

## Instructions for Colouring your Period Table – What do you need to know?

**Need to know #1.** Where is the division between metal and non-metal elements? (“the staircase”)

Colour: Use a highlighter to define the staircase.

**Need to know #2.** You know the definitions of metal, non-metal and semiconductor and in what category any element belongs.

Task: Find a small space on your table and write down the definitions:

Metal: An element whose atoms have a tendency to LOSE electrons when forming an ion.

Non-metal: An element whose atoms have a tendency to GAIN electrons when forming an ion.

Semi-conductor: Elements bordering the staircase that demonstrate both metal and non-metal characteristics.

**Need to know #3.** You know what is meant by “periods” on the periodic Table.

Label: the periods numbers down the left side of your table as shown. Periods refer to the rows on the table and match the number of shells that atom has in its elemental form.

Period 1

Period 2

Period 3

Etc...

**Need to know #4** You know which elements belong to the group ***Alkali Metals***.

Colour and label: the family (vertical column) known as the ***alkali metals***.

**Need to know #5** You know which elements belong to the group ***Alkali Earth Metals***.

Colour and label: the family (vertical column) known as the ***alkali earth metals***.

**Need to know #6** You know which elements belong to the group ***Noble Gases*** .

Colour and label: the family (vertical column) known as the ***Noble Gases***.

**Need to know #7** You know which elements belong to the group ***Halogens*** .

Colour and label: the family (vertical column) known as the ***Halogens*** .

**Need to know #8** You can use the Periodic Table to state the charge of any non-transition ion.

*Monatomic* ions form very predictable charges.

Positive ions (cations) These metals LOSE electrons.

- Put a +1 above the alkali metal family
- Put a +2 above the alkali earth metal family
- Put a +1 inside silver's box because it always forms a +1 ion.
- Put a +2 inside zinc's box because it always forms +2 ions.
- Put a +3 inside aluminum's box because it always forms +3 ions.

Negative ions (anions) These non-metals tend to GAIN electrons.

- Put a 0 above the noble gas family because they do not form ions.
- Put a -1 above the halogens
- Put a -2 above Group 6A (the oxygen group)
- Put a -3 above Group 5A (the nitrogen group)
- Put a -4 above Group 14

**Good to know:** The transition metals – have more than one possible charge.

Colour and label: The transition metals

**Good to know:** The diatomic (and polyatomic) elements. Diatomic means that the element is always found as two atoms covalently bonded together.

Label and Pattern: Use a special pattern (diagonal lines, speckles etc...) to identify the following diatomic elements:  $F_2$ ,  $Cl_2$ ,  $Br_2$ ,  $I_2$ ,  $O_2$ ,  $N_2$ ,  $H_2$ .

Label and Pattern: Use a different special pattern to identify  $P_4$  and  $S_8$

\*\*\*Notice that the polyatomic elements form a "flagpole".

\*\*\*When the polyatomic elements gain electrons to form ions, they stop being polyatomic!