RABINDRANATH WORLD SCHOOL
GURGAON
विवेक और ज्ञान

WE ARE RABINDRANATH WORLD SCHOOL

CLASS 6th

Science

Changes Around us

May, 2021

When one or more properties of a thing become different, we say that it has changed or a change has taken place in it. Many changes are taking place around us on their own.

Cooking of food, Formation of curd, Drying of clothes etc.

- Some changes are beneficial to us while some are harmful to us. As ripening of fruits is a beneficial change while spoiling of cooked food is a harmful change.
- The change in a material does not occur on its own. There is always a cause which brings about a change in a material.
- For example, ice does not melt to form water on its own. Heat is the cause of change in this example. some of the other causes of change are light, electricity, force etc.
- All the changes around us can be classified into two groups:

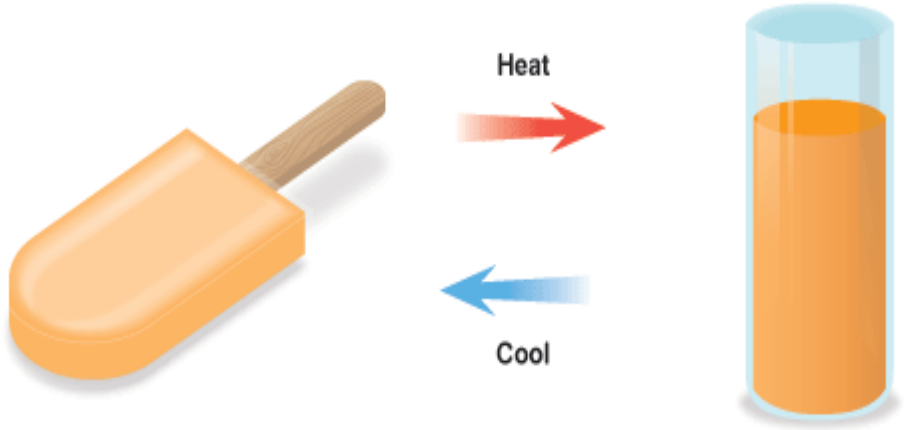
  Reversible change

  Irreversible change

Reversible changes

A change which can be reversed to form the original substance is called a reversible change. For example, When we heat ice, it melts to form water. A change from solid to liquid takes place during the melting of ice. Now, if we cool the water by keeping in the freezer, it again changes into solid ice.

Other examples of reversible changes are: inflating a balloon, stretching of a rubber band, dissolving salt in water.

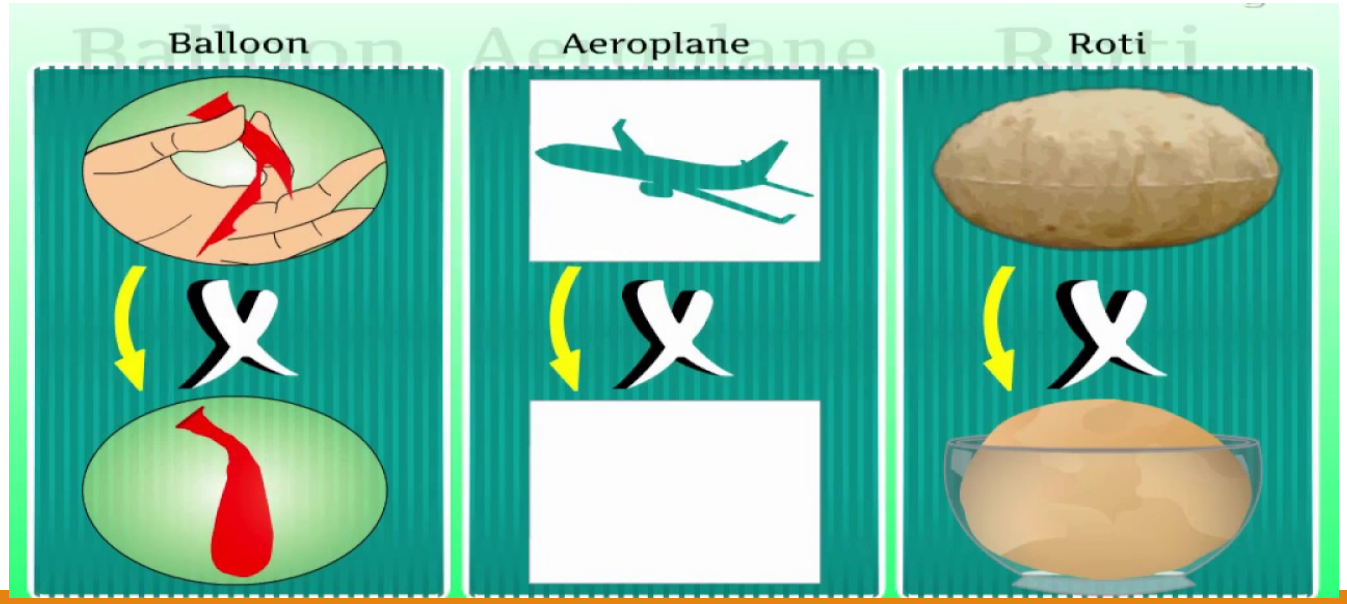


Irreversible change

A change which cannot be reversed to form the original substance is called an irreversible change.

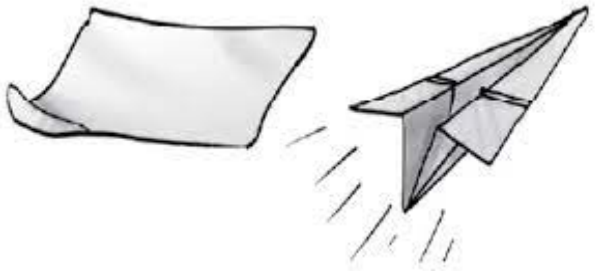
For example – If we burn a piece of paper, it changes into ash and smoke. Now we cannot combine the ash and smoke to form the original piece of paper.

Some other examples of irreversible changes are: formation of curd from milk, grinding of wheat to form flour, boiling of eggs



Reversible and irreversible changes involving same material

- **Folding of paper and cutting of paper**

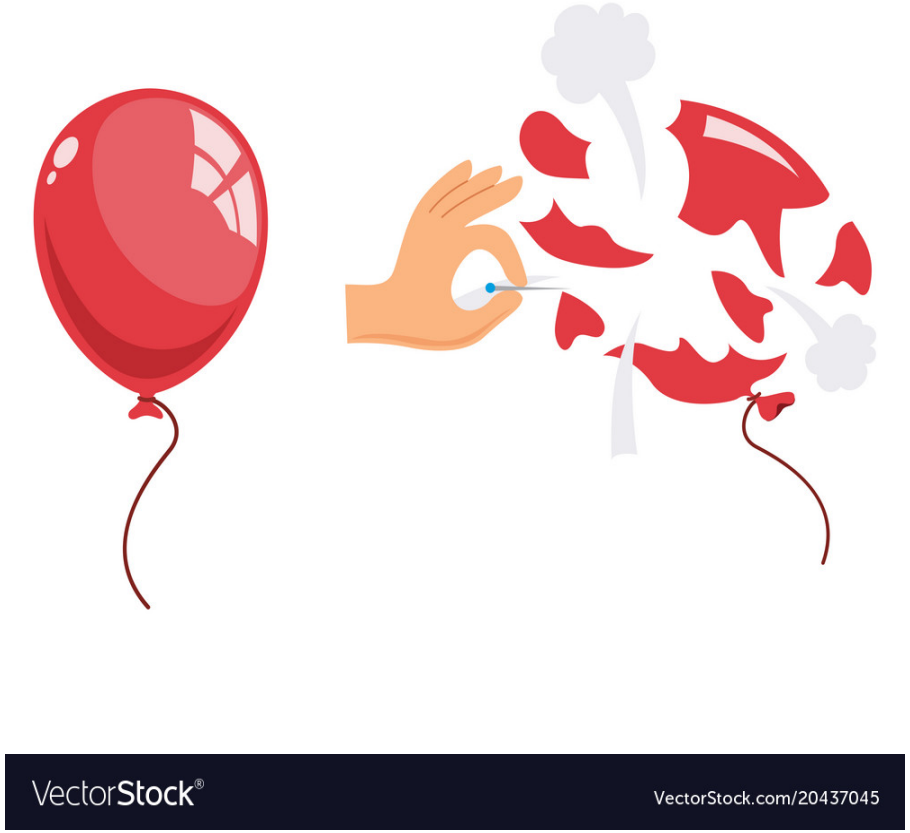


- **Shaping of wet clay into clay pot and baking a clay pot**

- **Rolling of roti and baking a roti**

- **Melting of wax and burning of wax**

- **Inflating a balloon and bursting a balloon**



Difference between reversible and irreversible changes

Reversible changes	Irreversible changes
A substance can return to its original state.	A substance cannot return to its original state.
The chemical properties of the substance do not change.	The chemical properties of the substance change.
Most physical changes are reversible changes.	All chemical changes are irreversible changes.

Expansion on heating is a reversible change

The increase in size on heating, is called expansion and the decrease in size on cooling, is called contraction.

This reversible change of expansion is used :

1. In fixing an iron rim on wooden wheel of a cart.
2. In fixing the iron blade of a digging tool to a wooden handle.

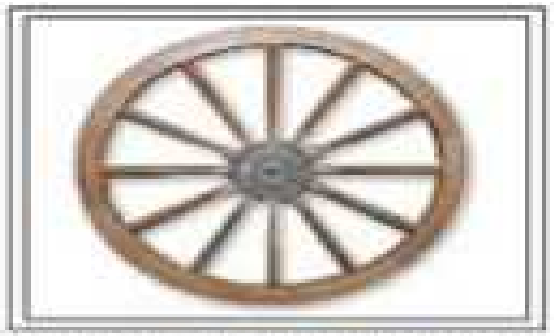
In fixing an iron rim on wooden wheel of a cart: The iron rim is made slightly smaller than the wooden wheel. The iron rim is heated uniformly to which it expands and become somewhat bigger in size. Being bigger in size, the hot iron rim is easily put around wooden wheel. After cooling, rim contracts and fits tightly on the wooden wheel.

Cart wheel

Wooden wheel of bullock cart

Bullock cart

Iron ring



Wooden wheel of bullock cart

Fixing of iron blade of digging tool to a wooden handle

The iron blade of a soil digging tool is fixed to a wooden handle by expansion on heating. This iron ring is slightly smaller than the size of the handle. To fix the handle this ring is heated over fire. On heating ,the iron ring expands as a result the wooden handle easily passes through it. On cooling , the ring of spade contracts and fits tightly on the wooden handle.

Application of expansion in our daily life

Thermal expansion

- Due to rise in temperature of a substance, molecules jiggle faster and move farther apart.
- Most substances expand when heated and contract when cooled.
  - Railroad tracks laid on winter days expand and can buckle in hot summer.

- Warming metal lids on glass jars under hot water loosens the lid by more expansion of the lid than the jar.

[image downloaded Jan. 25 2013 from http://hyperphysics.phy-astr.gsu.edu/hbase/thermo/jarlid.html]

THANK YOU

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