

Solutions

Independent Learning Task

What a wreck!

A ship has sunk in the Atlantic Ocean during a terrible storm.

Scientists need to analyse some of the evidence recovered from the scene, but first you need to separate the mixture that has been found.

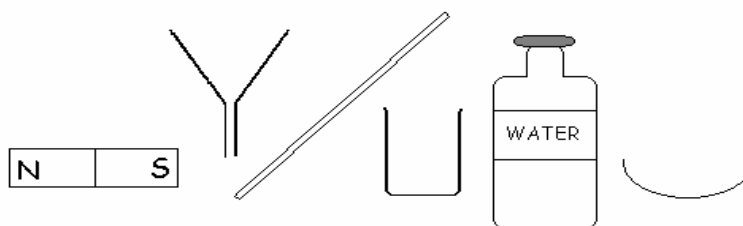


Your task: Create an investigator's manual

- You need to write a *step by step method* explaining how to separate the mixture of **iron, salt and sand** found by the scientists.
- You will need to think about the properties of these substances:
 - are any attracted to a magnet?
 - do any dissolve in water?

You could also include diagrams to help explain how you are going to set up and use your equipment.

You may choose to use some or all of the equipment below to help you, plus any other equipment you have used in science lessons:



Keywords:

soluble solvent magnetic insoluble dissolve filter evaporate
compound mixture pure substance

Something extra to think about

The scientists will be out at sea for a long time investigating the accident. How could they make enough clean drinking water no matter how long they are out there? How could they check that the drinking water was pure?

Remember, water from the ocean is filled with salt and microbes which could be harmful if you drink them!

Level	You should be able to...
3	State which substance is magnetic and which is soluble in water. Describe how we can separate one substance from the mixture. Use the terms element, compound and mixture correctly. State what melting and boiling points are.
4	Describe how we can separate two substances from the mixture. Use labelled diagrams to show how some of your equipment is set up. Describe some compounds based on their melting/boiling points.
5	Explain how we can completely separate iron, salt and sand. Use the keywords correctly in your method. Explain mixtures using particle theory. Explain melting and boiling using the particle model.
6	Explain your methods of separating mixtures based on the particles that are in them. Suggest how we could also obtain clean drinking water from the ocean. Explain your choice of method and use your understanding of the particle model.