

Getting to Know the Periodic Table

- Using your planner, number each of the groups on the periodic table at the back of this booklet. Start with group 1 on the left and finish with group 0 on the right. This may be listed as group 8 in your planner.
- Choose 11 different coloured pencils (NOT black!) and use the information below to help you colour in groups of elements within the periodic table:
 - Group 1 elements – Alkali Metals
 - Group 2 elements – Alkaline Earth Metals
 - Transition Elements
 - Group 3 elements – Boron elements
 - Group 4 elements – Carbon elements
 - Group 5 elements – Nitrogen elements
 - Group 6 elements – Oxygen elements
 - Group 7 elements – Halogen elements
 - Group 0 elements – Noble gases
 - Lanthanides
 - Actinides
- Use a dark pen to draw a stepped line in the following position:

						4.0 He Helium 2
	10.8 B Boron 5	12.0 C Carbon 6	14.0 N Nitrogen 7	16.0 O Oxygen 8	19.0 F Fluorine 9	20.2 Ne Neon 10
	27.0 Al Aluminium 13	28.1 Si Silicon 14	31.0 P Phosphorus 15	32.1 S Sulphur 16	35.5 Cl Chlorine 17	39.9 Ar Argon 18
65.4 Zn Zinc 30	69.7 Ga Gallium 31	72.6 Ge Germanium 32	74.9 As Arsenic 33	79.0 Se Selenium 34	79.9 Br Bromine 35	83.8 Kr Krypton 36
112.4 Cd Cadmium 48	114.8 In Indium 49	118.7 Sn Tin 50	121.8 Sb Antimony 51	127.6 Te Tellurium 52	126.9 I Iodine 53	131.3 Xe Xenon 54
200.6 Hg Mercury 80	204.4 Tl Thallium 81	207.2 Pb Lead 82	209.0 Bi Bismuth 83	(209) Po Polonium 84	(210) At Astatine 85	(222) Rn Radon 86

- The line you have just drawn divides the Periodic Table into metals and non-metals. Add the following labels in large, clear writing in the positions given:
 - 'Metals' to the left of the stepped line
 - 'Non-metals' to the right of the stepped line
- Draw an arrow to the stepped line and add the following label:
'Metalloids are found either side of this stepped line.'
- If possible, go to <https://teachers.thenational.academy/lessons/elements-c4rkje> and watch the lesson video.

7. Create a spider diagram to show the properties of metals – use one of the blank pages at the back of this pack to do this.
8. Create a spider diagram to show the properties of non-metals – use one of the blank pages at the back of this pack to do this.
9. Where are metals found within the periodic table?

10. What is the name given to the substances that have properties between those of metals and non-metals? *Hint* look at the stepped line you drew on your periodic table.

11. Copper (Cu) is used in electricity cables. Which property of metals makes copper good for this?

12. Gold (Au) is used in jewellery making. Which property of metals makes gold good for this?

13. Complete the Metal or Non Metal activities on the next page.
14. Complete the What's in a Name activity by cutting out, sorting and matching the chemical names, symbol and information and sticking them to the blank table at the back of this workbook. If you don't have any glue, you can copy the information into the table instead.

Metal or non-metal?

1 Match the name of the element to the correct description. One has been done for you as an example.

Description

Element

This is a solid that can be used to make heavy masses. Some saucepans or frying pans are made from this.

copper

This is a brown, shiny solid used for making coins or ornaments. Brass bells contain this element.

helium

This is a yellow solid which can be found as crystals or powder. It melts easily.

iron

This is a gas that is used to fill balloons.

gold

This is a shiny silvery solid. It can be made into thin sheets of foil which can be used to wrap food up.

sulphur

This is a shiny yellow solid that is used to make rings and necklaces. It is a very good conductor of electricity.

aluminium

2 Complete these sentences to say if you think each element is a metal or a non-metal. Give a reason in each case. If you can, try to find a different reason each time.

a I think iron is a _____ because _____

b I think copper is a _____ because _____

c I think helium is a _____ because _____

d I think sulphur is a _____ because _____

e I think gold is a _____ because _____

f I think aluminium is a _____ because _____

What's in a name?

Cut out all the boxes in this table. Arrange them so that the name matches the correct symbol and description. Stick them into your book. Or copy the grid and write the text in the correct boxes.

Element	Symbol	Origins of the name
bromine	Co	'Hydro' means water in Greek. This element is the 'water-maker' because it turns into water when it burns.
calcium	W	These dark crystals turn into a purple vapour when they are heated. 'Iodes' means purple in Greek.
chlorine	Ni	The symbol comes from the Latin name 'plumbum'. It survives in modern English as plumber (a person who originally worked with lead pipes), and plumb line (a lead weight on the end of a string).
cobalt	Br	The devil's element! The name is a short form of the German word 'kupfernickel' or Devil's copper.
fluorine	H	This element is found in limestone. The Latin word 'calx' means lime.
helium	Cl	The name comes from the German word 'kobald', meaning goblin.
hydrogen	Ne	This is a poisonous, smelly, red liquid. The Greek word 'bromos' means 'horrible smell'.
iodine	Ca	This was a new element when it was discovered in 1898. 'Neos' means new in Greek.
lead	I	This element is a gas which flows easily from one place to another. 'Fluere' means to flow in Latin.
neon	He	This is a poisonous, pale green gas. The Greek word 'chloros' means pale green.
nickel	F	This is a heavy metal. The name comes from the Swedish 'tung' (heavy) and 'sten' (stone).
tungsten	Pb	This element was first discovered by looking at the spectrum of light from the Sun. 'Helios' means sun in Greek.

The Periodic Table

atomic symbol ——— atomic number
Zn
 zinc ——— name of element

1 H hydrogen																	2 He helium										
3 Li lithium	4 Be beryllium															10 Ne neon											
11 Na sodium	12 Mg magnesium															18 Ar argon											
19 K potassium	20 Ca calcium	21 Sc scandium	22 Ti titanium	23 V vanadium	24 Cr chromium	25 Mn manganese	26 Fe iron	27 Co cobalt	28 Ni nickel	29 Cu copper	30 Zn zinc	31 Ga gallium	32 Ge germanium	33 As arsenic	34 Se selenium	35 Br bromine	36 Kr krypton										
37 Rb rubidium	38 Sr strontium	39 Y yttrium	40 Zr zirconium	41 Nb niobium	42 Mo molybdenum	43 Tc technetium	44 Ru ruthenium	45 Rh rhodium	46 Pd palladium	47 Ag silver	48 Cd cadmium	49 In indium	50 Sn tin	51 Sb antimony	52 Te tellurium	53 I iodine	54 Xe xenon										
55 Cs caesium	56 Ba barium	57 La lanthanum	72 Hf hafnium	73 Ta tantalum	74 W tungsten	75 Re rhenium	76 Os osmium	77 Ir iridium	78 Pt platinum	79 Au gold	80 Hg mercury	81 Tl thallium	82 Pb lead	83 Bi bismuth	84 Po polonium	85 At astatine	86 Rn radon										
87 Fr francium	88 Ra radium	89 Ac actinium	104 Rf rutherfordium	105 Db dubnium	106 Sg seaborgium	107 Bh bohrium	108 Hs hassium	109 Mt meitnerium	110 Uun ununilium	111 Uuu unununium	112 Uub ununbium	114 Uuq ununquadium	116 Uuh ununhexium	118 Uuo ununoctium	gaps left for undiscovered elements												
58 Ce cerium	59 Pr praseodymium	60 Nd neodymium	61 Pm promethium	62 Sm samarium	63 Eu europium	64 Gd gadolinium	65 Tb terbium	66 Dy dysprosium	67 Ho holmium	68 Er erbium	69 Tm thulium	70 Yb ytterbium	71 Lu lutetium	90 Th thorium	91 Pa protactinium	92 U uranium	93 Np neptunium	94 Pu plutonium	95 Am americium	96 Cm curium	97 Bk berkelium	98 Cf californium	99 Es einsteinium	100 Fm fermium	101 Md mendelevium	102 No nobelium	103 Lr lawrencium