

## materials

# Natural and synthetic materials

## Lesson at a glance

Open by holding up a wooden spoon and a plastic spoon and asking where each came from. Teach natural versus made-by-people, then groups sort a materials tray into two labelled hoops, leaving disputed items on the line. Pupils hunt the room for one mixed object, check hard cases on the sorting-tree interactive, and record natural, synthetic and one mixed find on the Investigation Journal page. Close with talk on what job each part of a pencil does.

## Learning objectives

- Distinguish natural materials from synthetic materials made by people
- Trace everyday materials back to where they came from and notice mixed objects

## Before the bell – prep

Day before: assemble one tray per group (lolly stick, cotton, stone, wool, paper, plastic lid, polyester scrap, foam packing, rubber band) and two labelled hoops. Print one Investigation Journal page each. Keep a spare pencil ready as the class mixed-object model.

**Materials**

| Item                                                                                                             | Qty | Per   | Source             | Low-cost substitute                                                               |
|------------------------------------------------------------------------------------------------------------------|-----|-------|--------------------|-----------------------------------------------------------------------------------|
| materials sorting tray (wood stick, cotton, stone, wool, paper, plastic lid, polyester scrap, foam, rubber band) | 1   | group | classroom          | six clear items only: stick, stone, paper, plastic lid, fabric scrap, rubber band |
| labelled sorting hoops (Natural / Made by people)                                                                | 2   | group | classroom          | two sheets of paper labelled Natural and Made by people                           |
| wooden spoon and plastic spoon (hook pair)                                                                       | 1   | class | classroom          | any clear natural/ synthetic pair such as a pebble and a bottle lid               |
| Investigation Journal page                                                                                       | 1   | pupil | provided printable | plain paper folded into two labelled columns                                      |
| word cards (wood, wool, cotton, stone, paper, plastic, polyester, foam, rubber)                                  | 1   | group | provided printable | write the words on the board for copying                                          |
| school pencil (shared mixed-object talk)                                                                         | 1   | class | classroom          | any clear mixed classroom object such as a book with a plastic cover              |

**Safety watch-point**

Nothing in mouths. Wash hands after dusty scraps or outdoor stones; tidy trays before pupils leave the tables.



### Teaching moves

- **Getting Started:** Hold up the wooden and plastic spoons only. One question and a quick show of hands: which grew or came from nature, which did people make? Keep trays out of sight and do not open the vocabulary table yet.
- **Natural or made by people?:** Teach only two ideas with the spoons still in hand. Read the short board lines aloud; say synthetic yourself and always pair it with made by people. Model one worked sort out loud with a lolly stick then a plastic lid before groups touch trays.
- **Sort the materials tray:** Seed origin lines for foam, rubber band, paper and polyester first. Keep prompts on where it came from, not how it looks. Do not rush line items — ask both reasons. Preferred sort: wood, cotton, stone, wool, paper, rubber band → natural; plastic lid, polyester, foam → synthetic.
- **Trace where it came from:** Groups name origin for three tray items, then a short room hunt for one mixed object (pencil, book, bag, jumper with zip). Prompt them to point to the natural part and the made-by-people part. If a group claims all-plastic is mixed, ask them to name both materials aloud.
- **Check the tricky ones:** Run the sorting-tree interactive in challenge mode only. Move fast on stone, wood, plastic, wool; slow on paper, rubber band, polyester and foam, holding up the matching scrap. When one pupil places a card, ask another group: Do you agree? Why?
- **Record on your journal page:** This is a calm record of decisions already made, not a third full sort. Word cards on the table support writers. Check each pupil has named both materials in one mixed-object line.
- **Mixed materials around us:** Anchor on one shared pencil: which part is strong, which is soft, what job does each do? Revoice that materials are mixed on purpose because each part does a different job, then invite one more room find.



### What it should show

Expect wood, cotton, stone, wool, paper and the usual rubber band in natural; plastic lid, polyester and foam in synthetic. Paper stays natural (from trees) even though milled. Easiest mixed finds are pencils and books. A group calling soft fleece natural or shiny silk synthetic is sorting by look, not origin — push back to where it came from.



### Misconceptions & interventions

- **Anything soft or brown is natural, and anything shiny is synthetic.** — Hold soft polyester fleece beside wool, and name shiny silk as from an animal if it comes up. Ask only: did this come from a plant, animal or the ground, or did people make it?
- **Paper and cotton are synthetic because people made them in a factory.** — Hold the paper scrap and cotton: people cleaned and shaped them, but they still came from trees and plants. Factory finishing does not make a material synthetic.
- **An all-plastic object is mixed because it has different bits.** — Ask them to name both materials out loud. Mixed means natural and made-by-people joined together — point to a pencil's wood and rubber tip as the clear model.



**Differentiation**

| Emerging                                                                                                                                                            | Developing                                                                                                                                       | Proficient                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>• Start with four clear items only: wood stick, stone, plastic lid, polyester; offer word cards for journal labels.</li></ul> | <ul style="list-style-type: none"><li>• Leave disputed items on the hoop line and rehearse both origin reasons before the class check.</li></ul> | <ul style="list-style-type: none"><li>• Name both materials in a mixed object early, then add a second mixed find on the journal page and say what job each part does.</li></ul> |

**Cross-curricular hook**

Link to English oral language: pupils justify a sort with because and where it came from before the class agrees.