Coley Primary School – Knowledge Organiser

SUBJECT FOCUS: Chemistry strand	Science: Properties and Changes of Materials	YEAR 5	TERM 1

WHAT? – Key Knowledge

- 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
- 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

Did you know…

Different materials are used for particular jobs based on their properties: **electrical conductivity, flexibility, hardness, insulator, magnetism, solubility, thermal conductivity** and **transparency**.

For example:



Glass is used for window because it is hard and **transparent**.

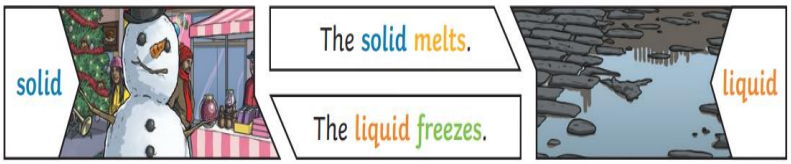


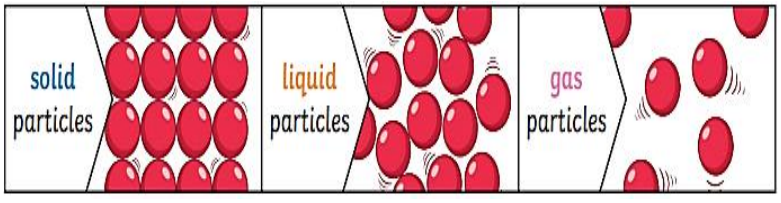
Oven gloves are made from a thermal **insulator** to keep the heat form burning your hands.

Testing for magnetism



Place a **magnet** next to the material. If the magnet and the material are **attracted** to each other, then the material is **magnetic**.





Working Scientifically Challenge:

Let's think like scientists…

Develop research skills and speaking and listening skills

Can they…

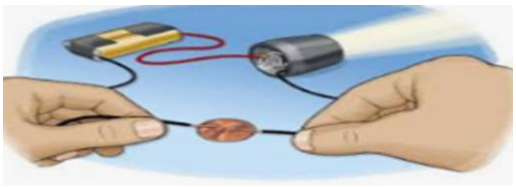
- test and group materials based on scientific evidence? (hardness, solubility, transparency, conductivity, insulation, magnetism)
- give reasons for the uses of everyday materials based on scientific evidence?
- show what they know about the properties of different materials? use their knowledge of materials to suggest ways to classify? (solids, liquids, gases)

WHAT? – Key vocabulary

hardness	Resistance to scratching and pressure. Hardwood does not mark as easily as softwood.
strength	The amount of force needed to break a material usually by pushing or pulling down.
toughness	A material's resistance to breaking by cracking, opposite to 'brittle'.
stiffness	The amount of force needed to change the shape of a material, opposite to flexible.
elasticity	The ability to return its original shape when a force is removed e.g. rubber band.
absorbency	The ability of a material to soak up a liquid, to absorb and retain the moisture within its structure.
waterproof	Resistance to liquids, repels water.
Thermal conductor	Thermal conductivity is the property of a material that measures how well it can conduct heat
Sound proofing	Soundproofing is any means of reducing the sound pressure with respect to a specified sound source and receptor. … Soundproofing can suppress unwanted indirect sound waves such as reflections that cause echoes and resonances that cause reverberation.

Diagrams and symbols

Testing for electrical conductivity



Set up a circuit as shown in the diagram, if the lamp lights up the material is a **conductor**, if it doesn't the material is an **insulator**.

I wonder…

- Can they describe methods for separating mixtures? (filtration, distillation)
- Can they work out which materials are most effective for keeping us warm or for keeping something cold?

Possible experiences: Curious minds…

- ***Household Recycling:*** Sort out your household recycling into different groups - group by material or property.
- ***Amazing Materials Solids, Liquid and Gases*** (Science is Everywhere), by Rob Colson