

Using information technology in the modern educational system – Chemistry – ALKANES

Moraru Silvia

“Tudor Vianu” National High School of Computer Science; 10, Arh Ion Mincu St., Bucharest
1, 011356, Romania
moraru@lbi.ro

Abstract. When we have created the lessons, we had in mind the following:

?? the pedagogical social and psychological criteria (the learning process focuses on the subject – the student; the lessons are attractive and captivating; the text, the graphical, the animated, audio-video achievement of the lesson motivates the student to acquire the information and abilities);

?? the technical and informatic criteria (the IT products we have created are flexible, stable and have a friendly interface; modularity – allowing selective and economical utilization, adaptability to the subject’s training level).

Keywords. Educational process, IT, innovation, interactivity

1. Introduction

This multimedia product is intended for pupils studying Chemistry. The unit ALKANES is structured in 7 lessons. Each lesson is planned according to the operational objectives established by the teacher. He or she selects the teaching activities so that each objective may be reached. The activities are devised to meet the requirements of the lesson ALKANES.

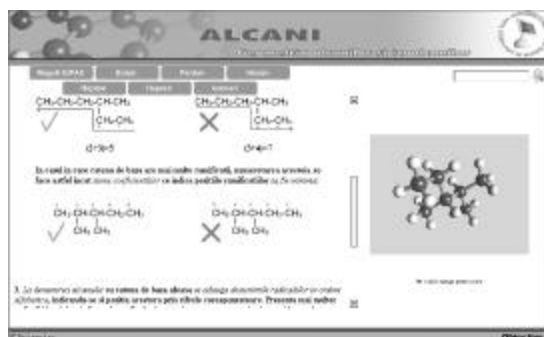


Figure 1. IUPAC rules

2. Key advantages

Preliminary testing is administered at the beginning of a review class through a grid-type test. At any stage of the lesson the learner can be directed back to achieve reinforcements of the following notions:

1. definition of alkanes;
2. the homologous series of terms;
3. the geometry of alkane and isoalkane molecules;
4. IUPAC rules of naming the isomerides of n-alkanes;
5. chemical properties of alkanes;
6. the chemical process of methane;



Figure 2. A test

3. Novel approach

The novel approach of the lesson consists in the explanation of the geometry of the molecule as well as of the mechanism of setting a chemical process in motion, eg: the reaction can be seen following step by step a transformation of reactants into reaction products, the breaking of simple covalent links C-H and Cl-Cl and the restoring of simple covalent links C-Cl and H-Cl. The alertness and interactivity maintained

throughout the lesson increase the efficiency of learning. The pupil can use a great variety of self-instruction tools by pressing buttons to resume the material, to cover the read the theory to be directed back to earlier material for further study, and to open windows in order to visualize reaction mechanisms.

The stages of the lesson are supported by the teacher for each learner. Thus the feedback is achieved during the summative testing, recording the progress made by each pupil.

The segment of reinforcement consists in viewing the modelling of the already acquired chemical process providing self-pacing completion of the program.

Each sequence of the lesson is provided with worksheets covering the individual activities comprised in this educational software package.

The interactive part of this program involves the learner whose well-maintained attention increases the quality of learning.

4. Conclusions

The evaluation of this program has pointed out:

- teacher and learner are real partners in the teaching-learning-testing process;
- the teacher selects the didactic activities of the lesson, finds the proper teaching methods and draws up the items for the initial, continual and summative testing;
- the more efficient achievement of all operational objectives;
- fast initial, continual, summative testing;
- high speed in sending data;
- the achievement of feedback at all stages of the lesson

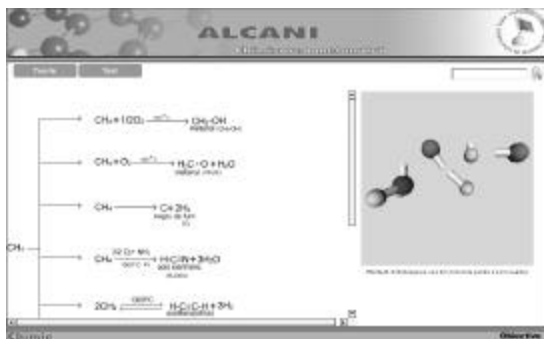


Figure 3. A reaction in motion