

Week 3

Lesson 5 sheets 1

14 How can you get sugar back once it has dissolved?

- Solids can be recovered once they have dissolved in water. It can be reversed.
- Dissolving is when a solid mixes with a liquid so that you can't see the solid anymore.

If you put some sugar crystals into water, they will dissolve. The two things have made a special mixture called a solution. It looks like the sugar has disappeared, but you know it hasn't because the water tastes sweet. Mr Hills wanted his class to think about how they might reverse this change and get the sugar back. They could choose any equipment they liked to test out their ideas.

Can you get the sugar back by filtering?

Natalya and Ali decided to pass the sugary water through a filter paper.

Natalya said, 'I think the sugar will be left on the paper.'

Ali said, 'I think nothing will be left and everything will go into the beaker.'

They found out that everything passed through into the beaker. Ali was right.



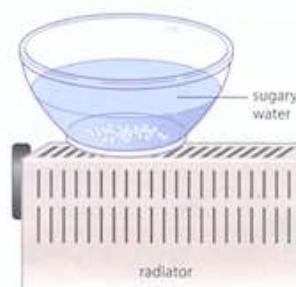
Can you get the sugar back by evaporating?

Sara and Haroun tried another way.

They decided to put the sugary water into a small bowl and leave it on a warm radiator for a couple of hours.

They found out that most of the water evaporated into the air. Sugar crystals were left behind in the bowl.

When they left it longer, only sugar was left. The water had changed state and evaporated into the air.



Observation

Something you see happening.

Fact

An observation that has been confirmed repeatedly.

Sheet 2

14 How can you get sugar back once it has dissolved?



On track

- Mr Hills quizzed the class. He wrote four statements about the filtering method.
 - The solid disappears when it dissolves.
 - The solid melts into the water when it dissolves.
 - The sugar solution is heavier than the water.
 - Evaporation makes the water disappear.
 - Only one of these statements is true. Which one?
 - Pick one of the false statements and explain how you could show your friends why it is wrong.
- Explain why both the sugar and water go through the filter paper.



Aiming higher

- Mr Hills asked the class some questions about the second test.
 - What observation made it clear to Sara and Haroun that their method had worked?
 - Why did they have to wait a couple of hours?
 - Is adding sugar to water a reversible change?
 - What name would you give to this method? Use a sentence like 'Separating by _____'.
- Which of these mixtures could you separate by this method?
 - Rice, sand, peas and stones
 - Sand and water
 - Sand and iron nails
 - Salty water



How well am I doing?

On track

I can explain the difference between dissolving, filtering and evaporation.

Aiming higher

I can name some mixtures that might be separated by evaporation.

Lesson 6

Sheet 1

Year 5

15 What makes a material useful?

- **Materials have many different properties.**
- **The properties help decide which material is best for a particular job.**

Materials have many different properties. Some properties are useful for particular jobs and others are not. Scientists use the word 'material' to mean all the substances things are made from – which is everything in the Universe. If you know the properties of a material, you can decide what to use it for.

What properties are important?

Different materials can be used for the same job if they have a property in common. The properties of some materials make them useful for many different things.



Jumpers can be made from man-made or natural materials because they are good heat insulators.



Buckets are made from plastic or metal because both materials are light and strong.



Windows and bottles are made from glass because it is transparent and hard.

How can you make up your mind what material to use?

Materials don't have just one property. You need to consider more than property when deciding to use a material for a particular job. No material is perfect!

Material	Property					
	Transparent	Hard	Flexible	Conducts electricity	Waterproof	Brittle
Wood	No	Yes	No	No	Yes	No
Glass	Yes	Yes	No	No	Yes	Sometimes
Ceramic	No	Yes	No	No	Sometimes	Yes
Rubber	No	Yes	Yes	No	Yes	No
Iron	No	Yes	No	Yes	Yes	No
Plastic	Sometimes	Sometimes	Sometimes	No	Yes	No

Synthetic material

A material made by chemical reactions in the laboratory.

Ceramic

Baked clay. Tiles and flower pots are made of ceramic materials.

Sheet 2



On track

- 1 Mr Hills has written out some science vocabulary for his class. Some are the names of materials and some are properties.

concrete	transparent	strong	ceramic
hard	wool	plastic	flexible

- (a) Sort the words into two lists.

Names of materials	Properties of materials



Aiming higher

- 2 Mr Hills asked the class to complete the following sentences. For each material give **two** properties that make it good for its job.

- (a) Iron is used to build bridges because _____
- (b) Rubber is used for wellington boots because _____
- (c) Leather is used for shoes because _____
- (d) Stone is used for pavements because _____
- (e) Cardboard is used for boxes because _____
- (f) Electrical plugs are made from plastic because _____.

- 3 Make up similar sentences of your own for five new materials and the jobs they are best at.



How well am I doing?

On track

I can name some properties that make a material useful.

Aiming higher

I can decide and explain what makes a material good for a particular job.