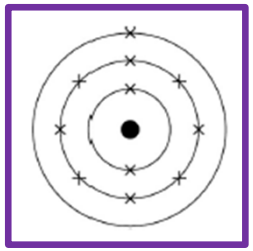
SCIENCE WITH JOOLS

PICTURE CLUEDO

Oil
Ionic
Reactive
Positive ions

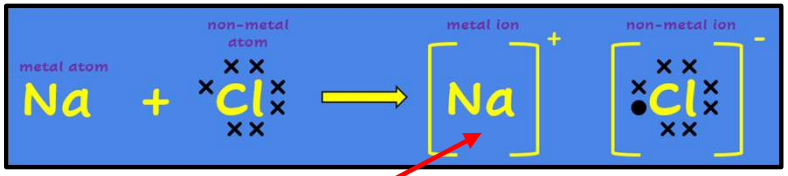
Group
Electron
Non-metals
One



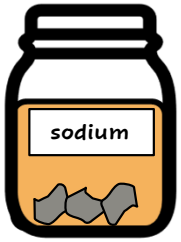
They are all very...?

They can be found in group...?

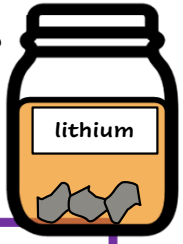
They make this type of compound?



They form?



Stored in...?



They all react with...?

Li
Na
K
Rb

They all lose 1 of these from their outer shell?

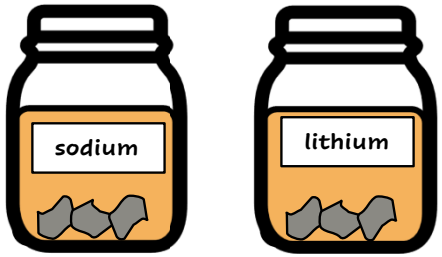
The electron is more easily lost as you go down the...?

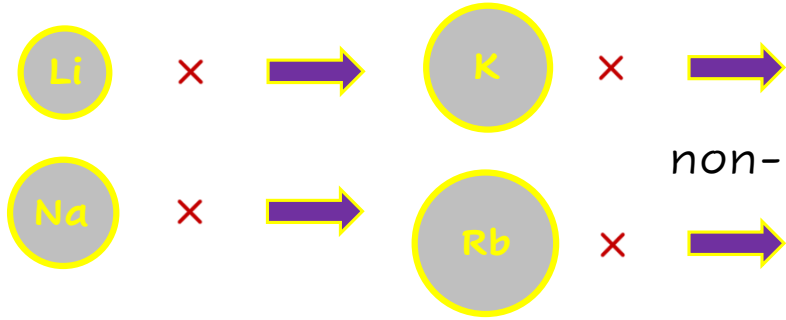
The Periodic Table of Elements

1	2											3	4	5	6	7	0
						1 H hydrogen 1											4 He helium 2
7 Li lithium 3	9 Be beryllium 4											11 B boron 5	12 C carbon 6	14 N nitrogen 7	16 O oxygen 8	19 F fluorine 9	20 Ne neon 10
23 Na sodium 11	24 Mg magnesium 12											27 Al aluminium 13	28 Si silicon 14	31 P phosphorus 15	32 S sulfur 16	35.5 Cl chlorine 17	40 Ar argon 18
39 K potassium 19	40 Ca calcium 20	45 Sc scandium 21	48 Ti titanium 22	51 V vanadium 23	52 Cr chromium 24	55 Mn manganese 25	56 Fe iron 26	59 Co cobalt 27	59 Ni nickel 28	63.5 Cu copper 29	65 Zn zinc 30	70 Ga gallium 31	73 Ge germanium 32	75 As arsenic 33	79 Se selenium 34	80 Br bromine 35	84 Kr krypton 36
85 Rb rubidium 37	88 Sr strontium 38	89 Y yttrium 39	91 Zr zirconium 40	93 Nb niobium 41	96 Mo molybdenum 42	[98] Tc technetium 43	101 Ru ruthenium 44	103 Rh rhodium 45	106 Pd palladium 46	108 Ag silver 47	112 Cd cadmium 48	115 In indium 49	119 Sn tin 50	122 Sb antimony 51	128 Te tellurium 52	127 I iodine 53	131 Xe xenon 54
133 Cs caesium 55	137 Ba barium 56	139 La* lanthanum 57	178 Hf hafnium 72	181 Ta tantalum 73	184 W tungsten 74	186 Re rhenium 75	190 Os osmium 76	192 Ir iridium 77	195 Pt platinum 78	197 Au gold 79	201 Hg mercury 80	204 Tl thallium 81	207 Pb lead 82	209 Bi bismuth 83	[209] Po polonium 84	[210] At astatine 85	[222] Rn radon 86
[223] Fr francium 87	[226] Ra radium 88	[227] Ac* actinium 89	[261] Rf rutherfordium 104	[262] Db dubnium 105	[266] Sg seaborgium 106	[264] Bh bohrium 107	[277] Hs hassium 108	[268] Mt meitnerium 109	[271] Ds darmstadtium 110	[272] Rg roentgenium 111	[285] Cn copernicium 112	[286] Nh nihonium 113	[289] Fl flerovium 114	[289] Mc moscovium 115	[293] Lv livermorium 116	[294] Ts tennessine 117	[294] Og oganesson 118

Key: relative atomic mass, atomic symbol, name, atomic (proton) number

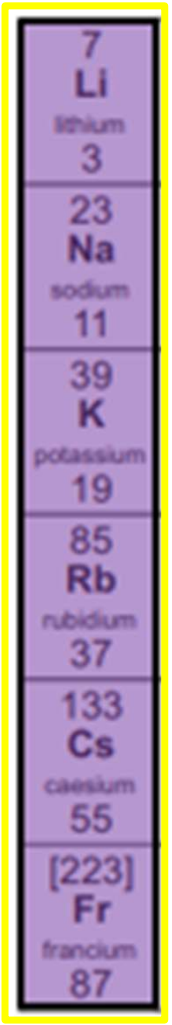
SCIENCE
WITH JOOLS





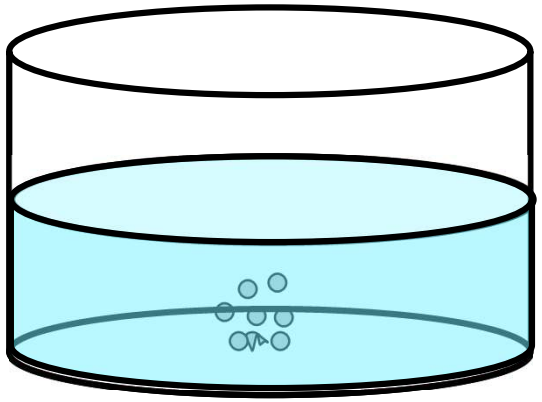
GROUP 1 metals are called [ ] metals. They are stored in [ ] and can only be handled with forceps. Group 1 metals are very [ ]. They react with non-metals such as chlorine, [ ] and oxygen. All group 1 metals have one [ ] in their outer shell. This means that they react in a similar way and have similar [ ]. They form an [ ] bond, and a white solid is usually produced. Group 1 metals have a low [ ] and reactivity [ ] down the group. They all lose one [ ] from their outer shell which is transferred to non-metals to form 1^+ positive ions. The [ ] electron is more easily lost as you go down the group because it is further from the [ ]. Group 1 metals form metal [ ] when they react with oxygen and metal [ ] when they react with water.

density
oxides
properties
increases
alkali
nucleus
electron
oil
electron
water
reactive
hydroxides
ionic
outer



SCIENCE
WITH JOOLS

ALKALI METALS
REACTIONS WITH WATER



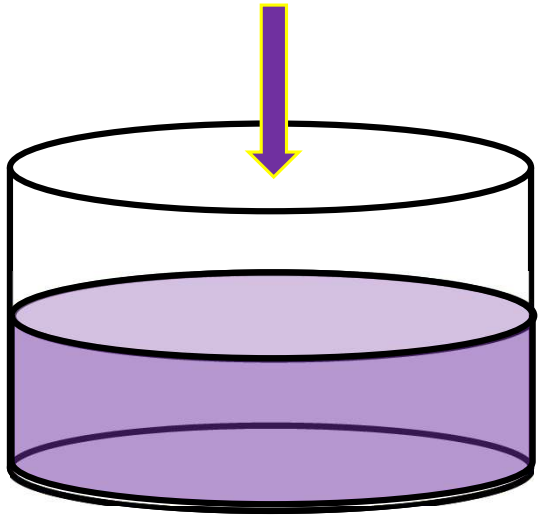
Alkali metals react with water to form a metal [ ] and hydrogen gas.
Alkali metals are very [ ] so react very vigorously with water. The further down the [ ] the alkali metal is, the more [ ] the reaction will be. When lithium (Li), sodium (Na) or potassium (K) are put into water, they [ ] and move around on the surface, fizzing as [ ] gas is produced. Sometimes the reaction can get hot enough to ignite the hydrogen.

METAL HYDROXIDE SOLUTIONS

The hydroxides formed when alkali metals dissolve in water are [ ] (OH^-) solutions. The solution is clear, but you can test to see if an alkaline solution is produced by using [ ] indicator which will turn the solution purple.

alkaline
float
violent
hydroxide
group
universal
reactive
hydrogen

Universal indicator



Do not write outside the box

0 4 This question is about Group 1 elements.

0 4 . 1 Give **two** observations you could make when a small piece of potassium is added to water.

[2 marks]

1 _____

_____

2 _____

_____

0 4 . 2 Complete the equation for the reaction of potassium with water.

You should balance the equation.

[2 marks]

$$K + \qquad H_2O \rightarrow \qquad +$$

0 4 . 3 Explain why the reactivity of elements changes going down Group 1.

[4 marks]

_____

_____

_____

_____

_____

_____

_____

_____

_____

PAPER 1 (GROUP 1)

Do not write outside the box

(a) Sodium is a Group 1 element.

(a) (i) A small piece of sodium is added to some water containing Universal Indicator solution.

Describe what you would **see** happening.

.....

.....

.....

.....

.....

.....

(3 marks)

(a) (ii) Complete **and** balance the equation for the reaction of sodium with water.

.....Na + ...H_2O → ..... + H_2

(2 marks)

(b) Francium is the most reactive element in Group 1.

Explain why in terms of electronic structure.

.....

.....

.....

.....

.....

.....

(3 marks)