Worksheet 3.8

The Periodic Table of the elements

Part 1

Below are listed 36 elements with their chemical symbols and atomic weights (now referred to as relative atomic masses, A_r).

When chemists first arranged elements in a Periodic Table, they put them in order of their atomic weight starting on the left and filling each row in turn.

1 You should try to do the same. There are 36 spaces for the 36 elements in the grid provided. Write the symbol of the element and its atomic weight in sequence into the boxes in pencil.

Aluminium Al 27	Argon Ar 40	Arsenic As 75	Beryllium Be 9
Boron B 11	Bromine Br 80	Calcium Ca 40	Carbon C 12
Chlorine Cl 35.5	Chromium Cr 52	Cobalt Co 59	Copper Cu 63.5
Fluorine F 19	Gallium Ga 70	Germanium Ge 73	Helium He 4
Hydrogen H 1	Iron Fe 56	Krypton Kr 84	Lithium Li 7
Magnesium Mg 24	Manganese Mn 55	Neon Ne 20	Nickel Ni 59
Nitrogen N 14	Oxygen O 16	Phosphorus P 31	Potassium K 39
Scandium Sc 45	Selenium Se 79	Silicon Si 28	Sodium Na 23
Sulfur S 32	Titanium Ti 48	Vanadium V 51	Zinc Zn 65

Now look at a modern Periodic Table. Have you made any mistakes? Correct them and go over your work in ink.

Draw in a line dividing the metals from the non-metals.

2 Consider the position of hydrogen in the table. Give **one** reason why it could be placed in Group I, as this table suggests, and **one** reason why not.

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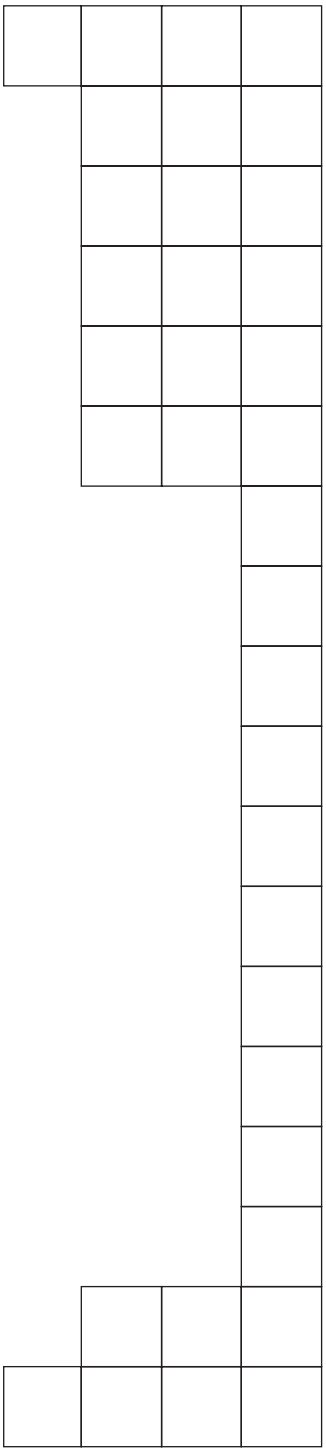

Part 2

Below are the first 36 elements in the periodic table with their atomic numbers, as seen in Part **1**.

	I	II											III	IV	V	VI	VII	VIII / 0
1	H 1																	He 2
2	Li 3	Be 4											B 5	C 6	N 7	O 8	F 9	Ne 10
3	Na 11	Mg 12											Al 13	Si 14	P 15	S 16	Cl 17	Ar 18
4	K 19	Ca 20	Sc 21	Ti 22	V 23	Cr 24	Mn 25	Fe 26	Co 27	Ni 28	Cu 29	Zn 30	Ga 31	Ge 32	As 33	Se 34	Br 35	Kr 36

1 Give the symbol for **one** example of each of the following:

a a metal

b a gas

c a transition element

2 Find Cl (chlorine) in the table above.

a What is the group number?

b Which period is it in?

c How many electron shells does it have?

d How many electrons are there in its outer shell?

3 Explain what is meant by '**atomic number**'.

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4 **a** What name is given to the elements in Group VIII / 0?

b When Mendeleev was drawing up his first suggestions for the Periodic Table, the elements in Group 0 had not yet been discovered. Suggest a reason for this.

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