

## Exploring Everyday Materials

## Science Knowledge Organiser: Materials and States of Matter

### I already know...

- ...that a **material** is what an object is made from.
- ...that we can **sort** materials into groups by a property.

### Vocabulary



**material** – what an object is made from.

**property** – what a material is like (e.g. hard, shiny, bendy).

**sort / classify** – to group things using a rule (a criteria).

**flexible** – bends without breaking.

**rigid** – stiff and cannot bend easily.

**smooth** – feels even (not bumpy) when you touch it.

**rough** – feels bumpy or uneven when you touch it.

**natural** – found in nature (e.g. wood, rock, metal).

**man-made** – made by people (e.g. plastic; paper/cardboard products).

**waterproof** – water cannot pass through it easily.

**absorbent** – soaks up water.

### Key knowledge

- We can **classify** materials in different ways, depending on the **criteria** we choose (e.g. flexible/rigid, smooth/rough, hard/soft).
- We choose materials to fit a **purpose** (e.g. a metal spoon is easy to clean; a wooden spoon doesn't melt like plastic or get hot like metal).
- The same product can be made from different materials, and that changes how it works or who it is best for.



- Some **solid** materials can change shape by **bending, twisting, stretching and squashing**. Some changes last and some don't.
- Some materials are **natural** and some are **man-made**. People make new materials and new products all the time.
- Inventors and product designers choose materials to use in their products based on the material's **properties**.
- For example, jars are made from glass because this material is **see-through** and the user can see what's in them.



### Scientific enquiry



We can **carry out simple tests** (e.g. does it bend/twist/stretch/squash?) and **record results** in a chart/table.



Some materials can change shape by bending, stretching, twisting and squashing but others can't. Test some different materials and put a ✓ or a ✗ in each section of the chart to record your results.

Material	Does it bend?	Does it stay bent?	Does it squish?	Does it stay squashed?	Does it twist?	Does it stay twisted?	Does it stretch?	Does it stay stretched?

What do these results show us?



What have we found out?

### Thinking questions



- Why do some objects need to be made from more than one material?
- Which is better for a picnic: a metal spoon, a wooden spoon, or a plastic spoon? Why?
- Should we use more paper/cardboard instead of plastic? What might be the pros and cons?

### I should now be able to...

- name a range of everyday materials (wood, metal, plastic, glass, paper, cardboard, brick, rock).
- identify which materials are suitable for a job and explain why (fit for purpose).
- test and describe how some solid materials change shape by squashing, bending, twisting and stretching.