Science	Changes of materials: Can all materials be changed, and can those changes always be reversed?	Year 5

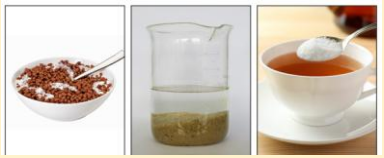
Key Vocabulary

WORD	DEFINITION
Matter	Anything that has mass and takes up space.
Soluble	Able to dissolve in a liquid.
Insoluble	Not able to dissolve in a liquid.
Solution	A mixture formed when a solid dissolves in a liquid.
Solute	The solid that is dissolved.
Solvent	The liquid that dissolves the solute.
Mixture	Two or more materials combined without changing chemically.
Filtering	Separating an insoluble solid from a liquid.
Sieving	Separating solids of different sizes.
Evaporation	When a liquid changes into a gas.
Condensation	When a gas cools and changes into a liquid.
Reversible Change	A change that can be undone.
Irreversible Change	A change that cannot be undone because a new material is formed.
Chemical Reaction	When substances react to form a new substance.

Key Knowledge

What is a Mixture?

A mixture is formed when two or more materials are combined but do not chemically change.



Examples:

- Sand and water
- Rice and lentils
- Salt and pepper

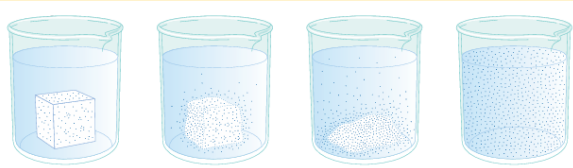
The materials can often be separated again.

Reversible changes of state include melting, freezing, evaporating and condensing, and these changes can be undone.



What is a Solution?

A solution is formed when a soluble solid dissolves in a liquid.



Examples:

- Salt dissolved in water
- Sugar dissolved in tea

In a solution:

- The solid is called the **solute**.
- The liquid is called the **solvent**.

The dissolved particles become too small to see.

Separating Mixtures

Method	Used For	Example
Sieving	Separating solids of different sizes	Stones from sand
Filtering	Separating an insoluble solid from a liquid	Sand from water
Evaporation	Recovering a dissolved solid	Salt from seawater
Magnetism	Separating magnetic materials	Iron filings from sand





Sieving : separates large pieces from smaller grains using holes of different sizes.

Irreversible changes

Reversible changes can be undone because the material is still the same, but irreversible changes cannot be undone because the material has changed into something new.

Burning: When something burns, it turns into new things such as ash and smoke, and it cannot return to what it was before. This makes burning an irreversible change.

Cooking: Cooking changes food so it looks, smells and feels different, and once it is cooked, it cannot return to its raw state. This means cooking is an irreversible change.

Chemical reactions: In some cases, materials mix and form something new, such as a colour change or the formation of bubbles. Because the new material cannot be changed back, this is an irreversible change.



