

Year 9

Chemistry booklet

Topic 1 - atoms

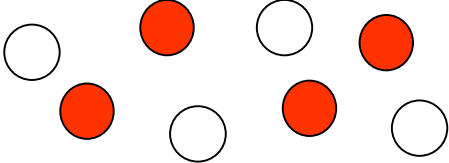
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# Atoms

Give a definition for each of these key words:

Particle	
Element	
Compound	
Mixture	
Periodic table	
Atom	
Proton	
Neutron	
Electron	
Atomic (or proton) number	
Mass number	
Periodic table group	
Period	
Ion	
Isotope	

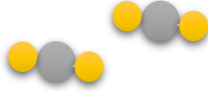
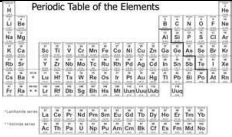



## Elements, compounds and mixtures

Element	Compound	Mixture
<i>Diagram:</i>	<i>Diagram:</i>	
One type of atom, on its own or joined to another atom of the same type	<i>Description:</i>	<i>Description:</i>
<i>Examples:</i>	<i>Examples:</i>	<i>Examples:</i>

**Match up the following:**

Substances with only one type of atom are called
Substances which are not chemically bonded
Substances are made of more than one type of atom bonded together
The smallest particles which substances can be broken down to
A place where a list of all the elements can be found

Periodic table
Elements
Atom
Compounds
Mixtures

Element, compound or mixture? Place the following in the table

Carbon dioxide      oxygen      salt water      magnesium      water  
 calcium      air      hydrochloric acid      copper sulphate

Element	Compound	Mixture

How many atoms in one molecule of?

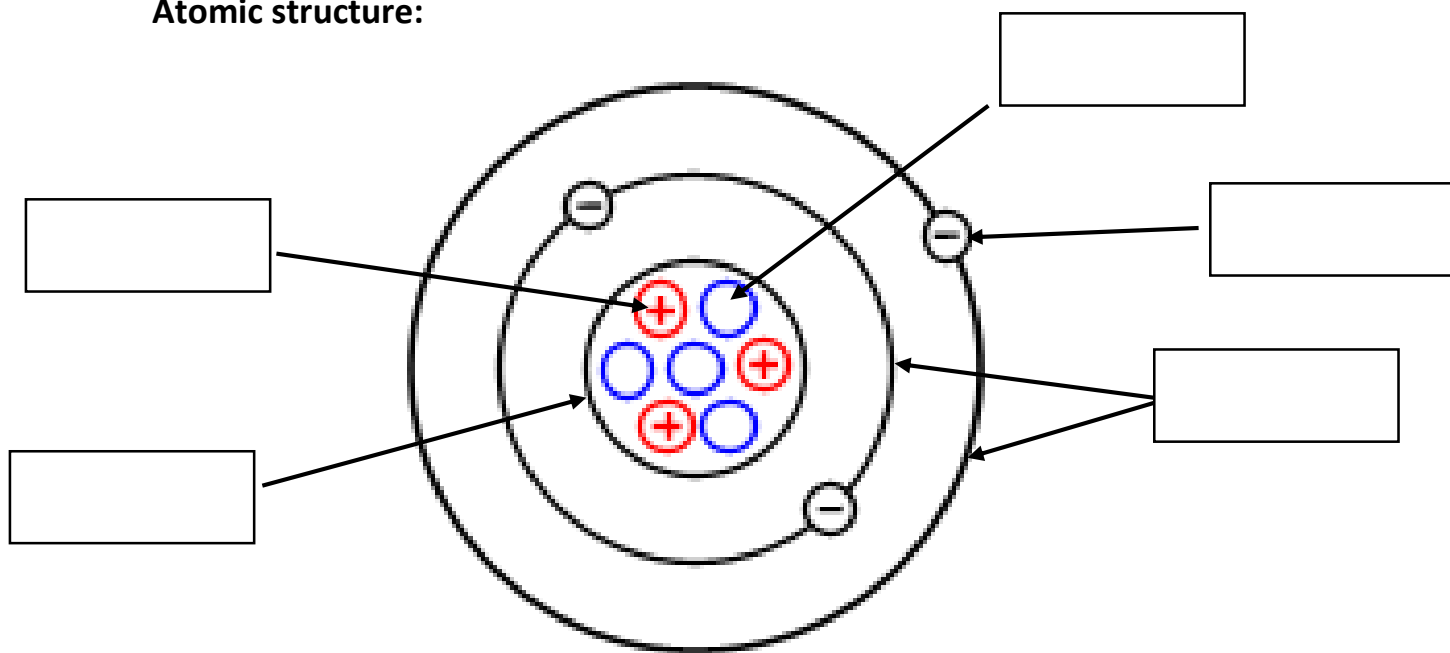
Laughing gas       $N_2O$       = \_\_ N \_\_ O      Total \_\_\_\_\_

Baking soda       $NaHCO_3$       = \_\_ Na \_\_ H \_\_ C \_\_ O      Total \_\_\_\_\_

Sugar       $C_{12}H_{22}O_{11}$       Total \_\_\_\_\_

Milk of magnesia       $Mg(OH)_2$       Total \_\_\_\_\_

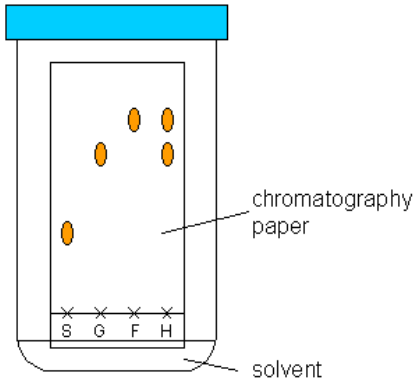
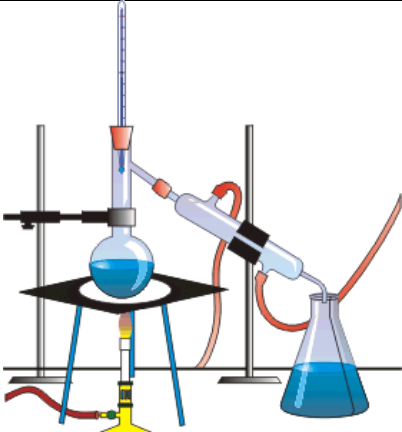
**Atomic structure:**



Particle	Relative Charge	Relative Mass	Where in the Atom is it Found?
Proton			
Neutron			
Electron			



## Separating mixtures

Method name	Diagram	How it works
	 <p>chromatography paper</p> <p>solvent</p>	
Filtration		
Evaporation		
		

## Isotopes research and extended writing task

Carbon	Carbon	Carbon
$^{12}_6\text{C}$	$^{13}_6\text{C}$	$^{14}_6\text{C}$
6 protons 6 neutrons 6 electrons	6 protons 7 neutrons 6 electrons	6 protons 8 neutrons 6 electrons
98.9%	1.1%	less than 0.01%

Carbon is an element which has 3 isotopes – carbon-12, carbon-13 & carbon-14. Your task is to use your periodic table & knowledge of atoms to describe & explain what isotopes are, using carbon as an example. Use the scientific key words, good English and the grade ladder to structure your answer.

Keywords: Atom, element, isotope, proton, neutron, electron, mass number, atomic (proton)

You should ....	Completed?
<b>Name</b> the particles that are found inside an atom. <b>State</b> how many of these particles there are in a carbon-12 atom, a carbon-13 atom and a carbon-14 atom	
<b>Describe</b> what an isotope is using carbon as your example	
<b>Compare</b> the similarities & differences for all of the different isotopes of carbon	