

## materials

# Materials and the environment

## Lesson at a glance

Open by showing a leaf, scrap of paper, foil and a plastic wrapper and take hands-up guesses about which would still be there after weeks in soil. Teach rot, then groups predict on SortingGrid section 1 and bury equal pieces at the same depth, labelling spots and agreeing a dig-up date. Drive the sorting-tree interactive to place eight everyday materials into rot, reuse/recycle or lasting-waste groups, then groups sort two or three new classroom finds. Close with one practical kinder swap recorded on section 3.

## Learning objectives

- Sort everyday materials by their potential impact on the environment
- Set up a buried-sample observation of whether materials rot
- Propose one practical swap to a kinder material and say why it helps

## Before the bell – prep

Print the SortingGrid page. Cut four equal-sized samples per group (leaf, paper, foil, plastic wrapper). Set a soil tray indoors or mark a small outdoor patch to revisit. Gloves ready. Optional front display: cardboard scrap, bottle piece, cloth scrap or glass jar (teacher only).

**Materials**

| Item                                                                                                                                                           | Qty | Per   | Source             | Low-cost substitute                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| leaf samples (similar size pieces)                                                                                                                             | 1   | group | outdoors           | torn green garden waste from the school grounds                                                                                                  |
| paper samples (similar size pieces)                                                                                                                            | 1   | group | classroom          | scrap worksheet paper                                                                                                                            |
| aluminium foil samples (similar size pieces)                                                                                                                   | 1   | group | supermarket        | clean foil from lunch wraps brought from home                                                                                                    |
| plastic wrapper samples (similar size pieces)                                                                                                                  | 1   | group | classroom          | clean crisp or biscuit wrappers from home                                                                                                        |
| shallow soil tray with damp soil                                                                                                                               | 1   | group | school kit         | one or two shared class trays, or one shared outdoor soil patch with marked group strips                                                         |
| reusable non-latex gloves (preferred) or thorough handwashing station                                                                                          | 1   | pupil | school kit         | single-use non-latex gloves only when reusable gloves are not available and soil work needs a barrier                                            |
| craft sticks or waterproof labels                                                                                                                              | 4   | group | classroom          | lollipop sticks or folded card flags on cocktail sticks                                                                                          |
| optional teacher-display samples for the board sort (cardboard scrap, clean plastic bottle piece, cotton cloth scrap; safe glass jar or picture card only)     | 1   | class | classroom          | IWB sorting-tree cards alone — no physical display samples needed                                                                                |
| new classroom finds for consolidation sort (e.g. wooden pencil stub, clean cling-film scrap, rubber band or eraser, cotton wool ball, clean yoghurt-pot piece) | 2   | group | classroom          | photo cards of the same everyday classroom items                                                                                                 |
| Investigation Journal page                                                                                                                                     | 1   | pupil | provided printable | ruled page with: (1) four predict lines, (2) fair-test/dig-up notes, (3) a small table for new finds, (4) reverse-page stems for one kinder swap |



### Safety watch-point

Gloves on for soil work; wash hands after; no tasting. Return outdoor minibeasts gently. Glass stays teacher display only.

### Teaching moves

- **What does rot mean?:** Project only the short board lines on rot. Hold environmental impact and kinder swap for later steps. Use change a lot / a little / hardly at all for partner whispers, then take hands-up per sample. Gently name green and brown bins and familiar local litter without guilt.
- **Bury samples and start watching:** Model once: I wonder, I predict, I test with equal pieces at the same depth. Groups record section 1 predictions before burying, then label each spot. Agree a dig-up date about 3–4 weeks ahead, photo beside a ruler, and notice colour, shape, how much is left and whether it tears or crumbles. Do not dig up today.
- **Sort by environmental impact:** Introduce environmental impact, then run the sorting-tree interactive in explore mode, one card at a time. Branch on rot first, then reuse/recycle. Say aloud that paper, cardboard and cotton land under rot by design even though children recycle them at home — the tree forces one primary group. Foil and glass are useful debate cards the other way. Pupils record a selection on section 2: material · group · reason.
- **Tricky finds and hard choices:** Give each group 2–3 new finds not on the board (pencil stub, cling film, rubber band, cotton wool, yoghurt-pot piece). No glass in pupils' hands. Allow 4–5 minutes desk sorting, then take only two or three tricky placements. Ask what evidence they used and whether reuse differs from rotting.
- **One kinder swap:** Introduce kinder material swap now. Keep it short: one job, what to stop using so often, what instead and why. Strong everyday examples: reusable bottle, lunchbox or beeswax wrap, cloth bag, writing on both sides of paper. Three quick share-outs; optional class vote for one shared classroom swap.

### What it should show

Expect predictions that leaf and paper change more than foil and plastic; full breakdown is not promised by first dig-up, especially in cool Irish soil. Sort look-fors: leaf/paper/cardboard/cotton under rots fairly easily; foil, glass and plastic bottle under reuse/recycle well; thin wrapper under lasting waste — with reasoned debate welcome. A successful swap names a real job, a material to cut, and why lasting harm falls.



### Misconceptions & interventions

- **Children think anything buried just vanishes or will be gone by the first dig-up.** — Revoice rot as living things in the soil breaking some materials down slowly; others hardly change. Stress today's job is a fair start only — evidence comes at dig-up using a lot / a little / hardly at all.
- **Pupils dump every plastic into one bad heap, or think natural always means kind.** — During the sorting-tree, separate bottles (reuse/recycle well) from thin wrappers (lasting waste). Hold the paper/cardboard tension aloud: recycle can still be true in real life even when the tree's primary group is rot.
- **Pupils treat rot and recycle as the same idea.** — Ask: is reuse different from rotting? Point to foil or glass — they do not rot, yet they recycle well — and to cling film as a fair lasting-waste placement when reuse is weak.

### Differentiation

| Emerging                                                                                                                                                                                                                                                           | Developing                                                                                                                                                                                                                     | Proficient                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Offer sentence stems on section 1: "I think the ____ will rot because..." and pair at the teacher table for burial labelling.</li><li>• Allow a smaller selection of cards on section 2 rather than a full sort.</li></ul> | <ul style="list-style-type: none"><li>• Prompt one fair-test rule they kept the same (size or depth) on section 1.</li><li>• Ask whether a tricky find could fit more than one group depending on how people use it.</li></ul> | <ul style="list-style-type: none"><li>• Challenge one board placement they still disagree with and say what evidence would change their mind.</li><li>• Link their kinder swap to litter near a familiar park, pitch or beach and what would cut that waste.</li></ul> |

### Cross-curricular hook

Link to familiar green and brown bin sorting at home and litter on a local park or beach the class knows.