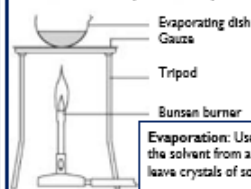


Key words	
Soluble	A substance that can dissolve in a liquid to form a solution. (A solute).
Insoluble	A substance that doesn't dissolve that particular solvent
Solution	A mixture containing the solute and the solvent
Saturation	The point at which no further solute can dissolve for a given volume and temperature
Evaporation	The process used to remove some of the water in a solution by heating a solution.
Chromatography	The process used to separate the dyes using a solvent to move them according to their solubility
Distillation	The process used to separate and collect a solvent from a solution using evaporation and condensation.
Fractional distillation	The process by which liquids can be separated by using their boiling points and the process of evaporation and condensation.
Immiscible liquids	Two or more liquids that cannot mix together and where one is more dense than the others.

Knowledge organiser Separating mixtures

Simple techniques

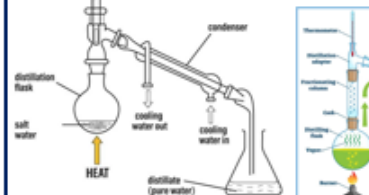


Evaporation: Used to remove the solvent from a solution to leave crystals of solute.



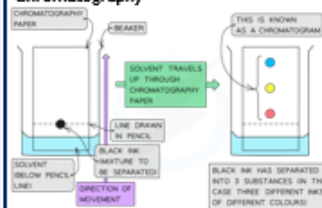
Filtration: Used to separate the insoluble residue from the soluble solution or liquid

Distillation Distillation involves **evaporation** and **condensation**. The solvent evaporates and condenses in the condenser, leaving behind a more saturated solution



The addition of a fractionating column allows space for liquids with higher boiling points to condense and fall down to the flask, where they are heated again. Those with a lower boiling point will reach the condenser and are condensed.

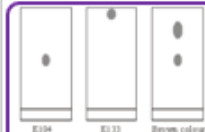
Chromatography



The more soluble the dye, the further up the paper it will travel as it dissolves first.

Two dyes that travel the same distance on a chromatogram are identical as they have the same solubility.
A dye that does not leave the start line is not soluble in that solvent

Exam questions



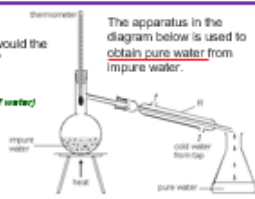
A brown colour used in sweets was analysed using chromatography. The results were compared with those from E104 and E133.

What do the results tell you about the brown colour?

- Made up of two colours/dyes
- Contains an unknown colour
- Contains E104

What temperature would the thermometer show?

100°C
(the boiling point of water)



The apparatus in the diagram below is used to obtain pure water from impure water.

What is the function of the piece of apparatus labelled R?

To condense the water vapour

Knowledge retriever Separating mixtures 13+

Define the following key words

Saturation	
Solubility	
Filtration	
Liebig condenser	
Distillation	
Residue	
Filtrate	
Chromatography	

Separation techniques



Describe how to separate:

Oil from water	A soluble solute from a mixture

Which apparatus can be used to create a saturated solution?

How is this achieved?

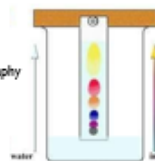
Describe the link between temperature and solubility.

Chromatography Investigation

1. What happens to the dyes in the ink spot as it soaks in the water?

1. What information can you tell about a dye if it has travelled further up the chromatography paper than another?

1. What information can you tell about a dye that hasn't moved from the start line?



Particle model

