Year 5 Science Knowledge Organiser **Topic:** Changing materials

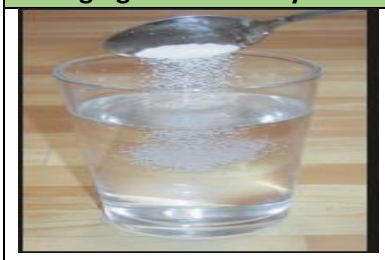
Key questions:

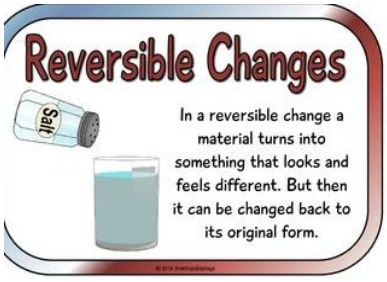
What materials will dissolve in water? What do we call something that doesn't dissolve in water? Name two things that would make a solid dissolve in water quicker? Where would you find reversible or irreversible changes? What changes are irreversible? I have a mixture of salty water, sand and gravel. If I didn't want to keep the water at the end, what three steps would I take to separate them and in what order?

Changing materials key knowledge/ vocabulary:

Solute- the substance that dissolves in a liquid to make a solution.
Solution- A liquid consisting of a solvent in which one or more substances have dissolved.
Solvent- A liquid in which a substance is dissolved to make a solution
Soluble- A substance is soluble if it dissolves in a solvent.
Solubility- A measure of how much solute dissolves in a solution.
Insoluble- A substance is insoluble if it does not dissolve in a solvent.

Changing materials Key knowledge/vocabulary:





Evaporation and condensation-When the solution is evaporated, either through boiling or by being left in a warm place, the liquid will turn into gas and leave the solid behind. If the gas is then condensed on a cool surface, the liquid can be recovered and collected too
Magnetism-Use this process to separate magnetic materials from non-magnetic materials.
Filtering- This process should be used to separate a mixture of an insoluble solid and a liquid. A funnel is lined with filter paper and placed over a beaker. The mixture is poured slowly into the filter paper
Sieving- The mixture is poured into a sieve held over a bowl.
The smaller particles will get through it into the bowl and the larger particles will be caught in the sieve.
Decanting-This process can be used to separate two liquids that have different densities. The mixture of liquids is left to settle, so the two liquids are visible as two different layers. The less dense liquid will be the top layer, and this can be decanted, or slowly poured off.

Types of changes key knowledge/vocabulary:

Reversible changes: A reversible change is a change that can be undone or reversed.
If you can get back the substances you started the reaction with, that's a reversible reaction.
A reversible change might change how a material looks or feels, but it doesn't create new materials.
Examples of reversible reactions include dissolving, evaporation, melting and freezing.
Irreversible changes: a change is called irreversible if it cannot be changed back again. In an irreversible change, new materials are always formed. Sometimes these new materials are useful to us.

Famous inventors:	**Leo Baekeland:** Invented the first mouldable plastic. It was used in many products because it had excellent electrical insulation and heat resistance. **Madame C.J Walker:** Famous for inventing and selling cosmetic products.

Output:	**Working like a scientist:**
• To create a fair investigation into soluble and insoluble materials. • Observe and record results of a solubility experiment. • Sorting materials into reversible/irreversible groups following investigation and commenting on each's properties. • Identifying and recording changes whilst reversible/irreversible changes are happening.	• Investigate which substances are soluble in water. • Investigate filtration, evaporation and sieving methods to separate materials. • Look into reversible and irreversible changes. • Investigate filtration, evaporation and sieving methods to separate materials. • Plan and carry out investigations into the impact of certain ingredients on an end product • Plan and carry out investigations into soluble material. • To observe and record oxidation reactions over time