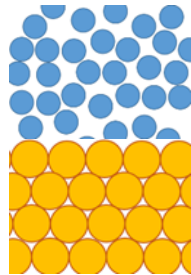
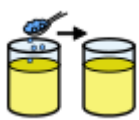
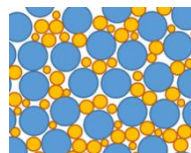
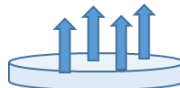
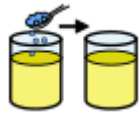
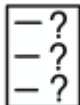


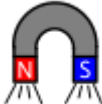
Year 5 Science – Properties of Materials

Vocabulary			Knowledge	
Solution	A mixture of solvent and solution (e.g. a cup of coffee)		<u>Solvent and solute</u>	
Solvent	The liquid in which a solute is dissolved (e.g. water in a cup of coffee)		The solvent is a liquid so it has gaps between the molecules making up the liquid.	
Solute	A substance that is dissolved into a solvent (e.g. coffee in a cup of coffee)		The bits of coffee are each a solid. The molecules making up the coffee are tightly packed together.	
Dissolve	When a solid is mixed into a liquid without being able to be detected by eye.		<u>Dissolving</u>	
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.		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.	
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.		The solution may change colour but will no longer have any solid visible.	
Chemical reaction	A change where two or more substances combine to make a new one		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.	
Filter	A method of separating substances (usually solids from liquids) using paper.		We call the solution saturated – meaning completely filled.	
Soluble	A substance that can be dissolved in a solvent (e.g. sugar).		<u>Separating by evaporation</u>	
Insoluble	A substance that cannot be dissolved (e.g. sand).		•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.	
			<u>Separating by filtering</u>	
			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!	
			<u>Separating by sieving</u>	
			Sieving is a method for separating large solids from smaller solids.	
			•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.	

Quizzing		Quiz at home
Ask your partner the questions below. Can they find the correct answer on the right-hand side?		Ask your adult to look at the KO.
What is a common sign of an irreversible change?	A new substance is formed	Quiz them using the vocabulary and knowledge section or the quiz questions. • Can they beat your score? • Can they score more than 5? 10? • Compete with your adult in the elimination quiz. Take it in turn to ask each other questions. The first person to get a question wrong is out.  
Which of the answers is not a characteristic of irreversible changes?	They can often be reversed	
What is an example of a physical change?	Iron rusting	
Which of the following processes involves a physical change?	Melting butter	
What is an example of a reversible change?	They can't be undone	
What happens during a reversible change?	Melting ice to water	
Which of the following can be classified as an irreversible change?	Heating sugar to caramelise it	
What is an example of a chemical change?	Condensation of steam	
Which processes are reversible?	Baking bread	
Questions	Beat the adult	
- What are the three states of matter? - Give an example of a soluble / insoluble material. - Explain what causes an ice cube to become a liquid. - What does a reversible / irreversible change mean? - How could you separate a mixture of sand, nails and water?	Your teacher can give 10 facts in 1 minute about this topic. How many can you give to your partner? 	
Word scramble	Tasks	Challenge
Unscramble the key vocabulary from this topic below. You can create your own at the bottom	- Use a blank copy of the KO to fill in the missing information. - Write up a science experiment to answer the question.	Stanley has been shipwrecked on a desert island. Washed up with him is a funnel, a flour sieve, some coffee filters, two large bowls, a saucepan, a metal tea tray and some matches. 
losnutoi	'Which type of sugar dissolves the fastest'	The only source of water on the island is a muddy, leaf filled pond that contains salty water. 
olsute		
esvosdli	Create a revision bookmark that includes summaries of the information on the knowledge organiser. 	Stanley can't drink this! Why?
iltefr		Devise a way to help Stanley get clean drinking water that will allow him to survive.
eives		Draw a scientific diagram with labels and give a written explanation on how you will ensure the water is clean.
qiduil		
olsdi		
evrslbrie		
lnibsuelo		
viaeraponto		

Scientific Enquiry

Equipment I will use this topic

								
Filter	Filter Paper	Sieve	Beaker	Thermometer	Magnet	Petri Dish	Tripod	Funnel

Fill in the gaps using the given words

- To make an experiment fair, change one _____ at a time and keep everything else the same.
- When we make a _____, we are writing down what we think will happen.
- You should _____ your experiment multiple times to make sure your results are reliable.
- Sometimes, results form a _____.

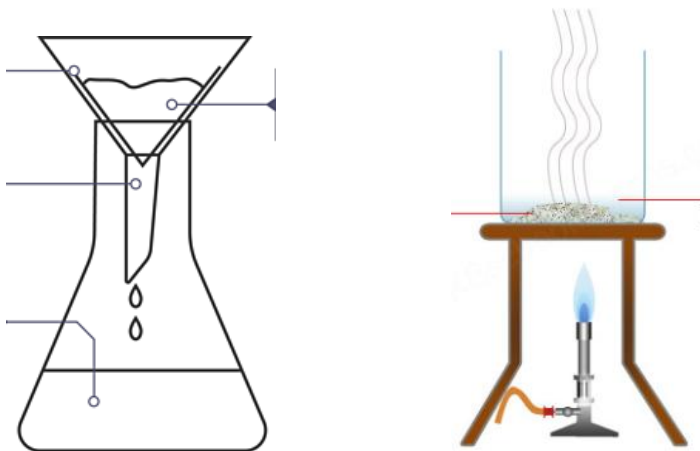
Prediction

Repeat

Pattern

variable

Label the scientific diagrams

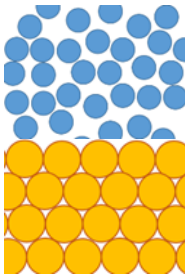
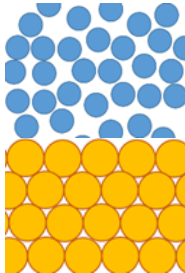
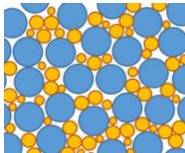
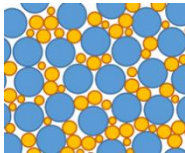


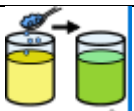
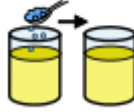
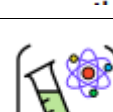
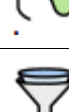
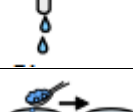
Interpreting and displaying results

Kate carries out a scientific enquiry to see how temperature effects the rate sugar dissolves. She carried out her enquiry three times and recorded the results. Use the table to create a chart of the results

	0°C	30°C	100°C
Test 1	120 seconds	70 seconds	20 seconds
Test 2	118 seconds	75 seconds	23 seconds
Test 3	119 seconds	76 seconds	21 seconds



Knowledge		Knowledge	
<u>Solvent and solute</u>		<u>Solvent and solute</u> The is a liquid so it has gaps between the making up the liquid.	
<u>Dissolving</u>		<u>Dissolving</u> 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 of coffee can get so small, they fit in the gaps between the water molecules. The may change colour but will no longer have any solid visible.	
<u>Separating by evaporation</u>		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 and you will be left with undissolved solid at the bottom of the liquid. We call the solution – meaning completely filled.	
<u>Separating by filtering</u>		<u>Separating by evaporation</u> •Solute can be removed from the solvent again by using •Adding more heat will provide all molecules in the solution more •If the water molecules in our coffee gets more heat, the water will evaporate. <u>Separating by filtering</u> For mixtures such as sand and water (that won't dissolve) we can use 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 to stop it falling over!	
<u>Separating by sieving</u>		<u>Separating by sieving</u> Sieving is a method for separating •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.	

Write the definition for each of the following words			Write the vocabulary word for each definition		
Vocabulary			Vocabulary		
Solution				A mixture of solvent and solution (e.g. a cup of coffee)	
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