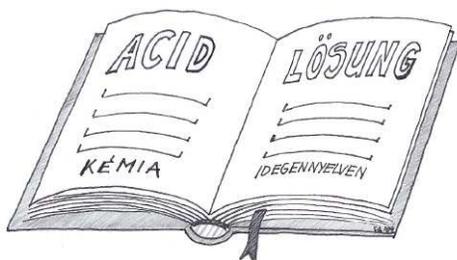


KÉMIA IDEGEN NYELVEN



Kémia angolul
Szerkesztő: Sztáray Judit

Kedves Diákok!

A mostani számban megtalálhatjátok a következő fordításra váró angol szöveget. Áldott ünnepeket és kellemes fordítást kívánok:

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**Az második angol szöveg fordításának beküldési határideje:
2008. január 7.**

A fordítást a következő címre küldjétek:

KÖKÉL Kémia Idegen nyelven

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Kitűzött fordítási szöveg

Trends of the Periodic Table

Period - a row of elements on the periodic table.

Group - a column of elements on the periodic table.

Atomic Radius - Atomic radius is simply the radius of the atom, an indication of the atom's volume.

Period - atomic radius decreases as you go from left to right across a period.

Why? Stronger attractive forces in atoms (as you go from left to right) between the opposite charges in the nucleus and electron cloud cause the atom to be 'sucked' together a little tighter.

Group - atomic radius increases as you go down a group.

Why? There is a significant jump in the size of the nucleus (protons + neutrons) each time you move from period to period down a group. Additionally, new energy levels of electrons clouds are added to the atom as you move from period to period down a group, making the each atom significantly more massive, both in mass and volume.

Electronegativity - Electronegativity is an atom's 'desire' to grab another atom's electrons.

Period - electronegativity increases as you go from left to right across a period.

Why? Elements on the left of the period table have 1-2 valence electrons and would rather give those few valence electrons away (to achieve the octet in a lower energy level) than grab another atom's electrons. As a result, they have low electronegativity. Elements on the right side of the period table only need a few electrons to complete the octet, so they have strong desire to grab another atom's electrons.

Group - electronegativity decreases as you go down a group.

Why? Elements near the top of the period table have few electrons to begin with; every electron is a big deal. They have a stronger desire to acquire more electrons. Elements near the bottom of the chart have so many electrons that losing or acquiring an electron is not as big a deal. This is due to the shielding effect where electrons in lower energy levels shield the positive charge of the nucleus from outer electrons resulting in those outer electrons not being as tightly bound to the atom.

Ionization Energy - Ionization energy is the amount of energy required to remove the outermost electron. It is closely related to electronegativity.

Period - ionization energy increases as you go from left to right across a period.

Why? Elements on the right of the chart want to take others atom's electron (not given them up) because they are close to achieving the octet. The means it will require more energy to remove the outer most electron. Elements on the left of the chart would prefer to give up their electrons so it is easy to remove them, requiring less energy (low ionization energy).

Group - ionization energy decreases as you go down a group.

Why? The shielding affect makes it easier to remove the outer most electrons from those atoms that have many electrons (those near the bottom of the chart).

Reactivity - Reactivity refers to how likely or vigorously an atom is to react with other substances. This is usually determined by how easily electrons can be removed (ionization energy) and how badly they want to take other atom's electrons (electronegativity) because it is the transfer/interaction of electrons that is the basis of chemical reactions.

Metals

Period - reactivity decreases as you go from left to right across a period.

Group - reactivity increases as you go down a group

Why? The farther to the left and down the periodic chart you go, the easier it is for electrons to be given or taken away, resulting in higher reactivity.

Non-metals

Period - reactivity increases as you go from the left to the right across a period.

Group - reactivity decreases as you go down the group.

Why? The farther right and up you go on the periodic table, the higher the electronegativity, resulting in a more vigorous exchange of electron.

Ionic Radius vs. Atomic Radius

Metals - the atomic radius of a metal is generally larger than the ionic radius of the same element.

Why? Generally, metals loose electrons to achieve the octet. This creates a larger positive charge in the nucleus than the negative charge in

the electron cloud, causing the electron cloud to be drawn a little closer to the nucleus as an ion.

Non-metals - the atomic radius of a non-metal is generally smaller than the ionic radius of the same element.

Why? Generally, non-metals lose electrons to achieve the octet. This creates a larger negative charge in the electron cloud than positive charge in the nucleus, causing the electron cloud to 'puff out' a little bit as an ion.

Melting Point

Metals - the melting point for metals generally decreases as you go down a group.

Non-metals - the melting point for non-metals generally increases as you go down a group.

Source:

<http://www.geocities.com/CapeCanaveral/Lab/4097/chem/chap4/periodictrends.html>