Chemistry Is All Around Network

‘How to make your students feel Chemistry with Chemistry’

Wyższa Szkoła Informatyki i Umiejętności w Łodzi (WSInf)
Poland

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Student’s Motivation to Learn Chemistry

- **Intrinsic motivation - Internal factors**
  - self-education,
  - satisfaction,
  - learning for the sake of fulfillment,
  - need to broaden horizons and deepen knowledge

- **Extrinsic motivation – External factors**
  - approval of the teacher and parents;
  - good grades; and good results during exams
  - choice of teaching methods and a coursebook
  - personality of the teacher and his/ her attitude (teacher-student rapport)
Polish reality after the educational reform

- 130 hours of Chemistry in Junior Secondary School (age 13-16)
- 114 hours of Chemistry education in Senior Secondary School – Basic Level (age 16-19)
- 152 hours of Chemistry education in Senior Secondary School – Extended Level (age 16-19)

New Core Curriculum Objectives:

1. To teach and learn chemistry concepts and broaden knowledge of education needed at further stages of education
2. To teach and enable students to plan, analyse, solve tasks/problems, perform experiments, interpret their results and evaluate
3. To learn the responsibility for student’s own health and natural environment
The role of the school

1. Supporting students in developing their intrinsic motivation by teaching them how to use different sources of information
2. Teaching students how to evaluate and critically assess the resources
3. Acquainting students with demonstrations and experiments; performed at school and home by both teachers and students
4. Teaching students to plan and design their own chemical research with the follow-up interpretation based on the gained knowledge
5. Establishing contacts with chemical industry, plants and factories in order to visualize the significance of chemistry and show its interconnectedness with other disciplines of science – ORLEN and ORGANIKA
The role of the teacher

1. Motivating students to learn on their own (showing usability of the chemical knowledge in life)
2. Presenting chemistry in context (real-life applications)
3. Creating good rapport with students (patience, nice personality etc.)
4. Adapting teaching requirements to students needs and abilities
5. Selecting appropriate materials for lesson preparation, facilitating students interest and logical thinking (online, interactive materials, DVDs etc.)
6. Establishing contacts with chemical industry experts to help students understand more difficult concepts
7. Fair grading and approval of students progress
The role of the parents

1. Motivating students to learn on their own (showing usability of the chemical knowledge in life)
2. Presenting chemistry in context since the early childhood (real-life applications; objects floating on the water surface, rusty car, foamy shampoo)
3. Encouraging children’s interest in science – participating in events organized by science and academic institutions, universities and polytechnics
4. Comforting in distress; supporting and trying to develop talents and interests at home
The role of the coursebook

1. Preparation of students for continuation of their chemistry education at further levels of education
2. Preparation of students for their final tests in chemistry
3. Clear and student friendly – containing obligatory core curriculum content, interesting facts about chemistry and ecology
4. Visualization of theoretical material by experiments, demonstrations and illustrations preferably in the form of an interactive coursebook
5. Emphasis on the role of chemistry in real, everyday life and implementation of practical applications of chemical processes
6. Enabling teachers to work with students at different levels of abilities (basic and extended levels) – developing talents
7. Facilitation of students’ own work, inspiring, motivating and stimulating for creative thinking and analysis
8. It should consolidate the knowledge and review covered material
Developing Chemistry Talents

1. Extended chemistry Syllabus (more than 4 hours per week)
2. Chemistry Oriented Special Interest Group at schools
3. Special teaching methods – projects, experiments, hands-on activities learning by doing
4. Preparation for local, regional and international competitions in Chemistry
5. Thematic trips and excursions (industry, research laboratories, sewage treatment, water purification stations etc.)
6. Participation in chemical industry fairs and other events
7. Participation in EU projects and special programmes oriented for developing students interest in science, chemistry in particular
The role of Universities and Polytechnics

1. Frequently organized workshops, thematic lectures and seminars
2. Facilitating students’ interest in chemistry by organizing experiments and demonstrations for students of junior and senior secondary schools
3. Meetings and talks with chemistry industry representatives (presentations, lectures, discussions)
4. Practical classes in University laboratories supporting regular school classroom activities
5. University representatives visiting schools with offers of chemical studies
Teacher Training

1. Chemistry offered as a course of study at 16 universities and 6 technical universities in Poland – University of Poznan, UMCS in Lublin, Technical University in Lodz, University of Warsaw
2. I–cycle programme (undergraduate) and II–cycle programme (postgraduate) offered for chemistry lovers
3. III-cycle programme (doctoral studies) available for researchers and scientists
4. A wide variety of interesting specializations facilitating employment in sectors such as food processing, cosmetics, industry, pathology labs etc.
5. Special courses offered for prospective teachers – methodology of teaching as a regular curriculum
The role of Universities and Polytechnics
Thank you for your attention

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