

How can changes to materials be reversed?

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 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
- demonstrate that dissolving, mixing and changes of state are reversible changes
- explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.

Working scientifically focus



Asking and exploring questions



Scientific enquiry



Observing and measuring



Making predictions



Observing and measuring



Concluding and evaluating

Soluble Materials			
Some solids dissolve in water (SOLUBLE).			
coffee	sugar	salt	jelly
			
Some solids do not dissolve in water (INSOLUBLE).			
pepper	sand	wax	
			

Materials - Our Learning Journey



Year 1

- Identify materials and their properties

Year 2

- Compare suitability of materials to their uses and the impact of changing their shape.

Year 3

- Compare rocks and soil and describe fossil formation

Year 4

- Observe and measure changes of state

Year 5

- Reversible and irreversible changes



Key vocabulary

acids	a substance that tastes sour
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 when a liquid is changed to a gas
insoluble	a substance that cannot be dissolved in liquid
insulator	a substance which does not allow the passage of heat or electricity
irreversible	a change that cannot be undone to get the original material back
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
reversible	capable of being reversed so that the previous state is restored
soluble	materials that dissolve in liquid
solution	a mixture of substances
substance	a particular kind of matter with uniform properties
thermal	relating to heat
transparent	a material that allows light to pass through it so it can be seen through clearly



Ethics

What are the implications of making everything out of plastic?