

# Why can't we make everything out of plastic?

## Materials - properties Y5



### Key scientist - James Dewar

He proved gases could be liquified by being cooled to very low temperatures and invented the vacuum flask.



### Key vocabulary

conductive	a material that allows heat and/or electricity to pass through it
dissolve	to mix with a liquid and become part of the liquid
evaporation	The process whereby a liquid is changed to a gas.
insoluble	a substance that cannot be dissolved in liquid
magnetic	A material that is attracted to a magnet.
mixture	different things combined together; the particles are not bonded to each other
molecules	a collection of tiny particles that make up all things
soluble	a word used to describe materials that dissolve in liquid
solute	a substance that can be dissolved in liquid
solution	a mixture of substances
solvent	a substance that can dissolve a solute; water is a solvent
thermal conductor	A material that does allow heat to pass through easily.
thermal insulator	A material that does not allow heat to pass through easily.
transparent	a material that allows light to pass through it so it can be seen through clearly

### Working scientifically focus

Making predictions

Setting up tests

Observing and measuring

Interpreting and communicating results

### Key learning

- compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets
- know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
- use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
- give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic

### Scientific enquiry types

Identifying and classifying

Comparative and fair testing

**Soluble Materials**  
Some solids **dissolve** in water (**SOLUBLE**).

coffee    sugar    salt    jelly

Some solids do not **dissolve** in water (**INSOLUBLE**).

pepper    sand    wax

**Conductors and Insulators**

Conductors allow energy to pass.

Insulators slow energy transfer.

Electrical

Thermal

### Materials - Our Learning Journey

#### Year 1/2

- Name, describe and group different types of everyday materials based on simple properties
- Identify the suitability of the materials for particular uses

#### Year 3/4

- Solids, liquids and gases and changes of state
- The water cycle
- Conductors and insulators

#### Year 5/6

- Comparing and grouping materials based on specific properties
- Dissolving and solutions
- Separating mixtures through filtering, sieving and evaporating
- Reversible and irreversible changes



### Ethics

What are the ethical implications of making everything out of plastic?

