

materials

Sorting materials by their properties

Lesson at a glance

Open by holding a wooden spoon beside a plastic spoon and asking why someone might choose one material over the other for the same job. Introduce material and property, then groups handle a tray of wood, clear plastic, fabric, foil and glass, noticing feel, bend and a careful water drip. They sort twice by different property pairs, run the sorting-tree interactive on the board, record observations and one sort in the Investigation Journal, and finish by matching a material to a job with a spoken because.

Learning objectives

- Name common material properties such as hard, soft, see-through, bendy and waterproof
- Sort everyday materials by chosen properties
- Match a material to a job it suits and say why

Before the bell – prep

Night before, bag one tray per group: wooden block or ruler, clear plastic cup or bottle, fabric scrap, foil piece, small glass jar. Add two sorting hoops or labelled paper mats, property word cards, and one shallow water tray for drip tests only.

**Materials**

Item	Qty	Per	Source	Low-cost substitute
small wooden block or wooden ruler	1	group	classroom	a wooden pencil or lollipop stick bundle taped together
clear plastic bottle or cup	1	group	classroom	clear food packaging pot
fabric scrap (cotton or felt)	1	group	classroom	an old clean sock or cloth
aluminium foil piece	1	group	supermarket	clean foil from a food tray, edges folded smooth
small glass jar	1	group	classroom	thick clear plastic jar if glass is not suitable
shallow water tray or dish	1	group	classroom	a clean takeaway container lid with a little water
sorting hoops or labelled paper mats	2	group	classroom	two sheets of paper labelled Group A and Group B
property word cards (hard, soft, bendy, stiff, see-through, waterproof)	1	group	classroom	write the six words on sticky notes or scrap card
Investigation Journal page	1	pupil	classroom	ruled paper with space for observation notes and one property sort
wooden spoon and plastic spoon for the hook	1	class	classroom	any two everyday objects of different materials

Safety watch-point

Glass stays on the tray during moves; drip test only, no dunking or tasting; wipe spills at once and wash hands after water work.



Teaching moves

- **Getting Started:** Hold up the wooden and plastic spoons only. Ask which feels harder and which you would use in hot soup, then capture two or three ideas. If talk stalls, add the Irish roofs line: thatch then slate because wet weather needs a better-suited material.
- **Properties we can notice:** Board only the two anchors — material and property — plus the short pairs hard/soft, bendy/stiff, see-through or not, waterproof or not. Do not read a glossary; save full naming for the real objects on the trays.
- **Handle and notice:** Model the foil cycle first: wonder, predict bend, bend it, drip water, conclude bendy and waterproof. Send groups out naming each property pair as they meet it. On wood, wait a few seconds or blot — many woods darken as water soaks in, unlike plastic or foil.
- **Sort by property:** Give two hoops or mats. Groups choose the first property pair, then after about six minutes re-sort by a second pair so the same object can change group. Listen for property names and justifications, not ‘I like this one’. Keep glass on the tray.
- **Sort on the board:** Drive the sorting-tree interactive in explore mode with wood, plastic, fabric and glass. Guide: wood hard not see-through; clear plastic and glass hard and see-through together; fabric not hard. Say aloud that soft is not the same as bendy — bendy was tested with foil on the trays.
- **Record in your journal:** Model one board line only: Foil — bent easily; water sat on top. Pupils complete observation lines for materials they handled and one sorting record. Offer property word cards for writers; no extra homemade columns.
- **Jobs materials suit:** Think-pair-share using one journal material and property, then a job and why. Take three or four class examples. Anchor with classroom window glass not fabric, and wellies plastic not cotton. Revoice vague ‘strong’ into hard, waterproof or stiff.



What it should show

Expect foil bendy with water sitting on top; fabric soft and not waterproof; glass hard and see-through; clear plastic hard and often see-through; wood hard and slowly darkening under a drip. A group calling wood waterproof usually did not wait — re-drip and blot to show soak-in.



Misconceptions & interventions

- **Pupils name the object instead of the material — ‘spoon’ rather than wood or plastic.** — Gently revoice: ‘Yes, it is a spoon — and the material is wood.’ Point back at the tray item as you say the material word.
- **Pupils call wood waterproof because the first drop sits on top.** — Wait a few seconds or blot with a fingertip so they see the wood darken, then contrast with foil or plastic where the drop stays put.
- **Pupils treat soft and bendy as the same, or say every good material is ‘strong’.** — Hold fabric and foil side by side: fabric is soft when pressed; foil shows bendy. Ask what ‘strong’ means here — hard, waterproof, or stiff?



**Differentiation**

Emerging	Developing	Proficient
• Offer the printed property word cards and sort beside the teacher using one property pair only before trying a second. • Accept oral observation lines scribed or copied from the board model: Foil — bent easily; water sat on top.	• After two sorts, ask why the same piece moved groups when the property pair changed. • Prompt one clear job match using a property already written in the journal.	• If time allows, invent a third sort such as natural or made by people and justify placements. • Jot a poor material–job match (e.g. fabric for a roof tile) and say which property fails.

Cross-curricular hook

Link to Irish weather and homes: slate and tile roofs suit wet weather better than thatch — matching material to job.

