

- 1 a Colour the metals in yellow on the periodic table below.
- b Colour the non-metals in blue on the periodic table below.
- c Add a key to the table to show which elements are metals and which elements are non-metals.

1		2																		3	4	5	6	7	0												
				<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> <p>1 H hydrogen 1</p> </div>																																<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> <p>4 He helium 2</p> </div>	
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																											

Name _____ Class _____ Date _____

- 1 a Use the labels provided in the box below the cutting line to label the main features of this modern periodic table.
- b Shade all the **non-metals** in the periodic table below. Add a key to show which elements are non-metals.

1		2												3		4		5		6		7		0											
				1																				4											
				1																				He helium 2											
7		9												11		12		14		16		19		20											
Li lithium 3		Be beryllium 4												B boron 5		C carbon 6		N nitrogen 7		O oxygen 8		F fluorine 9		Ne neon 10											
23		24												27		28		31		32		35.5		40											
Na sodium 11		Mg magnesium 12												Al aluminium 13		Si silicon 14		P phosphorus 15		S sulfur 16		Cl chlorine 17		Ar argon 18											
39		40		45		48		51		52		55		56		59		59		63.5		65		70		73		75		79		80		84	
K potassium 19		Ca calcium 20		Sc scandium 21		Ti titanium 22		V vanadium 23		Cr chromium 24		Mn manganese 25		Fe iron 26		Co cobalt 27		Ni nickel 28		Cu copper 29		Zn zinc 30		Ga gallium 31		Ge germanium 32		As arsenic 33		Se selenium 34		Br bromine 35		Kr krypton 36	
85		88		89		91		93		96		[98]		101		103		106		108		112		115		119		122		128		127		131	
Rb rubidium 37		Sr strontium 38		Y yttrium 39		Zr zirconium 40		Nb niobium 41		Mo molybdenum 42		TC technetium 43		Ru ruthenium 44		Rh rhodium 45		Pd palladium 46		Ag silver 47		Cd cadmium 48		In indium 49		Sn tin 50		Sb antimony 51		Te tellurium 52		I iodine 53		Xe xenon 54	
133		137		139		178		181		184		186		190		192		195		197		201		204		207		209		[209]		[210]		[222]	
Cs caesium 55		Ba barium 56		La* lanthanum 57		Hf hafnium 72		Ta tantalum 73		W tungsten 74		Re rhenium 75		Os osmium 76		Ir iridium 77		Pt platinum 78		Au gold 79		Hg mercury 80		Tl thallium 81		Pb lead 82		Bi bismuth 83		Po polonium 84		At astatine 85		Rn radon 86	
[223]		[226]		[227]		[261]		[262]		[266]		[264]		[277]		[268]		[271]		[272]		Elements with atomic numbers 112-116 have been reported but not fully authenticated													
Fr francium 87		Ra radium 88		Ac* actinium 89		Rf rutherfordium 104		Db dubnium 105		Sg seaborgium 106		Bh bohrium 107		Hs hassium 108		Mt meitnerium 109		Ds darmstadtium 110		Rg roentgenium 111															

atomic number/proton number	period	group number
group	element symbol	relative atomic mass

Dmitri Mendeleev originally arranged the elements according to their properties. The modern periodic table the elements are ordered according to their atomic number (number of protons)

Use words protons and neutrons to complete the following:

- a What is atomic number? It is the number of
- b What is mass number? It is the number of plus the number of



Acute Toxic



Health Hazard



Flammable



Exclamation Mark



Flame over circle



Gas Cylinder



Exploding Bomb



Environmental
Hazard



Corrosion

Fill in the table below:

	Relative mass	Relative charge
Proton		
Electron		
Neutron		

Mass number = number of p.....

Atomic number = number of p..... + number of n.....

Li

Mass number = 7
Atomic number = 3

Na

Mass number = 23
Atomic number = 11

O

Mass number = 16
Atomic number = 8

How many protons, neutrons, and electrons are in each of the following atoms?

Lithium (Li)

Sodium (Na)

Oxygen (O)

p = _____

p = _____

p = _____

n = _____

n = _____

n = _____

e = _____

e = _____

e = _____

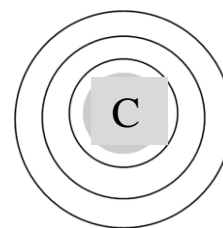
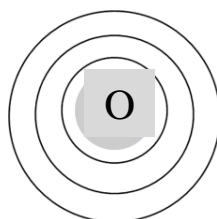
Using dots, as in the examples, fill in the electron shells for oxygen and chlorine:



Lithium



Sodium



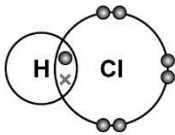
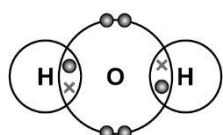
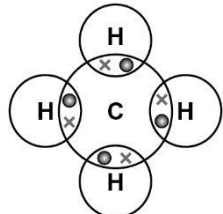
Delete the incorrect word

Isotopes are atoms of the same element with **different/same** numbers of neutrons

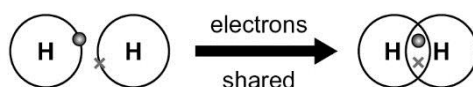
Ionic bonds are formed between **non-metal/metal atoms** and non-metal atoms

Polymers are large molecules consisting of **few/many** atoms joined together

2 Draw lines to match the correct **dot and cross diagram** to the name of the **molecule**.

Dot and cross diagram	Name of molecule
	methane
	water
	hydrogen chloride

3 Look carefully at the dot and cross diagram below showing the formation of a hydrogen molecule.



Describe, in terms of electrons, how a molecule of hydrogen forms.
