

Elements and the periodic table Year 8

End point 1 and 3 : Identify elements by their symbols Recognise trends and patterns in the periodic table

Elements

An **element** contains only one type of atom, all elements are given a symbol and are found on the Periodic Table. You need to learn the symbols for the first 20.

The Periodic Table is arranged into groups (columns) and periods (rows)

Elements in the same group have:

The same number of electrons in their outer shell

Similar properties

Elements in the same period have:

The same number of electron shells

1 H																	2 He																														
3 Li	4 Be											5 B	6 C	7 N	8 O	9 F	10 Ne																														
11 Na	12 Mg											13 Al	14 Si	15 P	16 S	17 Cl	18 Ar																														
19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr																														
37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe																														
55 Cs	56 Ba	57-71	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn																														
87 Fr	88 Ra	89-103	104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	112 Cn	113 Nh	114 Fl	115 Mc	116 Lv	117 Ts	118 Og																														
<table border="1"> <tr> <td>57 La</td><td>58 Ce</td><td>59 Pr</td><td>60 Nd</td><td>61 Pm</td><td>62 Sm</td><td>63 Eu</td><td>64 Gd</td><td>65 Tb</td><td>66 Dy</td><td>67 Ho</td><td>68 Er</td><td>69 Tm</td><td>70 Yb</td><td>71 Lu</td> </tr> <tr> <td>89 Ac</td><td>90 Th</td><td>91 Pa</td><td>92 U</td><td>93 Np</td><td>94 Pu</td><td>95 Am</td><td>96 Cm</td><td>97 Bk</td><td>98 Cf</td><td>99 Es</td><td>100 Fm</td><td>101 Md</td><td>102 No</td><td>103 Lr</td> </tr> </table>																		57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu	89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr
57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu																																	
89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr																																	

End point 4 : Recall the properties in groups 1, 7 and 0

Group 0 contains non-metal elements placed in the vertical column on the far right of the periodic table. The elements in group 0 are called the noble gases. The noble gases all have low boiling points: helium, at the top of group 0, has the lowest boiling point of any element boiling point increases going down the group. Group 0 are generally unreactive.

Group 1 contains elements placed in a vertical column on the far left of the periodic table. The elements in group 1 are called the alkali metals. The alkali metals share similar physical properties. For example, they: are soft (they can be cut with a knife), have relatively low melting points. General reactivity increases as you move down the group.

Group 7 contains non-metal elements placed in a vertical column on the right of the periodic table. The elements in group 7 are called the halogens. In group 7, the further down the group an element is, the higher its melting point and boiling point. The general reactivity decreases as you move down the group. The elements also change state going from a gas (Cl) to a liquid (Br) to a solid (I)

End point 5 : Name some simple compounds and recognise their chemical formula.

Compound	Symbol
Calcium carbonate	CaCO ₃
Carbon dioxide	CO ₂
Copper sulphate	CuSO ₄
Glucose	C ₆ H ₁₂ O ₆
Hydrochloric acid	HCl
Sodium bicarbonate (baking soda)	NaHCO ₃
Sodium chloride (table salt)	NaCl
Sodium hydroxide	NaOH
Water	H ₂ O