

Abstract

Information and Communication technologies (further only „ICT“) are becoming an essential part of the society, of its structure and functions and impact the lives of individuals. Integration of ICT into education together with a change in the traditional education system into a modern one is therefore seen as an important factor of further development.

The paper deals with some of the options of how to utilize electronic support for teaching chemistry at secondary schools. It is mainly the visualisation of the subject matter, proper positive motivation of students and their activation. The paper describes in detail presentation of chemistry using specialized computer software and visualisation of chemical processes.

One of the goals of this paper is to present different software for teaching support and to compare them with regards to functionality, user-friendliness and possibilities of other application. Among the selected software there are: ACD/Chemsketch, Isis/Draw, WebLab Viewer Lite, Orbitel Viewer, ArgusLab, Anorganicka chemie, ChemDraw, ChemLab, Basic Chemi and LM Chemie.

The significant part of the paper is dedicated to Wolfram Mathematica software, summarizing the essential information about the author, distributor, different versions of the software and their possible utilization.

Another important goal of this paper is to motivate professionals to use some of the demonstration features of the software Wolfram Mathematica. The author of this paper analyses in detail the features and the utilization of seven of the demonstration projects called „Vzorce a struktury některých jednoduchých molekul“, „Sestavte si svůj vlastní atom“, „Atomové orbitaly“, „Alkany“, „Změny oxidačních čísel uhlíku ve sloučeninách“, „VSEPR“ a „Stavová rovnice ideálního plynu“.

In the conclusion of this paper the author provides a complex assessment of the chosen software and projects created with it. The assessment was done by interviewing students of secondary schools. The interviews prove a positive benefit of the projects for the students. The author therefore strongly recommends to include such projects in the teaching.