be chemistry exam ready

Atoms, Elements and Compounds

Name:

Class:

Teacher:

Target:

Elements (Fill in the Gaps)

Everything we know is made up of very small particles called _____. Elements contain only one _____ of atom.

Atoms are incredibly tiny; there are _____ in a 1 cm long pencil line.

Only about _____ elements are found naturally on earth but there are currently over _____ elements listed on the _____ table. Elements can be found as _____, liquids or _____. Most elements are _____. There are two main groups of elements the _____ and non-_____. The biggest group of elements are the _____.

Use the following words:

transition metals, millions, type, atoms, periodic, gases, 90, solids, 100, metals

carbon

copper

iron

Using the Periodic Table

On your periodic table colour all the metals in one colour and non metals in another.

1 H 1.00794																1 H 1.00794	2 He 4.002602
3 Li 6.941	4 Be 9.012182											5 B 10.811	6 C 12.0107	7 N 14.00674	8 O 15.9994	9 F 18.9984032	10 Ne 20.1797
11 Na 22.989770	12 Mg 24.3050											13 Al 26.581538	14 Si 28.0855	15 P 30.973761	16 S 32.066	17 Cl 35.4527	18 Ar 39.948
19 K 39.0983	20 Ca 40.078	21 Sc 44.955910	22 Ti 47.867	23 V 50.9415	24 Cr 51.9961	25 Mn 54.938049	26 Fe 55.845	27 Co 58.933200	28 Ni 58.6534	29 Cu 63.545	30 Zn 65.39	31 Ga 69.723	32 Ge 72.61	33 As 74.92160	34 Se 78.96	35 Br 79.504	36 Kr 83.80
37 Rb 85.4678	38 Sr 87.62	39 Y 88.90585	40 Zr 91.224	41 Nb 92.90638	42 Mo 95.94	43 Tc (98)	44 Ru 101.07	45 Rh 102.90550	46 Pd 106.42	47 Ag 196.56655	48 Cd 112.411	49 In 114.818	50 Sn 118.710	51 Sb 121.760	52 Te 127.60	53 I 126.90447	54 Xe 131.29
55 Cs 132.90545	56 Ba 137.327	57 La 138.9055	72 Hf 178.49	73 Ta 180.94.79	74 W 183.84	75 Re 186.207	76 Os 190.23	77 Ir 192.217	78 Pt 195.078	79 Au 196.56655	80 Hg 200.59	81 Tl 204.3833	82 Pb 207.2	83 Bi 208.58038	84 Po (209)	85 At (210)	86 Rn (222)
87 Fr (223)	88 Ra (226)	89 Ac (227)	104 Rf (261)	105 Db (262)	106 Sg (263)	107 Bh (262)	108 Hs (265)	109 Mt (266)	110 (269)	111 (272)	112 (277)		114 (289) (287)		116 (289)		118 (293)

58 Ce 140.116	59 Pr 140.50765	60 Nd 144.24	61 Pm (145)	62 Sm 150.36	63 Eu 151.964	64 Gd 157.25	65 Tb 158.92534	66 Dy 162.50	67 Ho 164.93032	68 Er 167.26	69 Tm 168.93421	70 Yb 173.04	71 Lu 174.967
90 Th 232.0381	91 Pa 231.035888	92 U 238.0289	93 Np (237)	94 Pu (244)	95 Am (243)	96 Cm (247)	97 Bk (247)	98 Cf (251)	99 Es (252)	100 Fm (257)	101 Md (258)	102 No (259)	103 Lr (262)

Using the Periodic Table

Use your periodic table to find the names of these elements

a) Cr
b) C
c) P
d) Ca
e) V
f) Be
g) I
h) Hg
i) K
j) Ag

Use your periodic table to find the symbols of these elements

a) Colbalt
b) Titanium
c) Magnesium
d) Copper
e) Aluminium
f) Oxygen
g) Nitrogen
h) Tungsten
i) Gold
j) Sodium

Using the Periodic Table

Complete the table to show the number of atoms of each element in each substance. Use your periodic table and the example shown to help.

Chemical	Chemical formula	Number of atoms of each element joined in a molecule
Sulphuric acid	H_2SO_4	2 Hydrogen, 1 Sulfur, 4 Oxygen
Common salt	NaCl	
Ammonia	NH_3	
Lead dioxide	PbO_2	
Water	H_2O	
Hydrogen	H_2	

Atomic Structure

For a long time it was thought that atoms were the smallest particles and could not be broken into anything smaller.

We now know that atoms are actually made from even smaller particles.

How are they arranged inside an atom?

Particle	Mass	Charge	Location

Atomic Structure

Atomic Number =

Mass Number =

Element	Atomic number	Mass Number	Number of protons	Number of electrons	Number of neutrons
Sulphur					
Sodium					
Potassium					
Hydrogen					
Lithium					

Isotopes

An isotope is:

Isotope (mass then symbol)	Atomic number	Mass Number	Number of protons	Number of electrons	Number of neutrons
8-Li					
40-K					
13-C					
2-H					
37-Cl					

Calculate the relative atomic mass of the following groups of isotopes:

1. 63-Cu (69% abundant) and 65-Cu (31% abundant)
2. 79-Br (50%) and 81-Br (50%)
3. Silver atoms consist of 51.4% of the isotope 107-Ag and 48.6% of the isotope 109-Ag

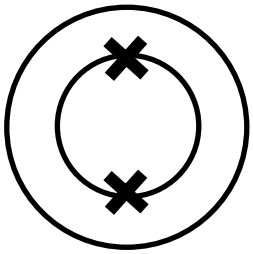
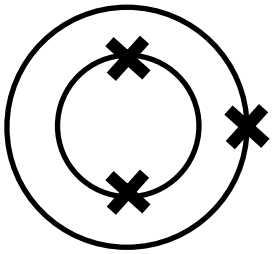
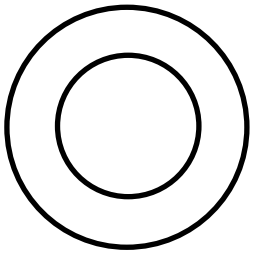
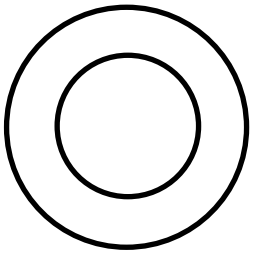
Atomic Structure (electronic)

You need to know the electronic structure for the first 20 elements.

Rules:

1. a new shell of electrons cannot be started until the previous one is full
2. There can be a total of 2 electrons in the first shell
3. There can be a total of 8 electrons in the second and third shell

Two elements have been completed for you, see if you can complete the rest!

			
Helium (2)	Lithium (2,1)	Carbon (2,4)	Neon (2,8)
Magnesium ( )	Silicon ( )	Sulfur ( )	Chlorine ( )