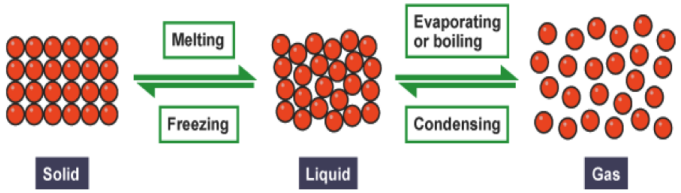
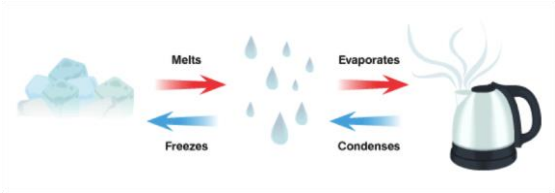
Year 5 Science Knowledge Organiser Materials

Selected Vocabulary and Definitions Properties of Materials	
Magnetism	Items made of iron and steel are magnetic.
Transparent	Transparent objects are see-through and allow all light to pass through it.
Translucent	These objects allow some light to pass through them, so you can partially see through them, but not clearly.
Opaque	Opaque objects block all light and cannot be looked through.
Soluble	Solids that will dissolve in a liquid are described as soluble. Solids that will not dissolve are insoluble.
Electrical conductors	These materials allow electricity to pass through them e.g. copper inside electrical wires.
Electrical insulators	These materials do not allow electricity to pass through them e.g. the plastic coating on electrical wires.
Thermal conductors	These materials allow heat to pass through them e.g. a metal saucepan.
Thermal insulators	These materials do not allow heat to pass through them e.g. a wooden spoon.





Curriculum Objectives

I can 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.

I can explain that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.

I can use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.

I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.

I can demonstrate that dissolving, mixing and changes of state are reversible changes.

I can 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 Questions

-Write the meaning of these properties of materials: transparent, permeable, and soluble.
-Explain why a saucepan would have a metal base and a rubber coating on the handle.
- Name the process, which involves the recovery of salt, which has been dissolved in water to form a solution.
-Describe the difference between a mixture and a solution.
-I have a mixture of water, salt, sand and gravel. Write three steps describing how I could separate the parts of the mixture. I do not want to keep the water.
-List three reversible changes and three irreversible changes.
-List one way in which you can tell if an irreversible change has taken place.

Selected Vocabulary and Definitions Reversible and Irreversible Changes	
Dissolve	When a solid becomes incorporated into a liquid to form a solution.
Evaporation	When a liquid turns into a gas. When this happens to a solution, the solid is left behind.
Solution	A liquid mixture where a solid has dissolved into a liquid.
Saturated solution	A solution that is full of a dissolved substance and cannot dissolve any more.
Reversible changes	A change in materials that can be reversed. For example; water can be frozen and change to ice. By heating the ice, this change can be reversed and you can return the ice to its original liquid form of water.
Irreversible changes	When a chemical reaction occurs between substances that have been mixed together e.g. bicarbonate of soda and vinegar or burning a material. These changes cannot be undone as another chemical substance has been produced during the change.
Changes of state.	This is when a material changes from being a solid to a liquid, a liquid to a gas, a gas to a liquid or a liquid to a solid. These are reversible changes.
Molecule	A molecule is formed when two or more atoms join together. Molecules in a solid are tightly packed and usually in a regular pattern. Molecules in a liquid are close together but with no arrangement. Molecules in a gas are well separated and with no arrangement.