

Previous Knowledge

Y4 Change of state

Project Hook or 'Wow' memory

Making soap / sweets / chocolate to investigate heating and cooling changes.

The key skills we want pupils to use during this topic:

Recognising and carrying out a fair test, repeating a procedure

Record data and results of increasing complexity using scientific diagrams and labels, tables and line graphs.

Learning Steps

Key Knowledge (answers)

What happens when a solid is added to water?
(observing overtime)

When materials are mixed with water several different things can happen. Sometimes the material will dissolve, sometimes it will **react** to make a new material and sometimes it will just float or sink.

How can some changes to materials be reversed?

Soluble materials (materials that dissolve in water) such as sugar and salt are able to be separated from water. Using a filter is a good way to separate **insoluble** materials (materials that do not dissolve) from water.

What is the difference between reversible and irreversible changes? (Research/enquiry)

An **irreversible** change occurs when two materials are mixed together and **react** with one another to create a new substance. This means that the two materials cannot be separated again.

What changes are made from heating and cooling?

Some materials change state when they are heated or cooled. This means that they can turn from a gas to a liquid to a solid and back again. For example, when water is at room temperature it is a liquid. If it is heated it evaporates and turns into water vapour which is a gas. To turn it back into a liquid you need to cool the gas down again. This is called condensation. If you cool liquid water it turns into ice which is a solid. This is called freezing. As the ice heats again it melts to turn back into a liquid.

What changes are caused by burning?

When logs and other materials are burned they produce smoke. The logs are turned into ash or charcoal. Gas is also produced which you cannot always see but you can smell. Depending on what you burn, these

What are the properties of a material which mean it is useful for making these objects?

Key vocabulary

Evaporation	The process of turning liquid into vapour
Dissolve	Become part of a liquid to form a solution
Solution	A liquid mixture
Reversible	A process that can be reversed into a previous state
Irreversible	A process that cannot be reversed into a previous state
Filtering	A method of separating liquids and solids using filter paper
Sieving	A method of separating liquids and solids using a sieve

Statutory Requirements

- Know that some materials can dissolve to form a solution and describe how to recover the substance.
- Understand how solids, liquids and gases can be separated.
- Recognise variables and know how to control these to create different outcomes.
- Understand that dissolving, mixing and changes of state are reversible changes.
- Explain that some changes result in the formation of different materials and this is not usually reversible.

