Octet Rule

The electron arrangement around the Noble Gases (He Ne Ar Kr Xe Rn – last column on the periodic table) is particular stable (low energy). This arrangement is desired by all other elements.

When elements react to form compounds, each element will either lose or gain electrons to become like the nearest noble gas. The nearest noble gas is the one that is closest in atomic number. For example sodium ($_{11}$Na) is right beside ($_{10}$Ne).

If an element loses electrons it will become a positive ion (called a cation). The size of the charge will depend on how many electrons are lost. For example:

Na loses $1e^-$ and becomes a Na^{1+} cation

Mg loses $2e^-$ and becomes a Mg^{2+} cation

If an element gains electrons it will become a negative ion (called a anion). For example:

S gains $2e^-$ and becomes a S^{2-} anion

Elements will lose or gain depending on whatever is easier (the carbon column goes both ways)

C loses $4e^-$ and becomes a C^{4+} cation

and

C gains $4e^-$ and becomes a C^{4-} cation

What it does depends on the circumstances.

Finally, the centre lower portion on the periodic table does not count in the octet rule. It is as if this block is not there. Gallium for example behaves the exact same way as aluminum:

Al loses $3e^-$ and becomes a Al^{3+} cation

Ga loses $3e^-$ and becomes a Ga^{3+} cation