

## EXPERIENCE OF ORGANIZATION OF SCIENTIFIC PROJECTS IN CHEMISTRY IN AESC MSU

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Youth's creativeness is one of main competencies that should be developed during education. We can stimulate this ability by performing of scientific projects. From the point of view of psychology, senior pupils are ready to self-sufficient investigation activity under the supervision of teacher or tutor, but in most cases deficiency in qualified personnel and necessary equipment preventing the realization of projects.

At this moment Advanced Educational Scientific Center (AESC) has enough possibilities to solve both problems. Since 2004 we have been performing scientific projects in chemistry for pupils of 10th grade on the base of school laboratory, MSU faculties and other scientific organizations. For the last 8 years our children made ca. 70 projects, including 12 at the current school-year. The projects are an important part of educational program of chemistry in our specialized classes. The ordinary investigation consists of choice of most interesting topic; search of related information by using of MSU scientific library; public presentation of literature review of problem; experimental activity and analysis of results. A final step of the project is the presentation at school conference. Typically the projects begin in September and finish in April. Materials of current year's works are available on AESC web-site [1].

The most valuable results were presented on local and international youth conferences and were awarded for many times. Some of them were presented on scientific conferences and published in peer-reviewed journals [2,3].

One of the most successful projects belongs to bioinformatics area. It should be noted, that currently the main-stream investigations are interdisciplinary studies. Bioinformatics are connected with chemistry, biology and informatics. Basic knowledge of these subjects on the school level is enough to begin the study in bioinformatics under the competent supervision. One of benefits of research in this area is minimal requirements to equipment and reagents. We need the computer with Internet connection only. The projects in bioinformatics were supported in AESC by regular informatics lessons, by special courses in English and molecular biology and by our local database of protein structures based on RCSB project [4]. The results of our work were summarized in recent publication [5].

From our point of view, project activity in coordination with researchers and high school teachers gives pupils the first skills in scientific work, improves their creativity and logic, develops an ability to present and discuss self-obtained data. As a result – most pupils after graduation from AESC successfully continue their study and researches as students of MSU and other leader universities.

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### LITERATURE

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