

CREATIVE ACTIVITY IN LEARNING OF ELECTROLYSIS IN SECONDARY SCHOOL

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Teachers know that understanding of abstract scientific conceptions, such as electrolysis is problematic for secondary school pupils. Main difficulties are due to products obtained at electrodes, redox reactions, mechanism of electrolysis and its' application, paying less attention, low motivation to learning etc. [1]. Modern teachers provide formation the supportive learning environment where students are keen to learn, gain multiple ways to teach using innovative programs, help increase students' spatial abilities, with the most popular being model kits, strive to generate interest and motivation, to develop a commitment to learning [2].

Electrolysis is abstract concept: pupils can observe compounds deposited on electrodes when implement demonstrations, however, they cannot see moving of ions in solution by action of electric current. So, they need to use models that promote formation of correct representation about redox processes on cathode and anode in their minds.

The use of creative activity in chemistry lessons forms favorable conditions for the formation of creative thinking in learners, which allows them to see the process being studied from different angles, to realize its invisible sides. At the same time, for the effective use of creative activity in lessons, teacher overcomes certain standards and formalism in teaching, takes steps towards the exploration and application of new teaching methods, and engages in self-improvement.

Two classes of 8th degree of secondary school took part at the presented study. Each class consisted of 20 students, with approximately equal educational opportunities and relatively low motivation to science. One class learned electrolysis without implementation of creative activity, control class engaged in the use of creative activity by modeling.

Electrolysis modeling carried out by using colored paper and plasticine were used. Control class divided in three groups. Each group prepared the model of electrolysis of solutions of various salts. Group 1 – electrolysis of solution of copper sulphate (II), group 2 – electrolysis of solution of sodium chloride, group 3 – electrolysis of melted zinc chloride. Ability to think outside the template, come up with new ideas, use of imagination, independence and self-expression, make a correct choice in solving problems, increasing positive emotional sphere, improving of technical skills, complete understanding of electrolysis concept were observed during the lesson.

The results of the monitoring showed that even in classes with low motivation to learn, creative activity is effective for provide positive motivation to science and better understanding of electrolysis concept. Modeling provided correct writing of electrolysis equations and about 40 % better problem solving skills of learners in experimental class in comparison of control class.

1. Muzammila Akram, Murad Ali, Conceptual Difficulties of Secondary School Students in Electrochemistry, Asian Journal of Science, 2014, 10(19), 276-281, DOI:10.5539/ass.v10n19p276

2. Ryabchenko Svitlana, Professional Teacher's Competence In The Modern Educational Environment, Interdisciplinary Studies Of Complex Systems, 2020, 17, 102-113, DOI 10.31392/iscs.2020.17.102