Experiment worksheet

2.6 Solubility can be used to separate mixtures

Pages 40–41 and 183

Challenge 2.6: Separation challenge

Challenge

Now that you are a scientist who has trained in separating techniques, it is time to separate a mixture of sand, salt, sawdust and iron filings.

Criteria restrictions

You may only use equipment available in the laboratory.

Questioning and predicting

Think about the properties of each pure substance. This may help you decide on a way to separate the substances. Write what you know about the properties of sand, iron filings, sawdust and salt in the table below.

SUBSTANCE	SOLUBLE IN WATER?	ATTRACTED TO A MAGNET?	FLOATS/SINKS IN WATER?
Sand			
Iron fillings			
Sawdust			
Salt			

Discuss with a partner some possible ways to separate the four substances.

Planning and conducting

1 Draw up a flow chart showing the steps you will take to separate the four substances.

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Name: Class:

2 Devise an aim and an equipment list for your experiment.

3 Write a detailed method for separating the substances. Include at least two diagrams.

Diagram 1:	Diagram 2:

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4 What safety issues might there be when doing this experiment?

5 Have your plan checked by your teacher.

6 Perform your separation experiments and make relevant observations.

Processing, analysing and evaluating

1 How well did your plan work? Grade the success of the plan on a scale of 1–5, where 1 means the experiment did not work well and 5 means the experiment was a great success. If you completed this challenge as a group, discuss your grading with others in your team. Build a prototype of your design.

2 If your success was lower than 5 on the scale, how would you change 'plan B' to improve the results on another occasion?

3 Did you manage to separate the four substances successfully? Write your answer to this question as the conclusion in your laboratory report.

Communicating

Present your investigation in a formal experimental report.

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