



KNOWLEDGE ORGANISER

SCIENCE: ALL CHANGE

YEAR FIVE

KEY KNOWLEDGE:

QUESTION 1: What is an Irreversible change?

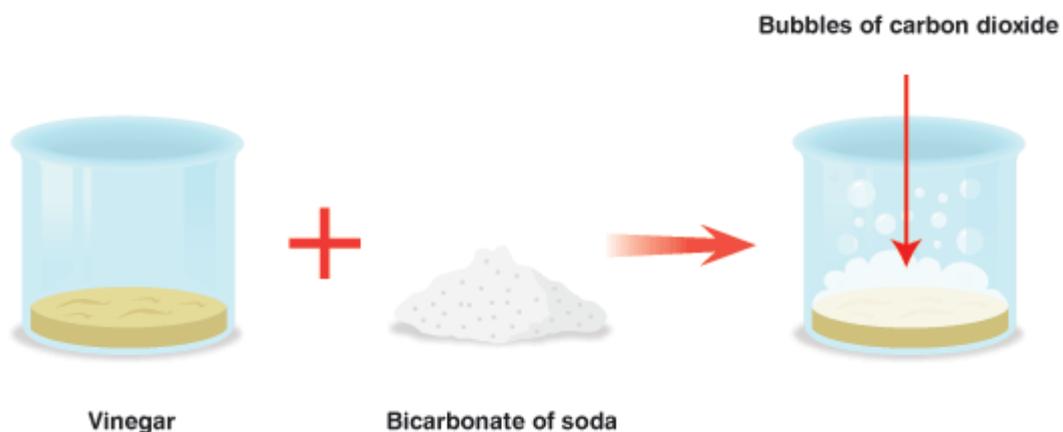
ANSWER

A change is called **irreversible** if it cannot be changed back again. For example you cannot change a cake back into its ingredients again.

- Irreversible changes are permanent. They cannot be undone.
- In an irreversible change, new materials are always formed. Sometimes these new materials are useful to us.
- Heating can cause an irreversible change. For example you heat a raw egg to cook it. The cooked egg cannot be changed back to a raw egg again.



Mixing substances together can cause an irreversible change. For example, when vinegar and bicarbonate of soda are mixed, the mixture changes and lots of bubbles of carbon dioxide are made. These bubbles, and the liquid mixture left behind cannot be turned back into vinegar and bicarbonate of soda again.



Burning is an example of an irreversible change. When you burn wood you get ash and smoke. You cannot change the ash and smoke back to wood again.



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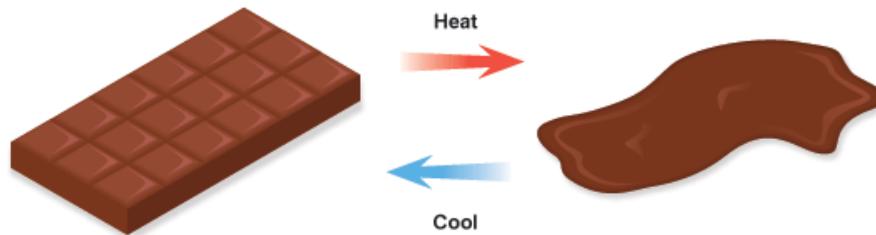
QUESTION 2: What is a reversible change?

ANSWER

A reversible change is a change that **can** be undone or reversed. A reversible change might change how a material looks or feels, but it doesn't create new materials.

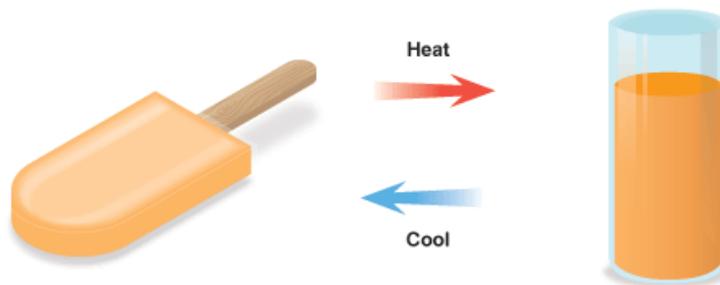
Melting

Melting is an example of a reversible change. For example melted chocolate can be changed back into solid chocolate by cooling.



Freezing

Freezing is an example of a reversible change. For example we can freeze orange juice to make ice lollies. The ice lollies can be changed back into orange juice by heating.



Boiling, evaporating and condensing

Boiling, evaporating and condensing are all examples of reversible changes. For example, if you could capture all the steam that is made when a kettle boils, you could turn it back to water by cooling it. A puddle will evaporate using heat from the Sun on a hot day.

Dissolving

Dissolving is an example of a reversible change. For example, when salt is mixed with water it disappears because it **dissolves** in the water to make salty water. But we can get the salt can back again by boiling off the water. That leaves the salt behind.

QUESTION 3: What causes rust?

Rust is the crumbly, brown material which is caused by the chemical reaction of iron, water and oxygen. A scratch on the paintwork of a car allows water to get onto the metal surface where the oxygen in the water chemically reacts with the metal. Eventually the rust blisters, cracks and falls away allowing more water to get in. If rust is left unchecked it eats into the metal, causing holes and weakening it.