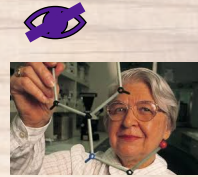


Can you unmake a cake?

Materials - properties Y5

Key scientist - Stephanie Kwolek

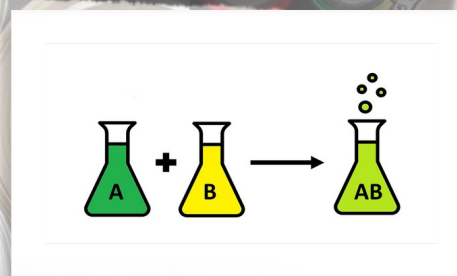
She invented Kevlar, a special material that can be used in bulletproof vests, by studying how materials change in different conditions, including both reversible and irreversible changes.



Working scientifically

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.

Reversible	Irreversible
✓ States of matter	✗ Burning
✓ Solid + Liquid	✗ Rusted metals
✓ Solid + Solid	✗ Heating food
✓ Soluble solid + Liquid	✗ Mixed ingredients



Key vocabulary

chemical change	a type of change in which a new substance is formed
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
irreversible change	a change to a substance that cannot be undone or reversed
mixture	different things combined together; the particles are not bonded to each other
molecules	a collection of tiny particles that make up all things
product	new substances made after the chemical change has happened
pure substance	a substance that has no other substances mixed into it
reversible change	a change to a substance that can be undone or reversed
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

Working scientifically focus

- Making predictions
- Asking questions
- Observing and measuring

Scientific enquiry types

Comparative and fair testing Observation over time



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

Is it okay to make materials that can't be reversed, like plastic, even if it means they can't be easily reused or recycled?

