

Substantive Knowledge

All matter, including gas, has **mass**.

Sometimes, mixed substances **react** to make a new substance. These changes are usually **irreversible**.

Heating can sometimes cause new materials to change permanently. When this happens, a new substance is made. These changes are not reversible.

Indicators that something new has been made are the properties of the material are different (colour, state, texture, hardness, smell, temperature).

If it is not possible to get the material back easily, it is likely that it is not there anymore and something new has been made (irreversible change).

Significant Scientists

Becky Schroeder (1962-)



Rebecca "Becky" Schroeder is an American inventor and one of the youngest females to be granted a U.S. patent at the age of 12. At the age of 10, she conceived the idea of a luminescent backing sheet that would enable writing in the dark. The Glo-Sheet found practical applications across various fields such as medical where nurses used it to take notes during night shifts and the Navy where sailors used the Glo-Sheet on ship decks during night time operations.

Tobin J. Marks (1944-)



Tobin J. Marks is a Professor of inorganic Chemistry, Catalytic Chemistry, Material Science and Engineering, Chemical and Biological Engineering and Applied Physics.

His team have developed a new method to break down plastic waste, using moisture from the air. The transformed plastic can upcycled into more valuable materials. This process offers a safer and cheaper alternative to current plastic recycling.

Disciplinary Knowledge

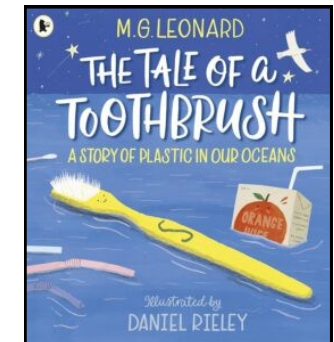
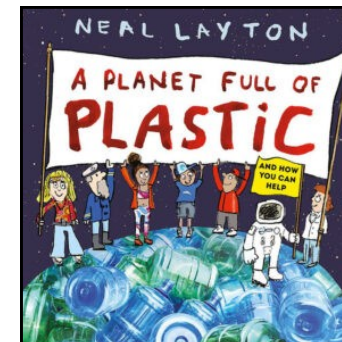
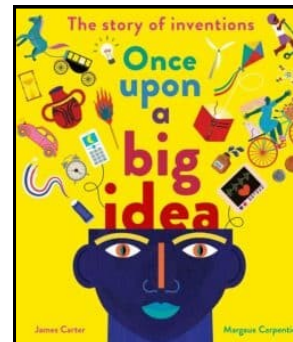
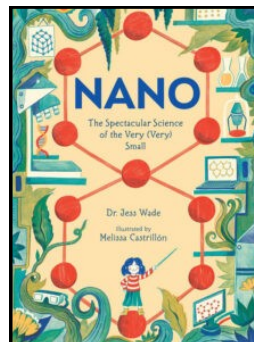
Taking measurement, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.



Reporting and presenting findings from enquiries.



Interesting Books



Key Vocabulary

matter	A physical substance which occupies space.
mass	A quantity of matter measured in kg.
react	The process of transformation from one set of
irreversible	Not able to be undone or altered.

Making New Substances



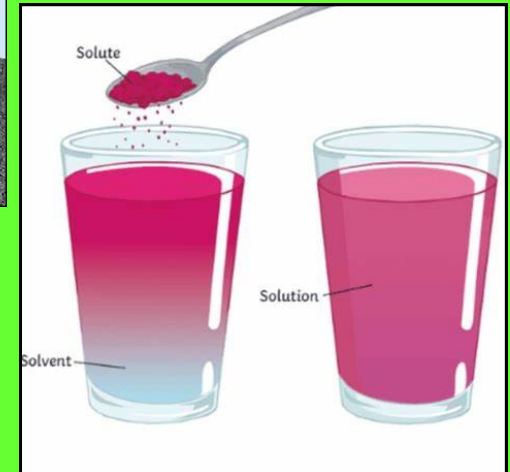
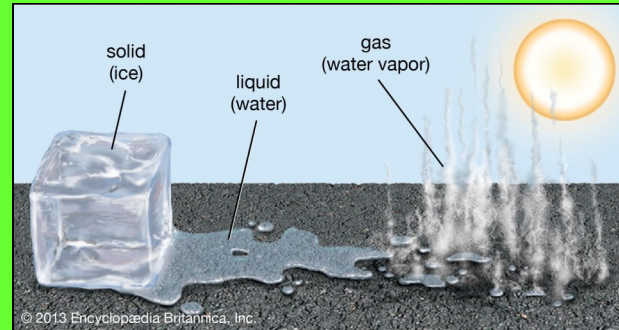
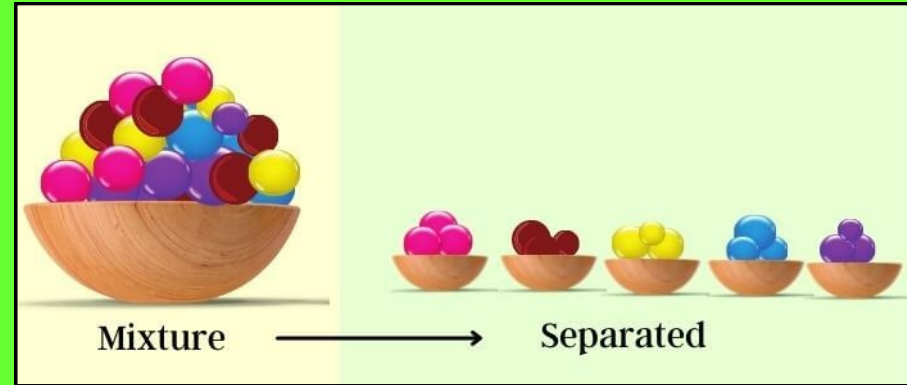
Chemical Change Examples

In a chemical change, one or more substances form a new substance.

- Burning wood
- Rotting fruit
- Baking a cake
- Rusting metal
- Using a Battery
- Digestion
- Souring Milk
- Exploding Fireworks
- Cooking an egg
- Photosynthesis

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Prior Knowledge



- absorb
- crumbly
- drag
- strongest
- softest
- slippery
- flexible
- melt