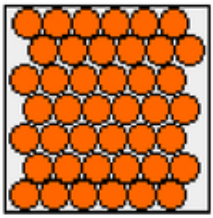
Unit 1 Chemistry

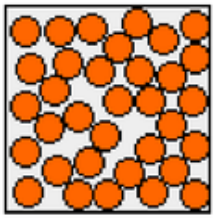
FULLHURST
COMMUNITY COLLEGE
EST. 1991

Matter

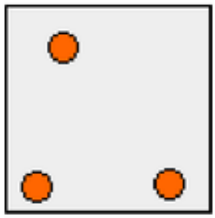
The 3 States of Matter



Solid



Liquid



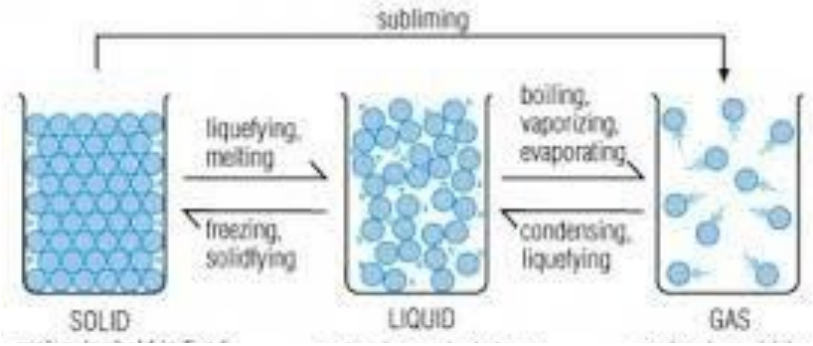
Gas

Solids have a regular arrangement in lines. This means they are close together and touching.

Liquids have a more free arrangement. It is more random. They can move around but are still close

Gases have a random arrangement. They are very far apart from each other and can freely move

Change of State Look, Cover, Write, Check



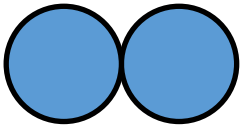
	Solid	Liquid	Gas
Volume	Fixed volume	Fills container to fixed volume	Fills the container
Kinetic Energy	Not a lot	some	Lots
shape	Has a fixed shape	Will flow easily to try and fill	Will fill container of any shape

Write a list of important key words below

Elements

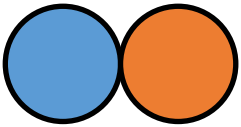
Do a look, cover, write check on all these key definitions

An element is where
there is 2 or more of the SAME type of atom together



Compounds

A compound is where there is 2 or more DIFFERENT elements CHEMICALLY BONDED

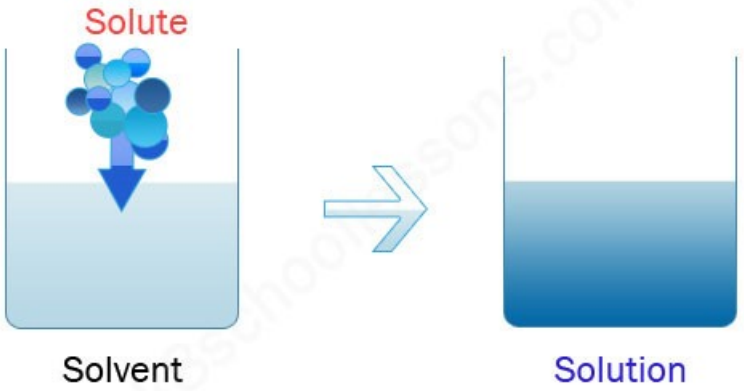


Mixture

A mixture is where there is DIFFERENT compounds or elements but they are NOT CHEMICALLY BONDED

Separation Techniques

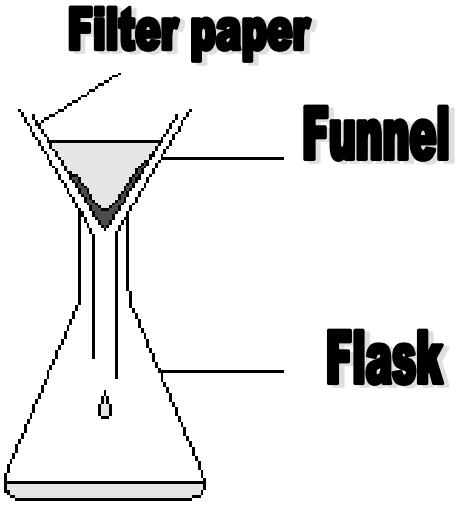
Dissolving



This is where you put a solid in to a liquid and it will mix with the liquid to produce a solution. This is dissolving.

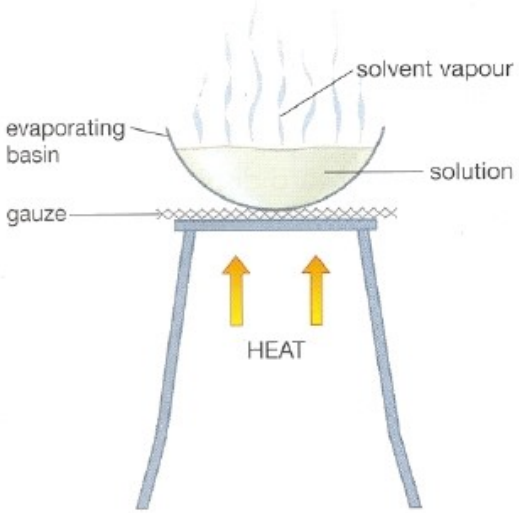
Filtration

You use the filter paper to separate a solid from a liquid. The filter paper has small holes that allow the liquid to pass through, but not the solid



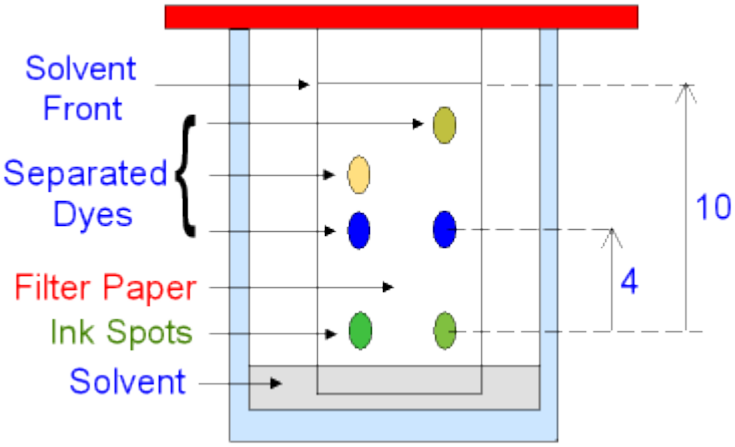
Evaporation

Can you draw this again?



Evaporation can be used to get a solid from a solution. This is particularly useful for getting salt from salty water. You heat the solution and because the water has a lower boiling point than salt, the salt will be left behind while the water evaporates

Chromatography

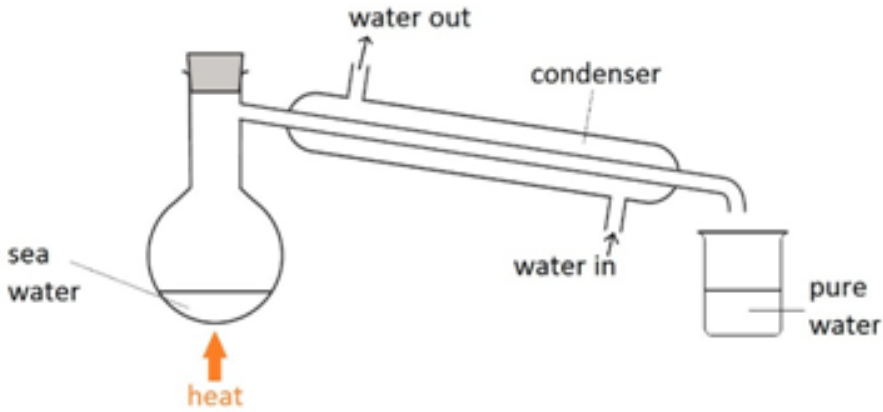


Chromatography is a technique used to separate different coloured inks

The different coloured inks travel up the paper at different speeds.

You place a piece of filter paper in to a solvent, normally water or ethanol, and then the coloured dots that you have draw will separate in to their separate colours.

Distillation



You can use distillation to get a pure substance from something that is in solution, normally water.

You use a condensing tube to cool water vapour to make it turn from steam to liquid water again. This will be the pure water. The condensing tube has cold water running around the outside to make the water vapour turn to liquid water again. This could also be done using ice cubes.

Can you draw this diagram again?

How will a splint react?

There are 3 main gases we use in experiments

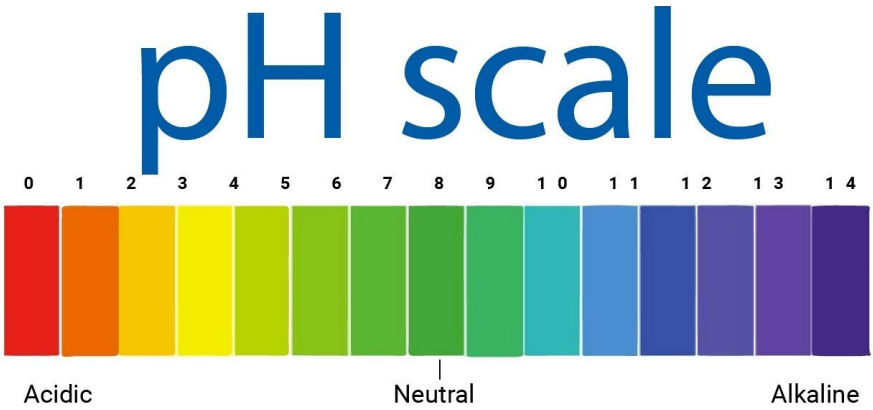
Hydrogen

Carbon Dioxide

Oxygen

gas	**effect of the gas on limewater**	**effect of putting a burning splint into the gas**
carbon dioxide	Goes cloudy	Goes out
oxygen	nothing	Burns brighter
hydro-gen	Nothing	Gas burns

Acids and Alkali



Can you write a flash card for the information on Acids?

Acids

Things that are strongly acidic can be dangerous.

They can be corrosive, which means they can melt through things, even skin

They can also be an irritant and burn. This means when they come in to contact with your skin they will make you itch and it will feel like it is burning your skin

pH Scale

The pH scale is a scale that shows us how acidic or alkali a substance is

Acid is from 1—6.

They are from red to orange to yellow

Neutral is 7. This is a substance like water

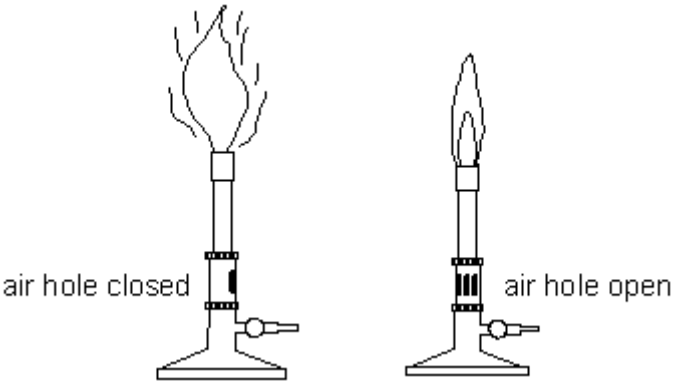
Neutral is green

Alkali is from 8—14

This goes from light blue to blue to purple

When you add an acid to an alkali, it will start to turn neutral

Combustion



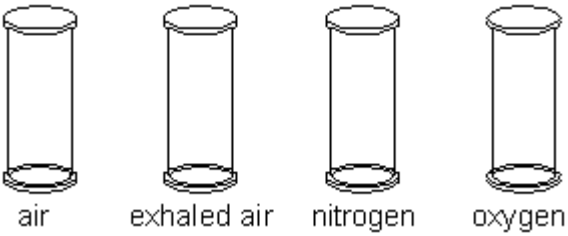
When the air hole is open, the flame will turn blue. This is because there is more oxygen that can be burnt making the flame hotter.

word equation

Methane + Oxygen —> Carbon Dioxide + Water

Can you draw the symbol equation?

Magnesium Experiments



These 4 jars are used in a magnesium burning experiment.

Only one of the jars doesn't contain oxygen

This means that as soon as burning magnesium is placed in to this jar it will go out.

This is the nitrogen jar.

Word Equation

Magnesium + Oxygen —> Magnesium Oxide

Can you write the symbol equation?

Revision Questions

1. What is the definition for an element
2. How is an mixture different to a compound?
3. Draw a solid, liquid and a gas
4. Name the 5 changes of state
5. How does magnesium react in nitrogen?
6. How does a lighted splint react in oxygen?
7. Name the equipment for distillation
8. What would use to separate sand and water?
9. What is chromatography used for?
10. In a solution, what is the solvent and what is the solute?
11. What is the word equation for magnesium + oxygen?
12. What is the word equation for combustion?
13. What does the pH scale show?
14. Where would water be on the pH scale?
15. Name the equipment for evaporation

Answers

1. An element is 2 or more of the same atom
2. A mixture can be separated a compound is chemically bonded
3.
4. Melting, evaporating, condensation, freezing, sublimation
5. Magnesium burning will go out in nitrogen
6. The splint will burn brighter
7. Round bottomed flask, condensing tube, beaker
8. Filtration
9. Chromatography is used to show the different colours in ink
10. The solvent is the liquid and the solute is the solid
11. Magnesium + Oxygen –> magnesium oxide
12. Fuel + Oxygen -> Carbon Dioxide + Water
13. The pH scale shows the how acid or alkaline a substance is
14. 6—neutral
15. Evaporating basin, Bunsen burner, tripod, gauze, heat proof mat