

Properties of Materials



Curriculum Links:

- Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets
- Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
- Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
- Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
- Demonstrate that dissolving, mixing and changes of state are reversible changes
- Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda

Key Facts:

- Different materials can be grouped based on their properties
- When a solid mixes with a liquid this is called dissolving, this creates a solution. Solids which dissolve are soluble; solids which do not are insoluble
- Materials can be separated after they have been mixed, this is a reversible change
- Methods of separation include: filters, sieves, magnets, evaporation etc
- If a mixture cannot be separated this is an irreversible change

Possible experiences: We should already know:

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| <ul style="list-style-type: none"> • Create and sell bath bombs • Lush workshop • Investigate the best material to stop ice melting • Investigate soluble and insoluble materials • Experiment with reversible and irreversible changes • Create fair test to experiment with dissolving | <ul style="list-style-type: none"> • A variety of materials and the properties of them • How materials are suitable based on their properties • How magnets work and some magnetic materials • How shapes of solids can be manipulated by bending, squashing etc • Materials that are solids, liquids and gases and their particle structure • Some material change state when they are heated or cooled • The role of melting, evaporating and condensation in the water cycle |
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Key Vocabulary

Condensation	Droplets of water which form when water vapour touches a cold surface
Dissolve	When a solid is mixed with a liquid and disappears
Evaporate	Turns from a liquid into a gas
Filter	Something used to separate solids, liquids or gases
Insoluble	Cannot dissolve
Irreversible	Cannot reverse or change back
Melting	To change from a solid to a liquid when heat or pressure is applied
Particles	A very small amount
Permeable	Something which allows liquids or gases to pass through
Reversible	Able to reverse or change back
Soluble	Can be dissolved
Solution	A combination of two or more substances
Variable	Something which can be changed