

Chemistry – Unit 1

Atoms

- All substances are made of atoms.
- Element – a substance that contains only one kind of atom.
- There are around 100 different elements.
- Groups contain elements with similar properties.

Name of particle	Charge
Proton	+1
Neutron	0
Electron	-1

1	2																	3	4	5	6	7	0
																		He					
																		H					
7	9																	11	12	14	16	19	20
Li	Be																	B	C	N	O	F	Ne
3	4																	5	6	7	8	9	10
19	20																	27	28	29	30	35	40
Na	Mg																	Al	Si	P	S	Cl	Ar
11	12																	13	14	15	16	17	18
39	40	45	46	51	52	55	56	59	59	63.5	65	70	73	75	79	80	84						
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr						
39	40	45	46	51	52	55	56	59	59	63.5	65	70	73	75	79	80	84						
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe						
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54						
133	137	139	178	181	184	186	190	192	195	197	201	204	207	209	(209)	(210)	(222)						
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn						
132	136	138	177	180	183	185	189	191	194	196	199	202	205	208	210	211	222						
(223)	(226)	(227)																(228)	(229)	(232)	(238)		
Fr	Ra	Ac																Th	Pa	U	Pl		
87	88	89																90	91	92	94		

- Atoms of each element are represented by a chemical symbol e.g oxygen is O, sodium is Na
- Atoms have a small nucleus, it is made of protons and neutrons, which are surrounded by electrons.
- All atoms of a particular element have the same number of protons.
- Atoms of a different element contain different numbers of protons.
- Protons = atomic number (bottom)
- Mass number = protons + neutrons (top number)

The periodic table

- Elements in the same periodic group have the same amount of electrons in their outer shell.
- Elements in the same group have similar chemical properties.

Group 1

- Metals in group one react vigorously with water to create an alkaline solution and hydrogen.
- They need to be stored under oil to stop them from reacting with oxygen and water vapour in the air.
- They all react with oxygen to create an oxide.