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COMPUTATIONAL THINKING - LESSON SCRIPT

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Lesson information:	Subject:	Chemistry
	Duration:	2x45 min
	Grade/level:	7th grade of primary school/2nd educational stage
	Age:	13-14
	Topic:	**A periodic table.**
The curriculum specifications and requirements:	The core curriculum of teaching Chemistry for the 2nd educational stage. Point no 2. Internal structure of matter.	
The aims of the lesson:	Pupil: • explains what is a periodic table and what kind of information it gives, • gives content of a periodic law, • tells location of a chemical element in a periodic table (number of group, number of period), • on the basis of location of a chemical element in a periodic table tells the number of electron shells in an atom and the number of electrons in outside electron shell for chemical elements of groups 1.–2. and 13.–18, • writes electron configuration (layout of electrons on electron shells) on the basis of location of a chemical element in a periodic table, • analyses presented information and formulates conclusions, • gives name of a chemical element on the basis of given information	
Previous knowledge:	**2. Internal structure of matter. Pupil:** • reads basic information about chemical elements from a periodic table (symbol, name, atomic number, atomic mass, type of chemical element - • metal or non-metal); • describes and characterises composition of an atom (nucleus: protons and neutrons, electrons); defines the notion of valence electrons; • determines the number of protons, electrons and neutrons inane atom of a chemical element when atomic number and atomic mass are given	

The forms of work:	• group work • individual work
The methods of work:	• practical metod • informal discusion
Teaching aids:	• computer with the access to the Internet (one computer for two students), • teacher's computer with projector and interactive board.
The range of using ICT:	• practicing and consolidating the skill of calculating • presenting information • searching for information
The course of lesson: • **Teacher's activities** • **Pupils' activities** • **The schedule**	1. Introduction - organisational activities Greeting the pupils, checking the register, giving the topic of the lesson and introducing the aims of the lesson. **5min** 2. Reminding information about the structure of an atom. Teacher enters www.learningapps.org and asks pupils to write category: chemistry and next entry ''The structure of an atom". Pupils do exercises: the structure of an atom-exercises matching pairs https://learningapps.org/830241 and a crossword https://learningapps.org/3624125 After given time teacher displays the app on the interactive whiteboard and asks some pupils to solve the tasks. The rest of pupils check the correctness of their answers. **10 min** 3. Teacher starts a multimedia periodic table **ukladokresowy.edu.pl** and gives information that we can read about chemical elements from a periodic table http://ukladokresowy.edu.pl/#/forma/podstawowa Next teacher displays on the interactive whiteboard some animations. Determining the structure of an atom of a chemical element on the basis of its location in a periodic table: hydrogen, magnesium and oxygen. (http://www.epodreczniki.pl/reader/c/153030/v/latest/t/student-canon/m/iuFn27NYFM#iuFn27NYFM_d5e251) **5 min** 4. Pupils do exercise no 1: Complete descriptions of chemical elements and draw models. Use a periodic table from ukladokresowy.edu.pl. Next formulate conclusions about the connection between the structure of an atom of a chemical element with its location in a periodic table. **CARBON** Chemical symbol ..... Number of group ..... Number of period ..... Atomic number ..... Number of protons..... Number of electrons..... Distribution of electrons on electron shells: K ..... L .....

LITHIUM

Symbol chemiczny .....
Number of group .....
Number of period .....
Atomic number .....
Number of protons.....
Number of electrons.....
Distribution of electrons on electron shells:
K ..... L .....

SULPHUR

Chemical symbol .....
Number of group .....
Number of period .....
Atomic number .....
Number of protons.....
Number of electrons.....
Distribution of electrons on electron shells:
K ..... L ..... M .....

MAGNESIUM
Chemical symbol .....
Number of group .....
Number of period .....
Atomic number .....
Number of protons.....
Number of electrons.....
Distribution of electrons on electron shells:
K ..... L ..... M .....

Chosen pupils present solutions of tasks and other pupils check the correctness of their solutions.
Teacher emphasises that undermentioned rules relates to all chemical elements of main groups:

- the number of electron shells in an atom of chemical element is equal to the number of period,
- the number of valence electrons in an atom of a chemical element is equal to unity figure in a group number.

20min

5.Stating the problem: creating an app – a single-choice test on learningapps.org platform: 5 questions + 3 answers.
Pupils work in groups of 4. They formulate set of notions that they can use to prepare a test: (for example, group, period, electron shell, periodic law, atom, protons, neutrons, electrons, valence electrons) – stage of collecting information.
Pupils' discussion:

a) what kind of information is needed to create such app?
b) what should be the effect of action of such app?
c) what should be the sequence of activities in the program (algorithm)?

Pupils log in to learningapps platform and prepare a test.
30 min

Next they create a card of a chosen chemical element in **Paint** program.

10 in

6.Evaluation

After given time teacher starts apps made by groups of pupils and displays them on the screen. Pupils answer test questions and check the correctness of questions and answers. They present cards prepared by them.

10 min

Specific information:

- **Programs**
- **Links**
- **Etc**

https://learningapps.org/830241, https://learningapps.org/3624125

http://ukladokresowy.edu.pl/#/forma/podstawowa
http://www.epodreczniki.pl/reader/c/153030/v/latest/t/student-canon/m/iuFn27NYFM#iuFn27NYFM_d5e251

Attachments:

- **Worksheets**
- **Programs**
- **files necessary**
- **Etc**