

Uplands Manor Primary School - Science Unit Organiser

Science Topic: Properties and Changes of Materials

Year 5

Spring 1 and 2

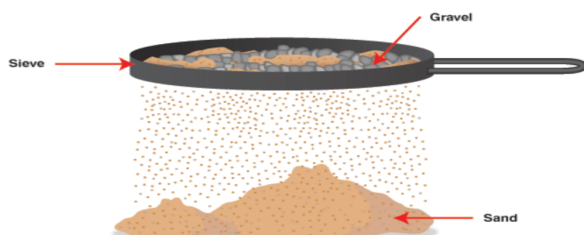
What? (Key Vocabulary)

Spelling	Definition/Sentence
Dissolved	To become incorporated into a liquid so as to form a solution
Separating	The action of moving things apart
Evaporation	When a liquid turns to a gas due to an increase in temperature
Properties	A specific quality of something

Diagrams and Symbols

Sieving

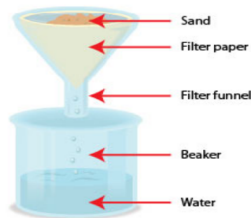
A mixture made of solid particles of different sizes, for example sand and gravel, can be separated by sieving.



Filtering

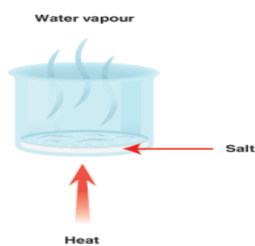
A mixture of water and an insoluble substance like sand can be separated by filtering.

The mixture of sand and water is poured into the filter funnel, which is lined with filter paper. The water can pass through the paper to collect in the beaker. The sand particles cannot pass through the filter paper and collect in the filter funnel.



Evaporating

By dissolving salt in water we make a solution. The salt dissolves (seems to disappear) into the water. We can separate the salt from the water by boiling a solution. The water will evaporate until it is all gone. The salt will be left behind.



What? (Key Knowledge)

Comparing and Grouping Materials

Materials can be grouped by their properties (is it hard or soft?) or by more than one of their properties (is it hard and magnetic?)

Properties of materials we can compare

Hard	<ul style="list-style-type: none"> Difficult to scratch, like the head of a hammer
Soft	<ul style="list-style-type: none"> Easy to shape, like fabric
Soluble	<ul style="list-style-type: none"> Can be dissolved, like coffee granules
Insoluble	<ul style="list-style-type: none"> Cannot be dissolved, like pebbles
Transparent	<ul style="list-style-type: none"> See through, like glass
Opaque	<ul style="list-style-type: none"> Not see through, like a wooden door
Electrical conductor	<ul style="list-style-type: none"> Lets electricity pass through easily, like copper wire
Electrical insulator	<ul style="list-style-type: none"> Do not let electricity flow through easily, like plastic or rubber
Thermal conductor	<ul style="list-style-type: none"> Lets heat pass through easily, like a metal kettle
Thermal insulator	<ul style="list-style-type: none"> Does not let heat pass through easily, like a wood pan handle
Magnetic	<ul style="list-style-type: none"> Is attracted to a magnet, like a steel spoon <p>Note: Not all metals attract to magnets</p>
Not magnetic	<ul style="list-style-type: none"> Is not attracted to a magnet, like a wooden spoon

Mixtures and Solutions

A mixture	<ul style="list-style-type: none"> Where substances are mixed together, but dissolving hasn't taken place (for example, mixing, cucumber slices, egg slices and tomato slices to make a salad)
A solution	<ul style="list-style-type: none"> Some substances dissolve in a liquid, when this happens the liquid is called a solution (for example, when gravy granules dissolve in water, this is a solution)

Separating a mixture

We can separate a mixture by sieving and/or filtering	<ul style="list-style-type: none"> Sieving - sorting out the big bits from the small bits, e.g. stones from soil Filtering - separating solid bits from a liquid, e.g. sand from sand and water
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Separating a solution

We can separate a solution by evaporation	<ul style="list-style-type: none"> Because the soluble substance is too mixed into the water, it can't be removed by sieving or filtering Evaporation - A liquid evaporates into a gas when it is heated (this removes the liquid and leaves the substance behind)
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Reversible Changes

What is a reversible change?	<ul style="list-style-type: none"> A change that doesn't last forever (for example, water can turn to ice when frozen, but can be turned back to water by heating it)
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Irreversible Changes

What is an irreversible change?	<ul style="list-style-type: none"> Lasts forever Usually caused by heat E.g. Eggs, flour, butter and sugar heated to make a cake (the original ingredients can't be recovered)
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Recommended Experiments

A minimum of two experiments should take place during this unit of work with one final written outcome linked to the scientific enquiry skills and approaches used.

	Experiment with irreversible changes, e.g. vinegar and bicarbonate of soda
	Experiment to find properties of materials, e.g. does it attract to a magnet, can heat pass through it?
	Using knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating e.g. sand and water

Builds on: learning in Year 4 - Spring - Unit: States of Matter

Learning links

Leads to: learning in Year 6 - Summer - Unit: Electricity and Light