

Expansion...

Contraction...

Examples:

A physical change...



Deposition...

Heat is:

Freezing...

Heat is:

Evaporation...

Heat is:

Sublimation...

Heat is:

Melting...

Heat is:

Condensation...

Heat is:

Changes of state...

Dissolving...

Examples:

Mixing...

Examples:

CHANGES IN CHEMISTRY

A chemical change...



Colour changes...

Examples:

But ...

A gas is produced...

Examples:

But ...

A precipitate forms...

Examples:

Energy is produced or absorbed...

Examples:

But ...

Exothermic reactions...

Endothermic reactions...





**Expansion...** Heat increased – solids, liquids and gases expand and take up more space

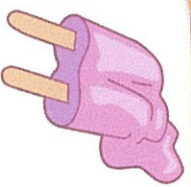
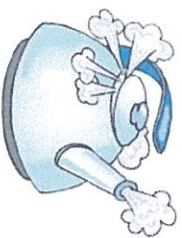
**(Volume)**

increases but mass stays the same)  
Density decreases

**Contraction...** Heat decreased-solids, liquids and gases contract and take up less space (volume decreases but mass stays the same)

Examples:

**A physical change are No new substances are produced during the change**



## CHANGES IN CHEMISTRY

**Dissolving...**

**Solute (solid) Solvent (liquid)**

**Solute + Solvent = solution**

Examples: salt in water – no new substance is formed- salt can be recovered- crystallisation

**Mixing...**

**Mixing of two substances- no new substance is formed**

Examples: sand & water  
coloured balls, paint



**A chemical change... A new substance is produced**

**Colour changes...**

New substances produced often indicated by colour change

Examples: rust, burning. Ripening fruit,

But... snow (white) to liquid water (clear), mixing paint

**A gas is produced...**

Gas produced during a reaction usually seen as bubbles, new smell, smoke

Examples: rotten eggs,

But... boiling is not chemical change

**A precipitate forms...**

New solid produced when two solutions are mixed. Solid falls out of solution

Examples: carbon dioxide bubbled through lime water, kidney stones, scale or lime in pipes

**Exothermic reactions...**

Heat is produced – **acid plus metal**

**Endothermic reactions...**

Heat is absorbed – chemical ice packs in first aid kits

Energy is produced or absorbed...

Change in energy – heat, (produced or absorbed) light or both

Examples: glow sticks, fireworks, sparklers, explosions  
But... steam burns  
Sweating to produce  
Cooling – physical not chemical