13. Separation Techniques

Sieving

Sieving is a good way to separate two different sizes of solids. For example peas from rice. It can also be used to separate large solid particles from water, for example potatoes from the water they were boiled in.

It all depends on the relative sizes of the particles and the sizes in the holes in the sieve.

Collect: 1 sieve
Mixture A
Mixture B

Activity:
1. Pour 50cm^3 of mixture A through a sieve, shake it and observe what happens.
2. Pour 50cm^3 of mixture B through a sieve, shake it and observe what happens.

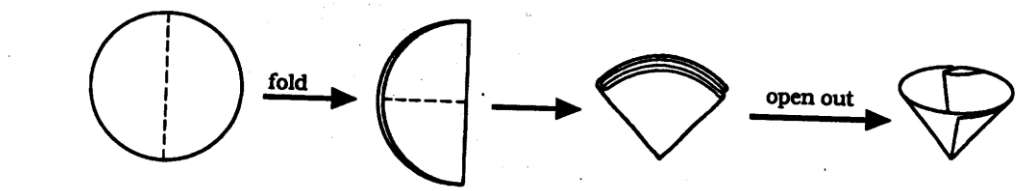
Notes: Draw a diagram of your experiment.

Write a few sentences to explain what you did.

Copy and complete:-
When mixture A was shaken in a _____, the rice passes through the sieve while the peas _____ in the sieve.
This is because the holes in the sieve are too small to let the _____ through but big enough to let the _____ through. Both flour and salt in mixture B have too small particles to be held in the sieve so can/can not be separated by this method.

Filtering

Filter paper has very small holes in the paper. For this reason it can be used to separate a liquid from a solid, provided the solid particles are not so small that they also go through the holes in the filter paper.



Demonstration: Your teacher will demonstrate how to fold filter paper and use it to separate a solid from a liquid.

Collect:

- 100cm^3 beaker
- stirring rod
- filter funnel
- filter paper
- boiling tube
- test tube rack
- spatula
- sand

Activity:

1. Put 1 heaped spatula of sand into the beaker with 25 cm^3 of water and stir.
2. Fold the filter paper as you have been shown, put it in the filter funnel and put the filter funnel in a boiling tube in the test tube rack.
3. Pour the mixture into the funnel making sure that the water level does not rise above the top of the filter paper.
4. Once all the liquid has drained through the filter paper, carefully remove the filter paper, open it out and leave it to dry.

Notes:

Draw a diagram of the filtration set up as shown below. Label filtrate, residue, boiling tube, test tube rack, sand, filter funnel and filter paper

Copy:

Solids can be separated from liquids by filtration. This is because the holes in the filter paper are small enough not to let the solid material through but large enough to let the liquid through.