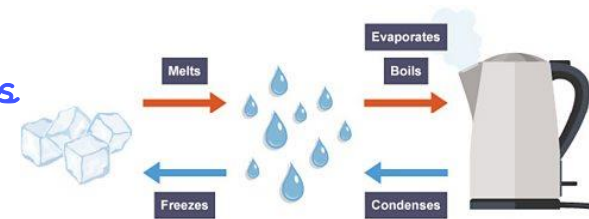


Enquiry Question
How do materials change state and are the changes reversible?

Properties and Changes of Materials

WS: Pattern Seeking



What do I already know?

Everyday materials - Year 1/2

- you have described the simple physical properties of a variety of everyday materials.
- you have compared and group together a variety of everyday materials on the basis of their physical properties.
- you have identified and compared the suitability of a variety of everyday materials for particular uses.
- you have found out how the shapes of solid objects made from some materials can be changed.

Forces and magnets - Year 3

- you have compared and grouped together a variety of everyday materials on the basis of whether they are attracted to a magnet.

States of matter - Year 4

- you have compared and grouped materials together, according to whether they are solids, liquids or gases.
- you have observed that some materials change state when they are heated or cooled...
- you have identified the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

Electricity - Year 4

- you have recognised some common conductors and insulators, and associate metals with being good conductors.

Key Learning Steps

1. What material is most effective in keeping a cup of tea warm?
2. Which material would be best to keep an ice lolly cold?
3. When we change a material, is it always forever?
4. How can we separate a mixture?
5. When does a change make a new material?

Sticky Knowledge

1. I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials. including thermal conductivity and thermal insulation.
2. I know that dissolving and changes of state are reversible changes.
3. I know that some materials will dissolve in liquid to form a solution.
4. I know that the process of evaporation can be used to help recover a substance from a solution.
5. I know that mixing is a reversible change.
6. I know how to separate mixtures using filtering, sieving, evaporating and using magnets.
7. I know that some changes which materials undergo are not reversible and often result in the formation of a new material and that these new materials can be useful, but also the changes can be problematic.



Our Unit Experts

Beyond Living Memory	Within Living Memory
Albert Einstein (1879-1955) A German physicist who showed matter can be turned into energy and back.	Hugh Bradner (1915-2008) An American physicist who invented the first modern neoprene wetsuit.

insulator - is a material or substance that does not easily allow the transfer of electricity, heat or sound.

thermal - brought about by heat.

dissolve - to be disintegrated by such immersion.

filtration - the process of filtering, the separation of a liquid from the undissolved particles floating in it.

permeable - a material that absorbs or allows the passage of fluids.

Irreversible - it is not possible to reverse the process.

conductor - something that allows the flow of a particular thing.

transference - the act of moving from one place to another.

states of matter - the different phases of matter, solid, liquid or gas.

evaporation - the process of a liquid converting into a gas state.

particles - a very small piece of matter, the smallest possible part of something.