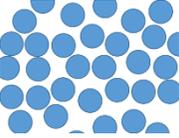
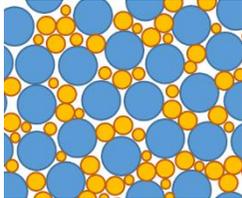
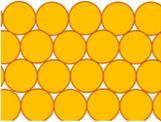
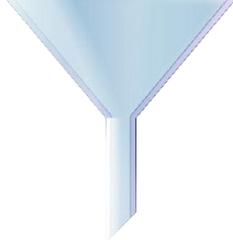
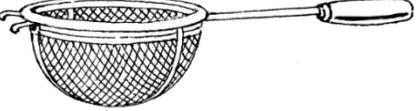


River Bank Primary Knowledge Organiser		Year Five Science	Autumn 1	Properties and changes of materials
Key Vocabulary			Solvent and solute	Dissolving
Solution	A mixture of solvent and solution (e.g. a cup of coffee)		 <p>Solvent (e.g. water)</p> <p>The solvent is a liquid so it has gaps between the molecules making up the liquid.</p>	<ul style="list-style-type: none"> When coffee is added to hot water, the heat in the water gives the coffee molecules extra energy and they begin to break up into smaller particles. These particles of coffee can get so small, they fit in the gaps between the water molecules. <p>The solution may</p>  <p>Solution (e.g. coffee)</p> <p>change colour but will no longer have any solid visible.</p> <p>If you keep adding solute, the gaps between the solvent molecules will fill with solute until there is no more room. At this point no more solute will dissolve and you will be left with undissolved solid at the bottom of the liquid.</p> <p>We call the solution saturated – meaning completely filled.</p>
Solvent	The liquid in which a solute is dissolved (e.g. water in a cup a coffee)			
Solute	A substance that is dissolved into a solvent (e.g. coffee in a cup of coffee)		 <p>Solute (e.g. coffee)</p> <p>The bits of coffee are each a solid. The molecules making up the coffee are tightly packed together.</p>	
Dissolve	When a solid is mixed into a liquid without being able to be detected by eye.			
Reversible change	A change that is made to a substance which can be changed back to put the substance back in its original state, e.g. melting or freezing.			
Irreversible change	A change that is made to a substance which cannot be changed back to be as it was before, e.g. burning or cooking.			
Filter	A method of separating substances (usually solids from liquids) using paper.			
Soluble	A substance that can be dissolved in a solvent (e.g. sugar).			
Insoluble	A substance that cannot be dissolved (e.g. sand).			
I can:				
<ul style="list-style-type: none"> 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 (Y4) to decide how mixtures might be separated, e.g. filtering, sieving and evaporating. give reasons, based on evidence from tests, for the particular uses of everyday materials. 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 (e.g. burning and the action of acid on bicarbonate of soda). 				

Separating by evaporation	Separating by filtering	Separating by sieving
<ul style="list-style-type: none"> Solute can be removed from the solvent again by using evaporation. Adding more heat will provide all molecules in the solution more energy. If the water molecules in our coffee gets more heat, the water will evaporate. This will leave the coffee particles (that were dissolved) behind. 	<ul style="list-style-type: none"> For mixtures such as sand and water (that won't dissolve) we can use filtering to separate the water from the sand. Filter paper lets liquids and solutions through but anything with particles that are too big to fit between the fibres in the paper are trapped. We put the paper into a funnel to stop it falling over! 	<p>Sieving is a method for separating large solids from smaller solids.</p> <ul style="list-style-type: none"> The sieve is a barrier made from mesh or plastic with holes of a certain size in. The holes between the mesh or in the plastic allow objects up to a certain size through. Any objects that are bigger than those holes or spaces are trapped behind the barrier. We use sieves in baking to make flour lumps smaller. We use sieves in the garden to remove roots and rocks from the soil.   

Please also refer to year 1 'Everyday materials', year 2 'Uses of everyday materials', year 3 'Forces and magnets' and Year 4 'States of Matter'. Images obtained from Switched on Science scheme and Google advanced image search.

Quiz**Question 1**

For which of the following would sieving be a good method?

- a) Separating sticks from soil.
- b) Separating sugar from water.
- c) Separating sand from water.
- d) Separating colours in ink.

Question 2

For which of the following would filtering be a good method?

- a) Separating sticks from soil.
- b) Separating sugar from water.
- c) Separating sand from water.
- d) Separating colours in ink.

Question 3

For which of the following would evaporating be a good method?

- a) Separating sticks from soil.
- b) Separating sugar from water.
- c) Separating sand from water.
- d) Separating colours in ink.

Question 4

What is dissolved into a solvent?

- a) Solution
- b) Water
- c) Solute
- d) Sand

Question 5

Which of the following solids is an example of a solute?

- a) Sand
- b) Rock
- c) Coffee
- d) Glass

Question 6

Which of the following words is used to describe a substance that cannot be dissolved in a solvent?

- a) Soluble
- b) Indissolve
- c) Insoluble
- d) Evaporate