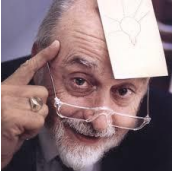
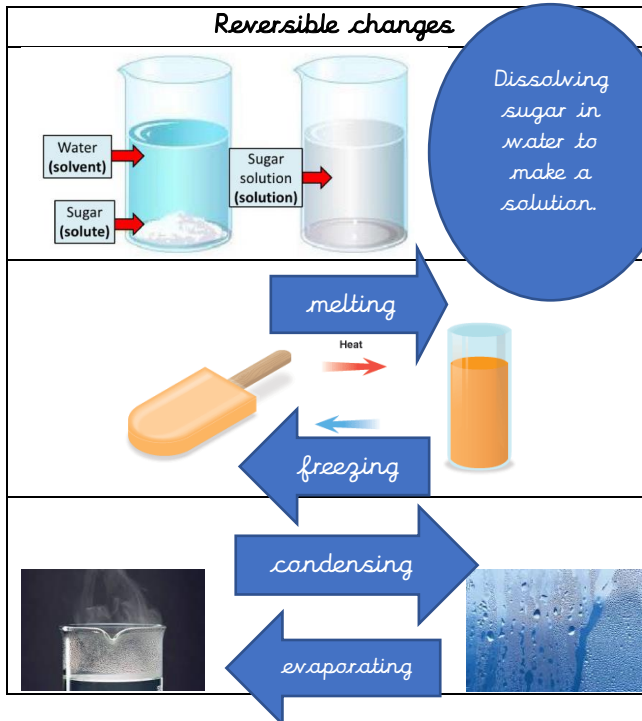



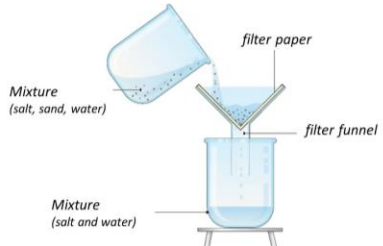

# Properties and changes of materials - Year 5




| Key vocabulary               |   |
|------------------------------|---|
| <b>thermal insulator</b>     | Does not allow heat to pass through it easily.  |
| <b>thermal conductor</b>     | Allows heat to pass through it easily.  |
| <b>electrical insulator</b>  | Does not allow electricity to pass through it.  |
| <b>electrical conductor</b>  | Allows electricity to pass through it.  |
| <b>dissolve</b>              | A solid that completely mixes in with a liquid and cannot be seen.                          |
| <b>solution</b>              | A mixture of a liquid with a dissolved solid or gas.  |
| <b>soluble</b>               | Solids and gases that dissolve in liquids.  |
| <b>insoluble</b>             | Solids that do not dissolve in a liquid.  |
| <b>sieve</b>                 | Separates solids of different sizes.  |
| <b>filter</b>                | Separates an insoluble solid that is mixed in a liquid.                                     |
| <b>evaporation</b>           | Separates a soluble solid and a liquid.   |
| <b>reversible change</b>     | Changes that can be switched back and are not permanent. E.g. dissolving, melting, freezing |
| <b>non-reversible change</b> | Changes that can not be reversed back to their original state. E.g. burning, rusting        |

| Materials can be grouped together based on their properties. For example:  |
|--|
| <ul style="list-style-type: none"> <li>• hardness</li> <li>• solubility</li> <li>• transparency</li> <li>• thermal conductivity</li> <li>• electrical conductivity</li> <li>• response to magnets</li> </ul> |

| Significant scientists   |   |
|--|---|
| <p><b>Spencer Silver</b><br/>(born 1941)</p>   | <p>Spencer Silver is an American scientist who together with Arthur Fry was the inventor of Post-it notes in 1974. At the time, he was working to develop new classes of adhesives.</p> |
| <p><b>Joe Keddie</b></p> <p>Joe Keddie is a professor of Soft Matter Physics at the University of Surrey. He is interested in the fundamental processes of soft matter, especially polymer thin films and nanoparticles.</p> |   |



| Separating materials  |   |
|---|---|
| <p><b>Sieving</b></p> <p>separates the stones and twigs from the soil.</p>    |  |
| <p><b>Filtering</b></p> <p>separates the sand from the mixture.</p>           |  |
| <p><b>Evaporating</b></p> <p>separates the dissolved salt from the water.</p> |  |

| Non-reversible changes - these result in the formation of new materials |   |
|---|---|
| <p><b>Burning</b></p>   |   |
| <p><b>Mixing vinegar and bicarbonate of soda</b></p>                    |  |
| <p><b>Rusting</b></p>   |  |