per station. Print one Investigation Journal page each. Keep trays out of sight until after the coat hook.

**Materials**

Item	Qty	Per	Source	Low-cost substitute
shallow tray or washing-up basin	1	group	classroom	a large roasting tin or plastic storage-box lid
fabric squares (about hand-sized, e.g. cotton scrap or old tea towel)	1	group	classroom	a square cut from an old t-shirt
paper squares (plain paper or scrap paper)	1	group	classroom	newspaper squares
kitchen foil squares	1	group	supermarket	the foil lid from a clean yoghurt pot, flattened
plastic squares (cut from a clear document wallet or clean plastic bag)	1	group	classroom	a square cut from a clean food bag
dropper or teaspoon	1	group	classroom	a clean medicine syringe (no needle) or a bottle cap for pouring tiny amounts
small cup of cold water	1	group	classroom	a yoghurt pot of water
towel or cloth for spills	1	group	classroom	a few sheets of kitchen paper
spare dry material squares (same four types)	1	group	classroom	reuse any dry leftovers from the first cut
Investigation Journal page	1	pupil	provided printable	a blank sheet for drawing the two groups

Safety watch-point

Cold water only; wipe spills straight away; no tasting. Dry hands before journals. Stagger handwashing so the sink does not jam; you handle very wet waste.

Teaching moves

- **Getting Started:** Keep it oral and light. Hold up a child's raincoat or the coat image only — no drip trays yet. Ask whether rain sits on top or goes through; take two or three ideas without correcting. Gently name that a coat-maker chooses special material so Irish rain stays outside.
- **Look and wonder:** Hold up the four dry squares one by one. Say the two meanings once: waterproof means water stays on top; some materials let water through and get wet. Thumbs up or down for each guess only — two minutes, no dripping, guesses are never wrong.
- **Watch me drip:** Model the full cycle out loud on paper only: I wonder → I guess → I drip one spoon in the middle → I saw it go dark with water underneath → I think paper lets water through. Point to the underside. Echo the two words against what they just saw. Children watch only.
- **Drip and find out:** Send groups to pre-set stations; sleeves up. One child drips, others watch. Prompt: say your guess before the drip — one tiny drip is enough. Circulate asking where the water is now and whether the underside is dry or wet. Swap a spare dry square if one soaks early; if everything floods, switch to a smaller drip.
- **What did we notice?:** Two minutes at trays, then eyes to you. Groups hold up one square that kept water out and one that let water through. Revoice: that one is waterproof; that one lets water through. Name one surprise aloud (often thick fabric still soaks) so the class does not invent a thick-equals-waterproof rule.
- **Show and draw:** Hands and fingertips dry on the towel first; wet squares stay on the tray beside them. On the board sketch a drop sitting on top and a drip going through, then name which group is which. Children draw or scribble each square they tried into the matching group on the Investigation Journal page — no glue or cut-outs. Circling a surprise is optional.
- **Make-sense talk:** Whole-class for the full four minutes. Gather results: foil and plastic usually waterproof; paper and fabric usually let water through. Ask why a coat-maker would pick material like plastic, not paper, for Irish rain. Keep foil as test evidence only — real coats use coated or plastic-like material, not tea-towel fabric. Ask: why would a paper coat be a silly idea for Irish weather?

What it should show

Expect foil and plastic to keep water beading on top (waterproof); paper and most fabric to darken, soak and wet the tray underneath. Creased foil may pool water in a dip but still stay on top. A group where everything soaks usually used too much water or a holed plastic bag — switch to one tiny drip and a document-wallet square.



Misconceptions & interventions

- **Thick things keep water out — so the fabric must be waterproof because it feels chunky.** — Hold up the wet fabric beside the thin plastic. Ask which underside is dry. Name the surprise: thickness did not decide it; whether water stayed on top did.
- **All shiny things keep water out.** — Point back to foil and plastic only as what they saw today. Remind them we tested these four materials — shiny is a clue to check, not a rule.
- **Foil would make a good rainy coat because it kept water on top in our test.** — Name foil as useful test evidence only. Link to a real raincoat, wellies or schoolbag cover: a coat-maker chooses special coated or plastic-like material, not kitchen foil or tea-towel fabric.

Differentiation

Emerging	Developing	Proficient
• Drip with you at the teacher table and try only two squares (e.g. paper and plastic); scribe a single word label on their journal if they ask. • Allow a mark or scribble for just one keeps-water-out and one lets-water-through square.	• Prompt after each drip: was your guess the same as what happened? Where is the water now? • Have them hold up their surprise square and tell the group one thing they noticed.	• Try a second fabric scrap from the spare set and say whether it behaved the same or different. • Early finishers draw their raincoat on the journal page and whisper to a partner whether they think it is waterproof and why.

Cross-curricular hook

Link to Geography weather and Irish rain — why coats, wellies and schoolbag covers need materials that keep water on top.