

Abstract

Analytical chemistry in secondary grammar school

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Aims of the thesis

Emphasize the importance of chemical experiment in chemical education as the way of implementation scientific methods into proces of teaching.

Emphasize the importance of implementation analytical chemistry into chemical education, because its special methods are helpful in other parts of chemistry.

Show possibility of intersubject relations between analytical chemistry, biology and other sectors and spheres. Implement special cross-sectional topics into chemistry.

Evaluate the role and importance of tests and other possibilities of pupils´evaluation after two-year laboratories. Discuss results and skills for next pupils studies. Divide analytical experiments to groups, interesting for pupils.

Work up the experimental exercises for teachers to use them during teaching, add important special and methodical comment. All experimental exercises are prepares for pupils as the answer-sheet during lessons.

Formulate examples for model programmes, which can be used for different types of laboratory lessons.

At the end of my thesis I´d like to summarize the most important ideas from particular chapters.

I have emphasized importace of chemical experiment and its use in analytical chemistry education. I have pointed a possibility of working relation among school subjects and a possibility of putting several cross-sectional topics into analytic chemistry education. I have dividend some experiments into several groups and prepared them to be put just into lessons by teachers and some notices and solutions are added.

I have described the work during the experimental lessons, the equipment for them, specific matter of analytical chemistry. Chemical experiments and practical lessons are the most effective especially in analytical chemistry to gain a piece of knowledge. It is used to beeing recommended to add other educational methods and sometimes use some project activities. At the end of two-year-practical chemistry lessons, students usually write special test of analytical chemistry. Students are good at topics based on chemical experiments and colourful reactions.

I tried to check a lot of textbooks used for teaching chemistry and only two of them had special part focused on analytic chemistry. Teachers can use three other books, which are acceptable for teaching practical lessons. There are several books written for special secondary schools which can be used as well.

I have worked out 114 experiments and dividend them into eleven groups. Several experimental topics concern water, food, plant, polymer analyses. Some experiments have to do with agriculture, human health. In some experiments is used simple physical equipment and microscopes. I try not to use traditional branches as organic, anorganic chemistry, qualitative and quantitative analysis, but in some chapters I had to use it, because it is important for explanation some process or technology.

All parts of my thesis are written using obligatory scholar documents, special and pedagogical literature and mainly my own experience gained during many years.