



1. Can I identify and compare the suitability of a variety of everyday materials?

- **Prior knowledge (Autumn Term's learning):** Animals, including humans
- **Vocab:** materials, rigid, malleable, purpose, unsuitable
- Know that different materials can be used to make lots of different things (e.g. plastic can be used for bottles, windows, rulers, cling film, clothes)
- Materials have different properties (e.g. rigid, malleable, smooth, rough) which makes them suitable for different purposes (e.g. to wrap food, to keep out water, to support a building)
- Know that some materials can be changed by squashing, bending, twisting or stretching (e.g. clay can be shaped, rubber can stretch)
- Know that some materials are unsuitable (e.g. a paper window because it will get wet) and that choosing the right material depends on its properties (e.g. an umbrella needs waterproof material, a spoon needs a strong material like metal)
- Know the uses of different materials:

- **metal** can be used for coins, cans, cars and table legs
- **wood** is often used because it is strong and sturdy (e.g. chairs, doors, tables)
- **plastic** is useful because it is lightweight and waterproof (e.g. bottles, toys, food containers)
- **glass** is transparent and can be used to see through (e.g. windows, glasses, jars)
- **fabric** is soft and flexible (e.g. clothes, curtains, cushions)
- **rubber** is stretchy and waterproof (e.g. wellington boots, tyres, elastic bands)

• Identify and Classify

2. Can I gather and record data when identifying how materials can be changed?

- **Prior knowledge (last lesson):** identified and compared everyday materials
- **Vocab:** gather, record, data, malleable
- Know that malleable is a material that can be easily bent, hammered, twisted, or pressed into new shapes without breaking or cracking (e.g. gold, silver, aluminium foil)
- Know that some objects are not malleable (e.g. wood)
- Know that some materials can be changed in different ways (e.g. bending paper, stretching elastic bands, squashing clay, twisting fabric)
- Know that not all materials change in the same way (e.g. metal cannot be easily bent by hand, but rubber can stretch easily)
- Know that we can observe what happens to materials and record the results (e.g. drawing pictures, using a simple table, or ticking what happened)
- Know that data is information we collect to help answer questions (e.g. recording which materials can be bent, stretched, or squashed)

Note for Teachers—Suggested Task: “Which Materials Are Malleable?”

Provide children with materials such as clay, foil, sponge, and plastic, and ask them to press or squash each one to see if it changes shape easily. Pupils record their findings in a simple table (e.g. drawings) to show which materials are malleable and which are not.

- **Gather and record data (e.g. fabric is malleable) to help in answering questions**
- **Observe closely, using simple equipment**

Uses of everyday materials

Note for teachers: see lesson 1 of Spring 2. Consider planting bulbs before Feb Half Term)

5. Can I explain the environmental impact of plastics and classify objects for recycling?

- **Prior knowledge (last lesson):** learnt about John Dunlop and Charles Macintosh
- **Vocab:** recycle, plastic, environment
- Know that plastic is a cheap material to make things out of
- Know there are different types of plastic (e.g. cling film, PVC, acrylic)
- Know: plastic is bad for environment—takes a long time to breakdown and harmful to animals
- Know the recycling symbol and what it means
- Know that recycled objects are made into new ones
- Know that recycling helps to reduce waste and protect the environment (e.g. less rubbish goes to landfill when we recycle)
- Plastic can be easily moulded to make lots of different types of objects (e.g. rulers, bottles,)
- Know what can be recycled and where we put it

• Identifying and classifying

4. Can I answer questions about John Dunlop and Charles Macintosh?

- **Prior knowledge (last lesson):** tested if materials are waterproof
- **Vocab:** inventor, John Dunlop, Charles Macintosh
- Know that John Dunlop invented the first practical inflatable rubber tyre, which made travel smoother and more comfortable (e.g. tyres on bicycles and cars today use this idea)
- Know that Charles Macintosh invented a waterproof material used to make raincoats (e.g. “Mackintosh” coats keep people dry in the rain)
- Know that these inventors are important because they used materials in new ways to solve problems (e.g. making travel easier and helping people stay dry)
- Know that scientific ideas about materials can lead to useful inventions (e.g. using rubber for tyres and waterproof clothing)

• Use observations to suggest answers to questions

3. Can I perform a simple test to see if materials are waterproof?

- **Prior knowledge (last lesson):** identified how materials can be changed
- **Vocab:** waterproof, absorb, material, waterproof
- Know that waterproof means that water cannot pass through the material
- Know that some materials are waterproof and do not let water pass through (e.g. plastic, rubber, foil)
- Know that some materials absorb water and are not waterproof (e.g. paper, fabric, sponge)
- Know that we can test materials to find out if they are waterproof (e.g. pouring or dropping water onto materials and observing what happens)
- Know that we can record results to show which materials are waterproof (e.g. using a table, ticks and crosses, or drawings)

Note for Teachers—Suggested Task: “Which Materials Are Waterproof?”

- Provide materials (paper, fabric, plastic, foil, sponge).
- Children drop a small amount of water onto each material.
- Observe and record:
 - Water stays on top (waterproof)
 - Water soaks in (not waterproof)

- **Performing simple tests; -observe closely, using simple equipment**
- **Gathering and recording data to help in answering questions**