



Science

Year 5

Maps, Mixtures and Me

How does exploration and experimentation help us make sense of the world?

Shakespeare Primary School and Nursery



States of Matter

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

Some solids dissolve in liquids while others do not. When a solid dissolves, it breaks down and combines with a liquid, forming a mixture. Materials that do not dissolve can be separated from a liquid by filtering. Solids which dissolve do so faster in certain conditions (such as heating or stirring the liquid) and can be retrieved from a solution if the liquid is evaporated.

Filtering processes can be used to clean up polluted water and make it useful for a variety of purposes.



Reversible and Irreversible Changes

Some changes of state are reversible, and others are irreversible. A reversible change is a change that can be undone or reversed. A change is called irreversible if it cannot be changed back again. In an irreversible change, new materials are always formed. Sometimes these new materials are useful to us. 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. Melting and freezing are examples of reversible changes.



A Scientist Just Like Me!



Eliza Hunt is a chemist at the University of Bristol. She adds different chemicals together which react to make new substances. She is doing this to try and find a substance that can deliver medicine directly to cancer cells, to kill cancer cells but keep healthy cells alive. Her favourite part of her job is visiting schools and showing children science experiments.

Working Like a Scientist and Working Scientifically

Scientists use different methods to build scientific knowledge about materials and how they behave when mixed together. They need to know what variables they want to keep the same and what ones to change. They make organised and careful observations to build explanations of the natural world. Scientists present their findings in different ways. For example, presentations and displays.

Careers: chemist, materials scientist, nano scientist

If you want to be a Chemist, you need...

If you want to be a Chemist, you need:

- ★ **to be inquisitive** and want to know why things are the way they are, like why the sky is blue!
- ★ **to pay attention to detail** so that you can notice small things that other people might miss
- ★ **to be great at solving problems**
- ★ **good team working skills** because chemists collaborate with lots of other scientists



Project Questions

How can we separate mixtures?

What happens when we mix liquids and solids?

What makes a difference to how fast sugar or salt dissolves?

How can we clean up contaminated water?

What makes a change non-reversible?

Speak Like a Scientist

Previously learned vocabulary:
gas, liquid, solid, variable

New vocabulary:
Contamination, dissolve, filter, insoluble, non-reversible, reversible, sieve, soluble, solution