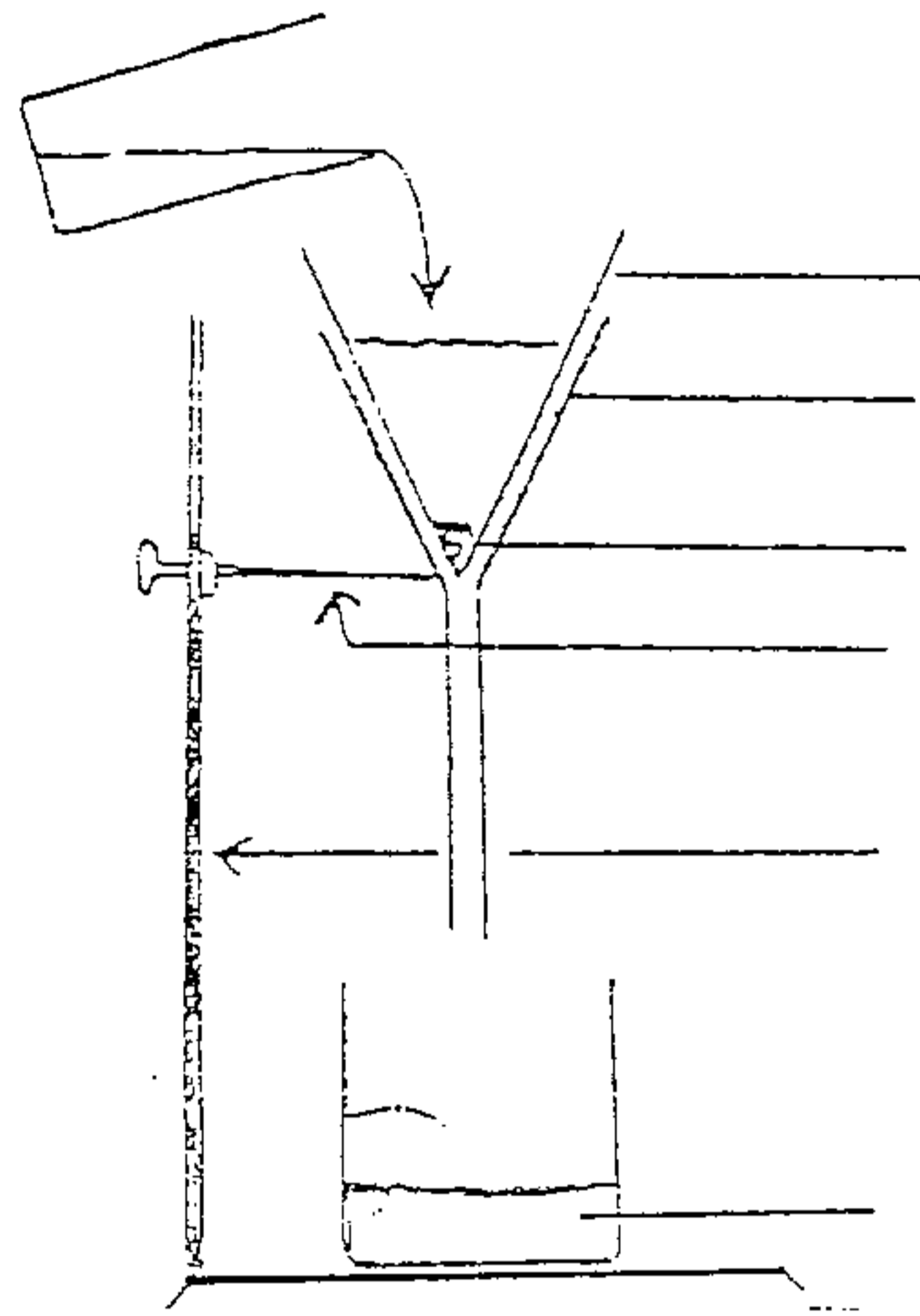


## METHODS OF SEPARATION

1. Magnetism - removing metal particles with a magnet (eg. Iron)
2. Sifting or Sieving - the mixture through a screen (eg. Spagetti and water)
3. Filtration - a method of separating parts of a heterogeneous mixture based on the concept that large particles get trapped by a "net" called a filter paper.



4. Distillation - a method of separating the parts of any mixture based on the concept that one material reaches its boiling point before others and therefore vaporizes and leaves the container first
5. Floatation - separation of a mixture of solid and liquids based on size and density
6. Separatory funnel - separation of liquids based on density (eg. Oil and water)

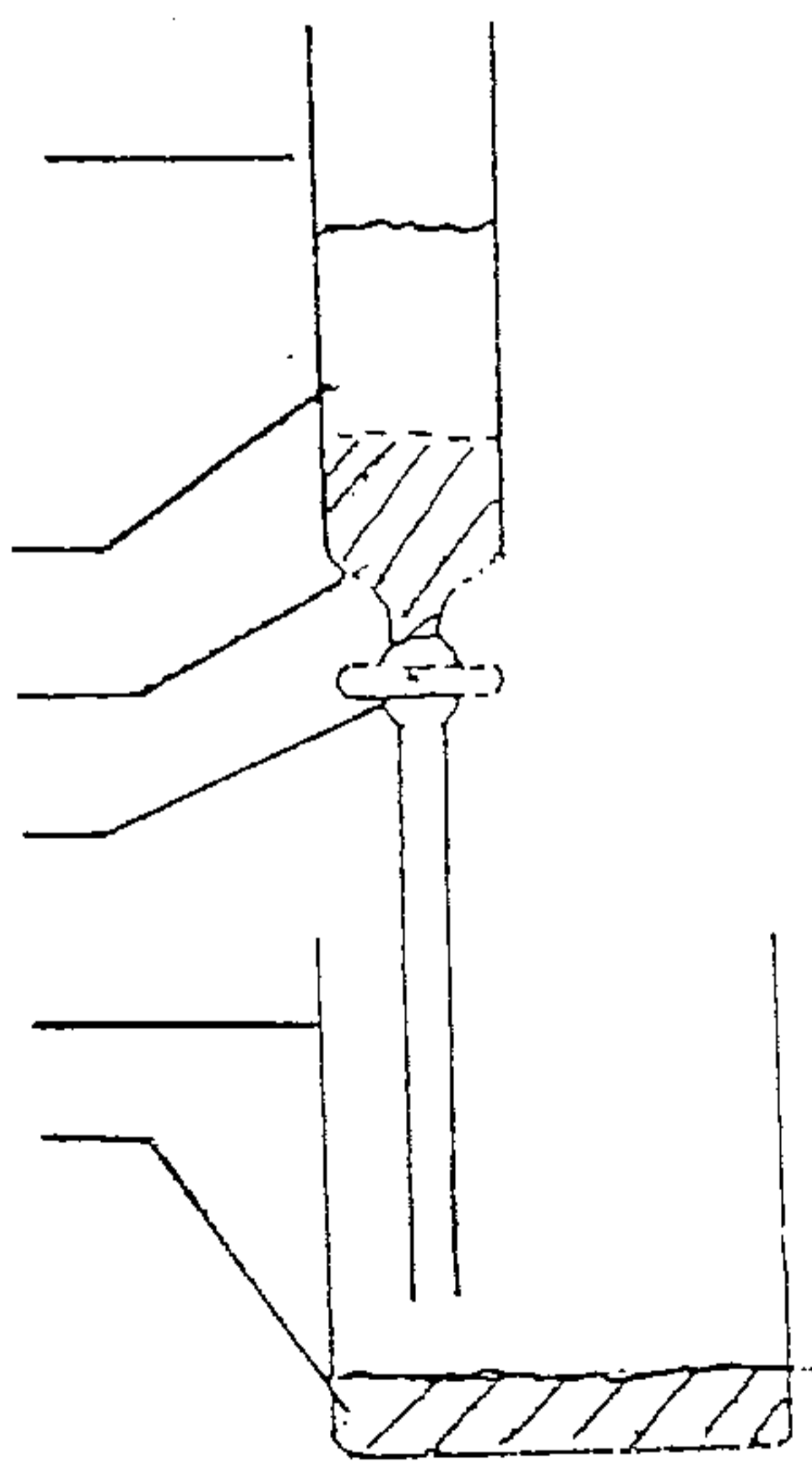


Figure 1: Separatory Funnel

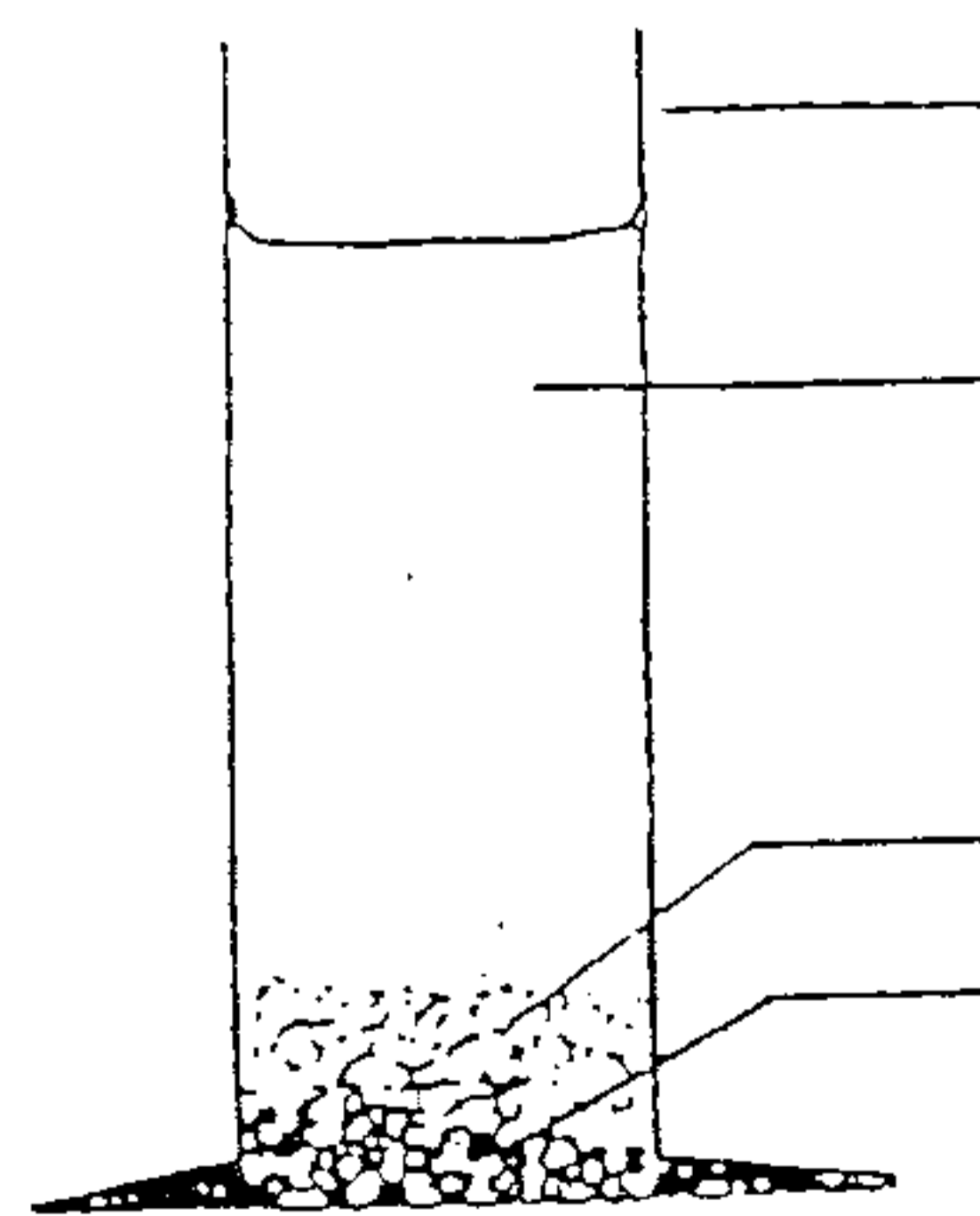
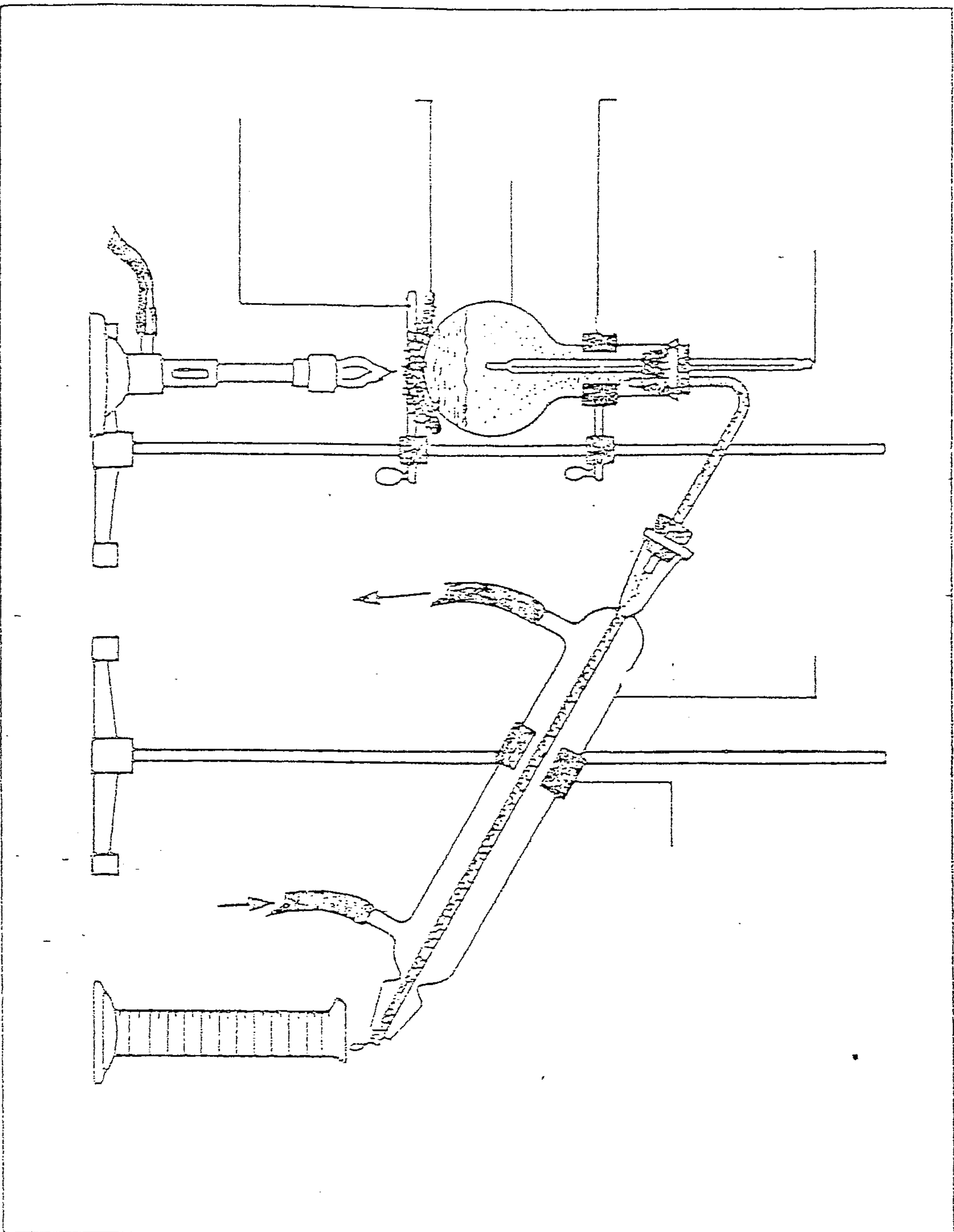


Figure 2: Settling

Apparatus for distillation



**Grade 11 Chemistry**  
**Separation of Mixtures**

1. In general, the physical methods of separation we have studied work when the two components of the mixture have different properties.  
What property must be different for the two substances if you are trying to separate them by:
  - a) fractional distillation
  - b) floatation
  - c) filtration
  
2. What method would most easily and effectively separate the following?
  - a) glass beads and fine sand
  - b) iron filings mixed with powdered sulfur
  - c) sawdust and sand
  - d) chalk particles in water
  - e) corn oil and water
  
3. In an experiment, a student heated potassium chlorate. She determined that the products after heating were oxygen and potassium chloride.
  - a) What method of separation occurred here?
  - b) Was the separation complete? Explain
  
4. We were told that if you filtered a mixture of aluminum oxide particles and water that the process is a physical change. How could you prove this to someone?

# GRADE 11 CHEMISTRY SEPARATION OF MIXTURES

Draw flowcharts to show how you would separate the following mixtures. Make sure that you recover all the components you started with.

Sawdust, iron filings,  
marbles

Marbles, sand, water

Sand, sawdust, iron filings

Salt, styrofoam chips, sand,  
marbles

Sugar, sand, iron filings,  
alcohol, water