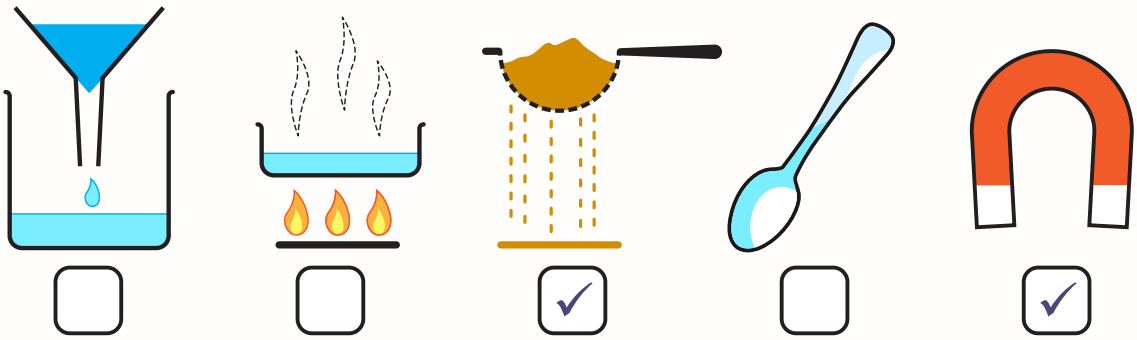
Science HeadStart primary

1 How can they be separated?

Complete the following:

a Some steel ball bearings are dropped into a bowl of sand. Tick **two** boxes to show the best ways the ball bearings can be separated from the sand.



☐ ☐ ☑ ☐ ☑

2 marks

b Tick the box which shows how to separate each of the mixtures below. One has been done for you.

mixture	filtering	evaporating	sieving	cannot separate
sugar from sugar and water		✓		
small pebbles from sand and small pebbles			✓	
sand from salt, sand and water	✓			
sugar from sugar, salt and water				✓

(2 marks for all 3 correct, 1 mark for 2 correct.)

2 marks

Page Total 4

2 Dissolving

coffee granules

sand

sugar

cooking oil

salt

Year 5 conducted an investigation to find out which of the above substances would dissolve in water. They put their results into a table.

Complete their table below. Two have been done for you:

a

soluble	insoluble
coffee granules	sand
sugar	cooking oil
salt	

(2 marks for all 3 correct, 1 mark for 2 correct.)

2 marks

Complete the following:

During the investigation, they dissolved the coffee granules in water of different temperatures.

b How does the temperature of the water affect the coffee granules dissolving?

Answer should suggest the hotter the water, the quicker the granules dissolve.

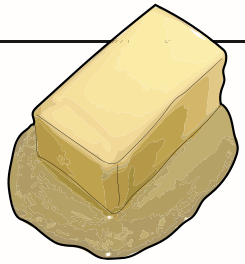
1 mark

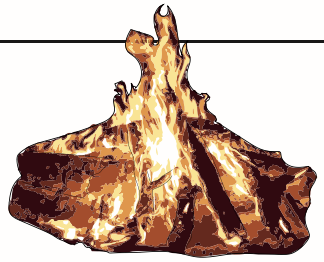
Page Total 3

Science HeadStart primary

3 Can it be reversed?

reversible change	irreversible change
• A substance can return to its original state. • The chemical properties do not change.	• A substance cannot return to its original state. • The chemical properties change.





Complete the following:

a Look at the table above. Write ***reversible*** or ***irreversible*** in the correct column at the top of the table. (Both must be correct for 1 mark.)

1 mark

b Which of the following are examples of ***reversible*** change? Tick **two** boxes.

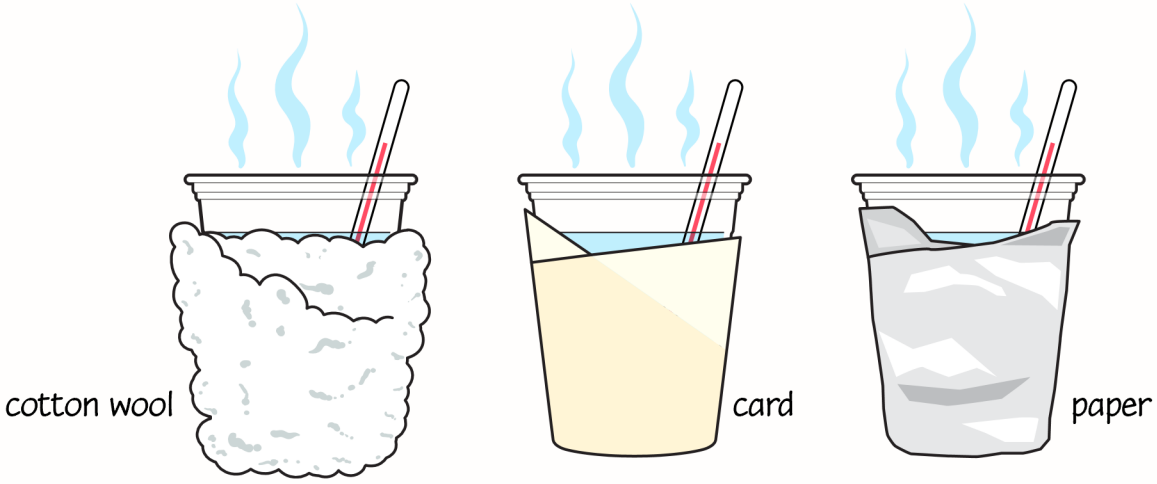
- ☐ wood burning on a fire
- ☐ metal rusting in the rain
- ☑ water freezing into ice
- ☐ eggs cooking in a pan
- ☑ butter melting in the heat

2 marks

Page Total 3

Science HeadStart primary

4 Thermal conductivity



Three identical plastic cups are wrapped in cotton wool, card and paper. The cups are filled to the same level with boiling water.
A thermometer is used to monitor the water temperature over time in each cup. These are the temperatures after 10 minutes:

material	temperature °C
cotton wool	85°
card	75°
paper	60°

Answer the following questions using the information above:

a Which material is the best insulator? cotton wool

1
1 mark

b Give **two** reasons why this was a fair test.

1 identical cups used / filled to the same level

2 boiling water used / measurements made at the same time

(Accept any two appropriate reasons.)

2
2 marks

Page Total 3