Science 8
Topic 3 Unit 1 Research Questions
Separating Earth's Mixtures
Page 27 – 38
Name:
Date:

1.) List the eight separation methods from handout BLM 1-8 4 marks

2.) State which separation method would be best to separate the following mixtures. (some may need two methods)

a.) salt water:_____

b.) muddy water:_____

c.) nuts and bolts:_____

d.) oil and sand:_____

e.) oil and water:_____

f.) salt and pepper:_____

g.) styrofoam and plastic blocks:_____

h.) pennies and dimes:_____

i.) wood chips and bricks:_____

3.) What are separation methods, in this topic, based on? 1 mark

4.) What is desalination and why are large scale desalination plants not practical worldwide? 3 marks. page 28

5.) What is a benefit of distillation over evaporation? Page 29 1 marks

6.) What is Fractional distillation? 1 mark

7.) Explain how fractional distillation works. Use a simple diagram to help complete your explanation 4 mark (diagram 2 marks, explanation 2 marks)

8.) Do review page 38, questions 1, 5

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TOPIC 3
INFORMATION HANDOUT

BLM 1-8

Methods of Separation

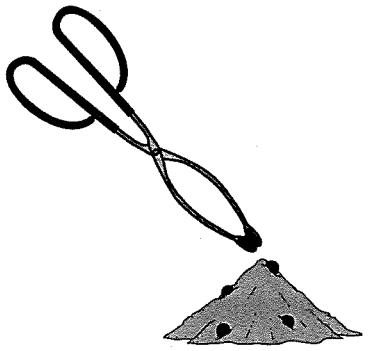
Goal • Read this handout to learn more about different methods of separation.

Introduction

- Below are some examples of how different substances may be separated. Usually one of these methods will work if there are only two substances in a mixture. If a mixture has three or more substances, you will probably need a combination of methods to separate all the substances.

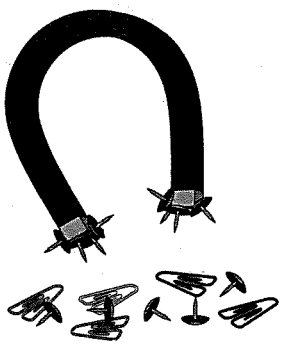
Picking Out With Tongs:

This method is used to remove very large pieces of material from a mixture. For example, a pair of tongs can be used to pick out marbles from a small pile of sand.



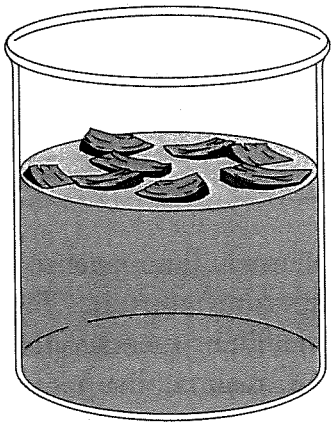
Magnetism:

This method uses a magnet to remove any substance that is magnetic. For example, a magnet can be used to separate and remove thumbtacks from plastic paperclips.



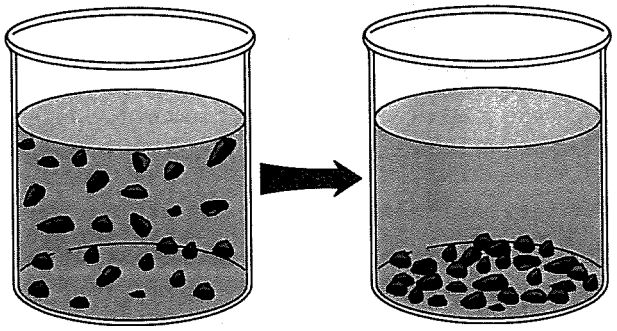
Flotation:

This method will separate materials that are less dense than the liquid. The materials that rise to the top can be scooped out with a spoon. For example, wood chips float on the surface of water.



Settling (or Sedimentation):

This method will separate out the heavier materials from the rest of a mixture. When mixed with water, the heavier particles will settle to the bottom. For example, when water is added to a mixture of gravel and sugar, the gravel settles to the bottom.



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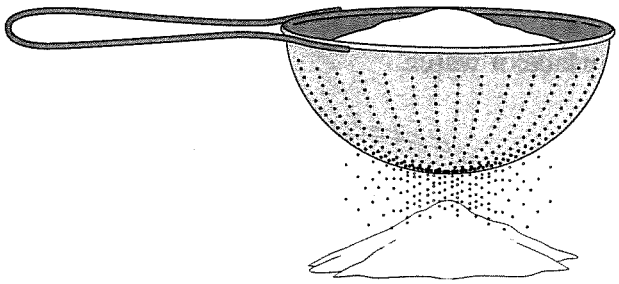
Methods of Separation

(continued)

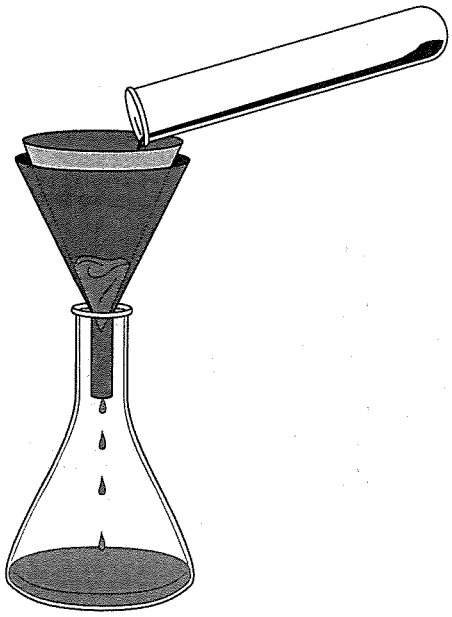
Sifting:

This method uses a sieve or strainer to separate the coarse parts from the finer material in a mixture. For example, flour for a cake is sifted to remove the coarse particles.



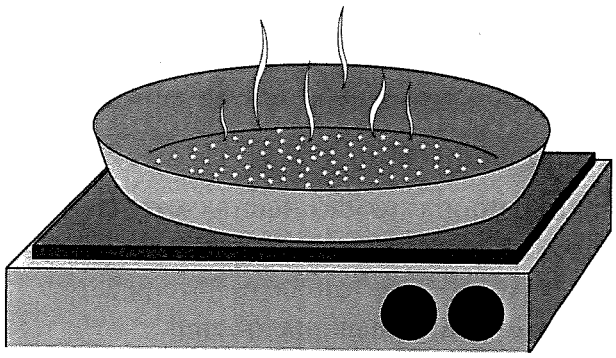
Filtration:

This method uses a filter paper to separate large particles from a mixture. The substance stopped by the filter paper is called the "residue." The material that passes through the small holes is called the "filtrate." For example, clay suspended in water can be separated from water by pouring the mixture through a filter paper.



Evaporation:

This method is used to recover the solute in a solution by evaporating away the liquid portion of the solution. For example, salt can be recovered from salt water by evaporating the water.



Distillation:

This method uses evaporation and condensation to recover the solvent in a solution. The condensed substance that is collected is called the "distillate." The substance that remains in the original container is called the "residue." For example, distilled water can be recovered from ocean water by evaporating it, condensing the vapour, and collecting the product.