



Lesson Sequence



1. Explore properties of materials



2. Explore thermal conductors and thermal insulators



3. Explore hardness of materials



4. Discover materials that are soluble in water



5. Investigate the solubility of materials



6. Explore how mixtures can be separated by filtering, sieving, evaporating or magnets

Properties of Materials

conducts energy	
insulates energy	
transparent	
waterproof	
durable (strong)	
magnetic	

Everyday Materials

Metal saucepans **conduct** heat to warm food.



Wooden spoons and plastic handles **insulate** heat so hands do not get burned.

Soluble Materials

Some solids **dissolve** in water (**SOLUBLE**).

coffee



sugar



salt



jelly



Some solids do not **dissolve** in water (**INSOLUBLE**).

pepper



sand



wax

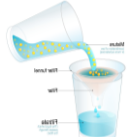


Separating Materials

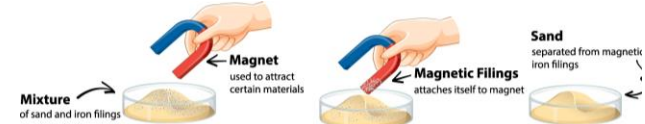
Sieving



Filtering



Magnetism



Magnetic metals:

- iron
- nickel
- steel

Rocket Words

	conductive	a material that allows heat and/or electricity to pass through it
	magnetic	material that is attracted to a magnet
	thermal	using or producing heat
	conduction	heat moving from one object to another through contact
	hardness	resistance to scratching and pressure
	force	when an object is acted upon by a pull or push motion in a specific direction
	dissolve	to mix with a liquid and become part of the liquid
	solute	a substance that can be dissolved in liquid
	solvent	a substance that can dissolve in a solute, water is a solvent
	substance	any material, such as sugar
	filtering	the separation of a mixture using a tool with small holes to separate particles
	evaporation	the process where a liquid changes into a gas

What I already know:

Year 2

- ☐ I can identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses
- ☐ I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching

What I am learning now:

Year 5

- ☐ 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

What I will learn next:

KS3

- ☐ I can compare chemical and physical changes
- ☐ I can explain how mass is conserved during a physical change
- ☐ I can describe what occurs during changes of state



Knowledge Organiser: Year 5 Properties of Materials *Before & After Test*



Label the 2 materials used to make this wire.



Explain why the properties of these materials make it a good choice for its purpose.

Nahim wants to carry out a fair test to see which solids dissolve in water.

Name 2 variables he must keep the same to make it a fair test.

1. _____
2. _____

What is the variable that he must change?

Sort these materials in the following table:



coffee



sugar



salt



pepper



sand



jelly



wax

Soluble	Insoluble

Draw lines to match the mixtures to the best method of separation.

Mixture

sand and water
gravel and water
iron filings and sand
flour and water

Process of separation

magnet
sieving
picking out by hand
filtering