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Aktivita CLIL – Chemie IV.

Škola: Gymnázium Bystřice nad Pernštejnem

Jméno vyučujícího: Mgr. Marie Dřínovská

Název aktivity: Periodic table

Předmět: Chemie

Ročník, třída: kvinta

Jazyk a jazyková úroveň žáků: angličtina – A1+

Datum realizace: 28.5.2018

Forma realizace: samostatná práce s následnou společnou kontrolou

Stručný popis aktivity: žáci se seznámí s odbornou terminologií v cizím jazyce

Použité metody: práce s textem, procvičování výslovnosti

Použité pomůcky: dataprojektor, pracovní listy,

Časová náročnost: 15 min

Postup realizace: Žáci se seznámí s historií vývoje řazení chemických prvků do systému a s odbornou terminologií v chemii. Žákům budou rozdány pracovní listy, kde naleznou studijní text. Krátký test vyžaduje elementární znalosti o složení atomu. Odborné termíny i s překladem třída kontroluje společně s vyučujícím.

Příloha: pracovní list + řešení



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Periodic Table

History

In the modern periodic table there are about 100 different elements.

The horizontal rows are called **periods**, and the vertical columns are called **groups**.

Elements with similar properties occur periodically, so it is called the periodic table.

As the elements were discovered, scientists tried to place them into a logical order. John Newlands and Dmitri Mendeleev tried to place the elements in order of increasing atomic weight.

Mendeleev realised that, although this was a good basis, if he stuck to this order too rigidly it did not work. When this happened, he swapped the order of the elements, or left gaps. When gaps were left he made detailed predictions about what the new elements would be like.

When the elements were eventually discovered and their properties compared with the predictions Mendeleev had made, they matched very well and it proved how useful the periodic table was.

At the start of the twentieth century, scientists developed the technology required to discover protons, neutrons and electrons. When they looked back at Mendeleev's table, they realised that by occasionally swapping the order of the elements, what he had actually done was to place the elements in perfect order of increasing atomic number (number of protons).

In the modern periodic table, we say that the elements are arranged in order of increasing atomic number. Elements in the same group (column) have the same number of electrons in their outer shells.

		Group																		
		1	2											3	4	5	6	7	0	
	1			H Hydrogen																He Helium
	2	Li Lithium	Be Beryllium											B Boron	C Carbon	N Nitrogen	O Oxygen	F Fluorine	Ne Neon	
	3	Na Sodium	Mg Magnesium											Al Aluminium	Si Silicon	P Phosphorus	S Sulfur	Cl Chlorine	Ar Argon	
Period	4	K Potassium	Ca Calcium	Sc Scandium	Ti Titanium	V Vanadium	Cr Chromium	Mn Manganese	Fe Iron	Co Cobalt	Ni Nickel	Cu Copper	Zn Zinc	Ga Gallium	Ge Germanium	As Arsenic	Se Selenium	Br Bromine	Kr Krypton	
	5	Rb Rubidium	Sr Strontium	Y Yttrium	Zr Zirconium	Nb Niobium	Mo Molybdenum	Tc Technetium	Ru Ruthenium	Rh Rhodium	Pd Palladium	Ag Silver	Cd Cadmium	In Indium	Sn Tin	Sb Antimony	Te Tellurium	I Iodine	Xe Xenon	
	6	Cs Caesium	Ba Barium	La Lanthanum	Hf Hafnium	Ta Tantalum	W Tungsten	Re Rhenium	Os Osmium	Ir Iridium	Pt Platinum	Au Gold	Hg Mercury	Tl Thallium	Pb Lead	Bi Bismuth	Po Polonium	At Astatine	Rn Radon	
	7	Fr Francium	Ra Radium	Ac Actinium																

A) Song

Listen to the song and write down 5 elements and what are they used for.

https://www.youtube.com/watch?v=rz4Dd1I_fX0

1. _____
2. _____
3. _____
4. _____
5. _____

B) Vocabulary

You have probably noticed that the English names of elements are mostly the same as in Latin and therefore they match their symbols. Find some elements which have a different name and symbol in Czech. Write down the English equivalent as well.

Symbol	English name	Czech name

C) Questions

Complete the questions below.

1. What is the link between the group number in the periodic table and the electron arrangement of an atom?
2. Lithium is in group 1, period 2. How are the electrons arranged in a lithium atom?
3. Explain why, despite containing electrically charged particles, an atom is neutral?

4. How many electrons can the second shell hold?

Answers

B)

Shown elements can be used just as an example, more can be found.

Symbol	English name	Czech name
H	Hydrogen	Vodík
O	Oxygen	Kyslík
N	Nitrogen	Dusík
Si	Silicon	Křemík
Mg	Magnesium	Hořčík
Al	Aluminium	Hliník
Ca	Calcium	Vápník
C	Carbon	Uhlík

C)

1. What is the link between the group number in the periodic table and the electron arrangement of an atom?

Group number is the same as the number of electrons in the outer shell.

2. Lithium is in group 1, period 2. How are the electrons arranged in a lithium atom?

Two in the first shell, one in the second shell.

3. Explain why, despite containing electrically charged particles, an atom is neutral?

The number of positive proton and the number of negative electrons are equal, so the charges cancel out.

4. How many electrons can the second shell hold?

Eight electrons.