

How can changes to materials be reversed?

Properties of Materials

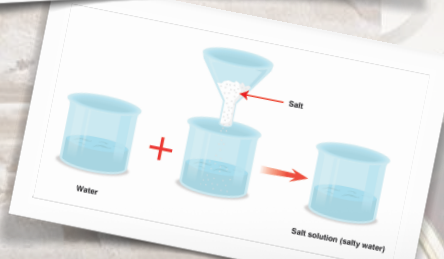
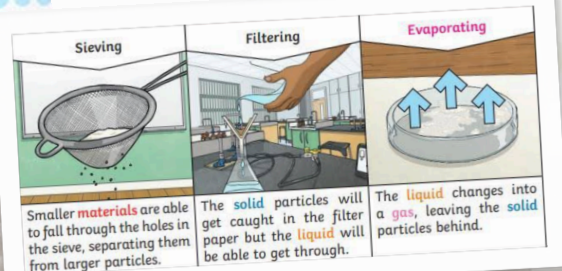
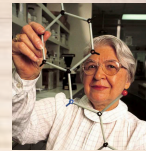


Year 5



Key scientist – Stephanie Kwolek

She discovered the material that led to the invention of Kevlar, a remarkably strong, lightweight synthetic fibre. It is used in protective clothing, helmets, ropes and bullet-resistant vests.



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

Working scientifically concepts

- Asking and exploring questions
- Making predictions
- Observing and measuring



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

dissolve	when a substance mixes completely with a liquid to become a solution
evaporating	the process when a liquid is changed to a gas
filtering	a way to separate an insoluble solid from a liquid using a barrier like filter paper
insoluble	a substance that cannot be dissolved in liquid
insulator	a substance which does not allow the passage of heat or electricity
irreversible change	a change that cannot be undone to get the original material back
properties	the features or qualities of a material that describe what it is like and how it behaves.
reversible change	a change that can be undone to get the original material back
sieving	a way of separating solid particles of different sizes by passing them through a mesh
soluble	a substance that can be dissolved in liquid
solution	a mixture made when a substance is dissolved in a liquid
thermal conductor	a material that allows 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
insoluble	materials that do not dissolve in liquid



Ethics

Should we avoid making irreversible changes to materials?

