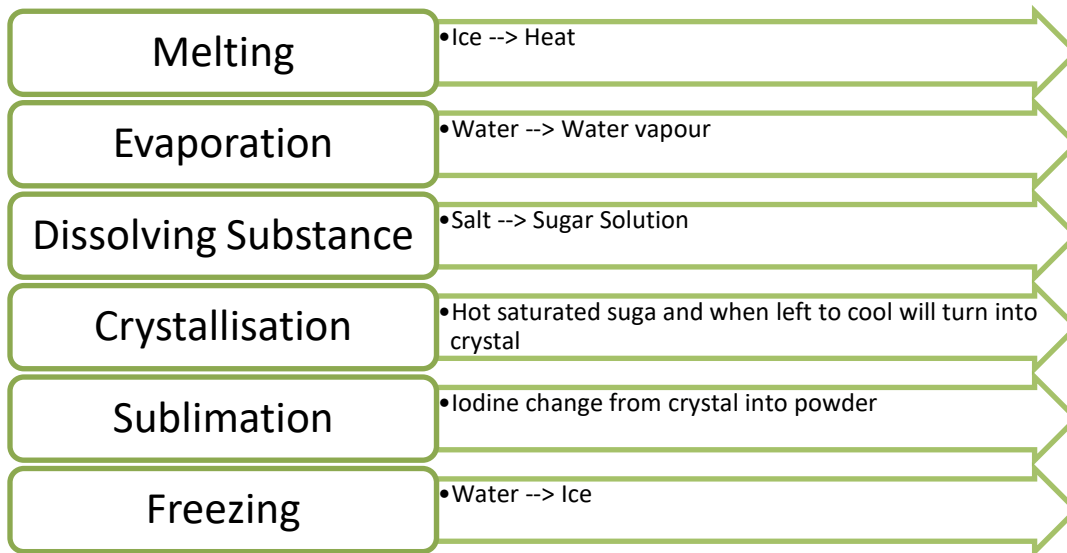


Energy and Chemical Changes

Physical Change

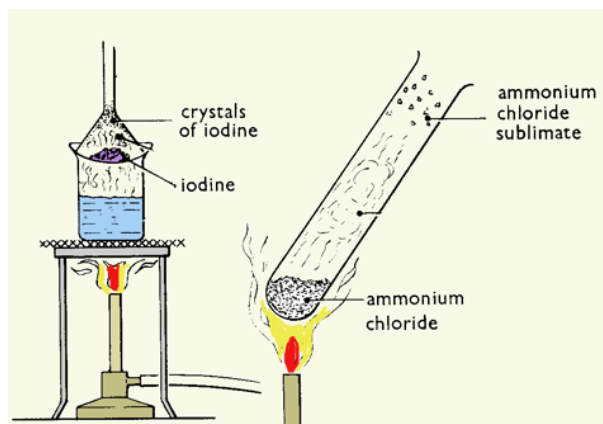
Physical change does not produce new substance as compared to chemical change

Below are the process of Physical Change



Example

Look at the examples and understand



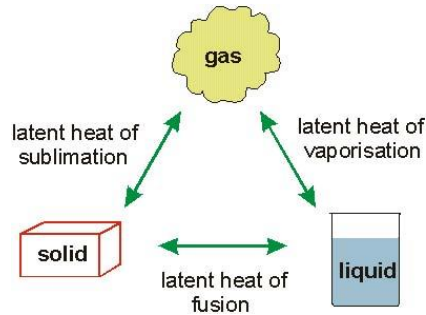
The diagram shows the sublimation process. Iodine turned into gas when heated. The iodine gas cool and turned into solid when it touches the glass wall

Ammonium chloride turned into gas when heated.

Physical Change and Chemical Change

Physical Change

Physical changes are involve in the change of states



Example of Physical Changes

- a) Ice turn into water
- b) Iodine crystal into gas
- c) Water turn into gas

Chemical Changes

A change that produces new substance

- a) Burning magnesium and obtain magnesium oxide
- b) Heating sulphur and iron to obtain sulphur oxide
- c) Adding calcium into water to obtain Calcium Hydroxide and hydrogen

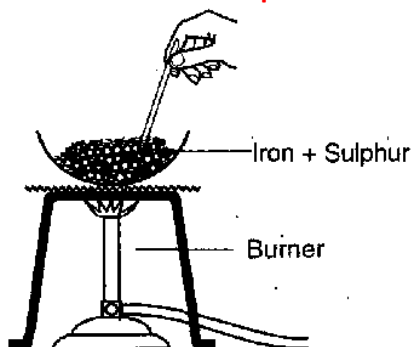


Magnesium-acid reaction. Magnesium powder reacting with dilute sulphuric acid. This is an example of a metal-acid reaction. The reaction proceeds vigorously due to the high reactivity of the magnesium, producing large amounts of heat. The products of the reaction are magnesium sulphate and hydrogen gas (the bubbles seen here). The powdered form of the magnesium increases the rate at which this reaction takes place.

Physical Changes	Chemical Changes
<p>Physical change in a substance is the effect of physical properties</p> <p>Examples of Physical Changes are</p> <ol style="list-style-type: none"> Changes of physical state Dissolving a solid in water Crystallizing a salt from its saturated solution 	<p>A chemical change in a substance produces new substance</p> <p>New Word <i>Reactant</i> Reactant is the original product</p> <p>Burning of paper (Reactant) → Carbon dioxide and ash (New substance)</p> <p>Examples of Chemical Changes</p> <ol style="list-style-type: none"> Burning a paper Combustion of fuels Photosynthesis

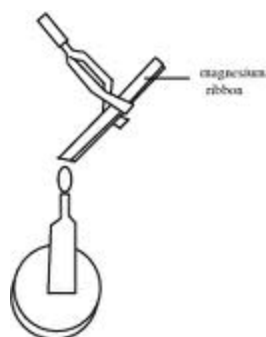
Chemical Changes

Mixture of Iron and Sulphur



Mixture is burnt brightly. Black color solid is formed

Burning Magnesium in the Air



Magnesium Burnt Brightly. White powdery substance is formed

Physical Changes in Daily Life	Chemical Changes in Daily Life
<ul style="list-style-type: none">- Freezing water to form ice cubes- Boiling water to kill microorganism- Dissolving sugar or water- Melting chocolate	<ul style="list-style-type: none">- Combustion- Respiration- Digestion in our body- Photosynthesis in green plants

COMPARISON BETWEEN PHYSICAL AND CHEMICAL CHANGES

Similarities

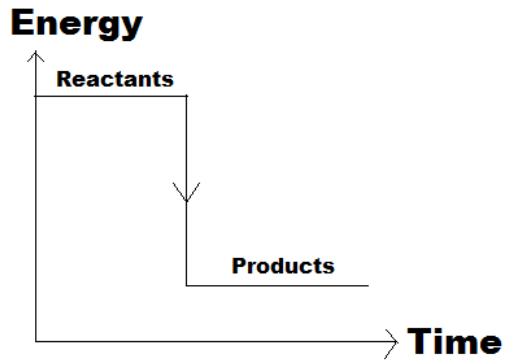
<u>Physical Changes</u>	<u>Chemical Changes</u>

Differences

<u>Physical Changes</u>	<u>Chemical Changes</u>

Exothermic Reaction

Exothermic reaction releases heat energy to the surroundings.



Examples of Exothermic Reaction

- Burning of candle
- Decay of Organic matter
- Respiration of Body Cell
- Burning rubbish
- Reaction between magnesium and sulphuric acid

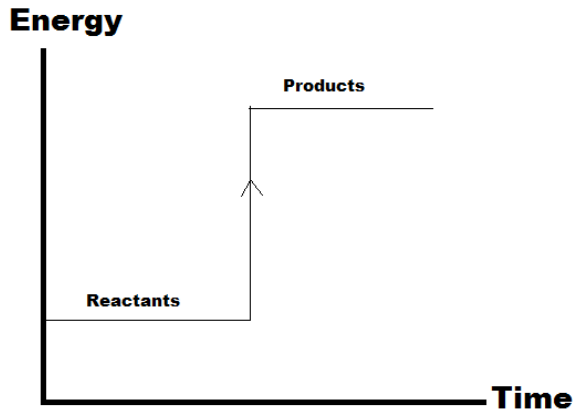
Aim: To Study Heat Changes



When Sodium Hydroxide is put into a test tube with water: **Hot**

Endothermic

Endothermic reaction is a process when heat is absorb from the surrounding



Examples of Endothermic

- a) Boiling of water
- b) Melting of wax
- c) Heating copper
- d) Melting of ice

Aim: To Study Heat Changes Aim: To Study Heat Changes



When Sodium Hydroxide is put into a test tube with water: **COLD**