




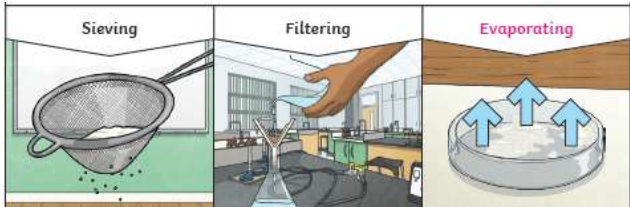
Properties of Materials

Class 3 and 4

Key Vocabulary

Materials	The substance that something is made of e.g. wood, metal, plastic etc.				
Solids 	One of the three states of matter. Solid particles are very close together, meaning solids, such as wood and glass, hold their shape.	Liquids 	This state of matter can flow and take the shape of the container because the particles are more loosely packed than solids and can move around each other.	Gases 	One of the three states of matter. Gas particles are further apart than solid or liquid particles and they are free to move around.
Melting	The process of heating a solid until it changes into a liquid.	Freezing	When a liquid cools and turns into a solid.	Evaporating	When a liquid turns into a gas or vapour.
Condensing	When a gas, such as water vapour, cools and turns into a liquid.	Conductor	A material that heat or electricity can easily travel through. Most metals are both thermal and electrical conductors.	Insulator	A material that does not let heat or electricity travel through it. Wood and plastic are both thermal and electrical insulators.

Key Knowledge

What are the different properties of materials?	Different materials are used for particular jobs based on their properties: electrical conductivity, flexibility, hardness, insulators, magnetism, solubility, thermal conductivity, transparency.	What is the difference between melting and dissolving?	A solution is made when solid particles are mixed with liquid particles. Materials that dissolve are known as soluble. Those that don't are insoluble. A suspension is when particles don't dissolve.	What is an irreversible change?	Irreversible changes often result in a new product being made from the old materials (reactants). For example, burning wood produces ash. Mixing vinegar and milk produces casein plastic.
What are thermal conductors and insulators?	Keeping Cool experiment to investigate thermal conductors and insulators.	What are the different ways to separate materials?			
What are electrical conductors and insulators?	Electricity can travel easily through electrical conductors, but some materials do not let electricity pass through them.	Reversible changes, such as mixing and dissolving solids and liquids together, can be reversed by:		Sieving: Smaller materials are able to fall through the holes in the sieve, separating them from larger particles. Filtering: The solid particles will get caught in the filter paper but the liquid will be able to get through. Evaporating: The liquid changes into a gas, leaving the solid particles behind.	
					

Prior Learning

Children will have learnt about the different states of matter and how heating and cooling effects materials.
Children will have an understanding of evaporation and condensation.

Next Steps

At KS3, the children will learn about:

- Energy
- Forces and movement
- Solids, Liquids and Gases
- Space
- Forces and magnetism