EXTRACURRICULAR ACTIVITIES

Stredná odborná škola chemická Bratislava

EXTRACURRICULAR ACTIVITIES

- Extracurricular activities that support the development of professional competences:
  - Science and technical olympiads
  - Science and technical competitions
  - Technically oriented clubs
  - Special professional practice at research institutes

SCIENCE AND TECHNICAL OLYMPIADS IN SLOVAK REPUBLIC

- Biology Olympiad (elementary, secondary),
- Chemistry Olympiad (elementary, secondary),
- Geographical Olympiad (elementary, secondary),
- Mathematical Olympiad (elementary, secondary),
- Olympiad in Informatics (secondary),
- Physics Olympiad (elementary, secondary),
- Young Physicists Tournament (secondary),
- Technical Olympiad (elementary),
- Pythagoriada (elementary)

SCIENCE AND TECHNICAL COMPETITIONS IN SLOVAK REPUBLIC

- Secondary school vocational activity (Stredoškolská odborná činnosť, SOČ)
- Science and Technology Festival (Festival vedy a techniky)
- Green Angel (Zelený Andel)
- Chemistry correspondence seminar for high school students (Korešpondenčný seminár z chémie pre stredoškolákov)
- Chemical charge (Chemický náboj)

EXTRACURRICULAR ACTIVITIES AT SOŠCH

- Activities related to vocational education and training
  - Chemistry olympiad
  - Biology olympiad
  - Physics Olympiad
  - Secondary vocational activity
  - Science and Technology Festival
  - Zelený Andel

CHEMISTRY OLYMPIAD

- ChO is a subject competition of primary and secondary school pupils organized as one of the forms of **voluntary special activities of pupils**.
- ChO is an integral part of the educational process in schools.
- The competition is organised **annually** and is divided into categories according to difficulty.

CHEMISTRY OLYMPIAD

- The mission of the Chemistry Olympiad is:
  - to creatively develop pupils' competences, i.e. to broaden, deepen and strengthen knowledge, skills and practices in chemistry and to arouse in pupils a deeper and continuous interest in chemistry
  - to seek out talented pupils in chemistry, to encourage the further development of their giftedness and talent
  - to encourage pupils to engage in independent creative activity, to promote their interest in self-education and to contribute to the efficient and effective use of pupils' leisure time
  - to create a competitive environment for pupils to compare their abilities, skills and knowledge with each other through competition and creative cooperation
  - to contribute to the orientation towards chemistry in the choice of careers
  - to encourage and foster in pupils a conscious and responsible relationship with the environment, its protection and creation
  - to create conditions for the successful representation of Slovakia at international competitions
  - to enable primary and secondary school teachers to use the knowledge gained at pupil competitions to improve the quality of the educational process in primary and secondary schools

CHEMISTRY OLYMPIAD

- Competences that the Chemistry Olympiad develops:
  - Theoretical knowledge. Competitors must have a sound knowledge in these areas.
  - Practical skills: In addition to theory, the ChO also focuses on practical tasks. Competitors must demonstrate the ability to work with chemicals, analyse samples and solve practical problems.
  - Analytical thinking: ChO tasks often require a deep understanding of chemical concepts and the ability to solve problems logically and systematically.
  - Creativity: When solving problems, competitors can demonstrate creativity in finding new approaches and solutions.
  - Communication skills: Competitors must be able to communicate their ideas and results clearly and accurately.
  - Teamwork: Some tasks may require teamwork, which develops the ability to work with other people.
  - Responsibility and discipline: Competitors must follow the rules and deadlines of the competition, which develops discipline and responsibility.

Category	Type of school	Year of study	Rounds	International level
D	Primary school	8, 9	Home - school – district - regional	no
C	Grammar school, vocational schools	1	Home - school - regional	no
B	Grammar school, vocational schools	2	Home - school - regional	no
A	Grammar school	3, 4	Home - school - regional - national	yes (annualy)
EF	Grammar school, Secondary school of medicine	3, 4	Home - school - regional - national	yes (biannualy)

CHEMMISTRY OLYMPIAD IN SLOVAK REPUBLIC

CHEMISTRY OLYMPIAD FOLLOW-UP ACTIVITIES

- Summer School of Chemists
  - Designed for successful participants in the Chemical Olympiad – category C, B (1st and 2nd year students of secondary schools with a non-chemical study programme)
  - Students particiate in seminars, lectures and laboratory exercises
- Summer School of Young Chemists
  - Designed for successful participants in category D (elementary school)
  - Students attend lectures and laboratory excercises (exploratory and experiential teaching)

CHEMISTRY OLYMPIAD AT SOŠCH

- SOŠCH prepares students for 4 of total 5 categories
  - Category D – promotional activity for elementary schools
  - Category C
  - Category B
  - Category EF

CHEMISTRY OLYMPIAD AT SOŠCH

Theoretical preparation

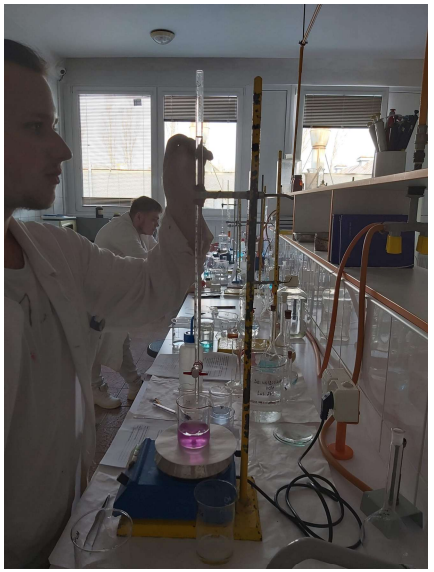
- online - extracurricular activity
- within the schedule – special lessons prior to the national round

Practical preparation

- within the schedule - special laboratory exercises

CHEMISTRY OLYMPIAD – PREPARATION

- 2023/2024



CHEMISTRY OLYMPIAD – SCHOOL ROUND

- 2023/2024

CHEMISTRY OLYMPIAD AT SOŠCH (2020/2021 – 2023/2024)

2020–2021

Category EF: national round, 2nd and 3rd prize

Grand Prix Chimique, international competition: 1st and 3rd prize

2021–2022

Category EF: national round, 2nd prize

2022–2023

Category EF: national round, 1st and 3rd prize

Grand Prix Chimique, international competition: 1st prize

2023–2024

Category EF: national round, 3rd prize

Jakub Chabada

CHEMISTRY OLYMPIAD

- Category EF, National round, March 2024
- Jakub Chabada (in the middle), 3rd prize

CHEMISTRY OLYMPIAD

- Grand Prix Chimique, September 2023
- Peter Mitana, 1st prize
- Jozef Fecske, 8th prize
- April 2024 – Peter Mitana was invited to meet with the President of the Slovak Republic

CHEMISTRY OLYMPIAD - CATEGORY EF

Theoretical part (40 points)

- General and physical chemistry (15 points), junior and senior level
- Organic chemistry (10 points)
- Biochemistry and chemistry of natural compounds /Technological calculations (15 points), junior and senior level

Practical part (60 points)

- Analytical chemistry – calculations (10 points), chemical analysis (50 points)

CHEMISTRY OLYMPIAD - CATEGORY EF IN 2023/2024 (NATIONAL ROUND)

- Theoretical part
  - General and physical chemistry
    - Chemical equation calculations (mass, mass fraction, volume of solution), junior
    - Calculation of pH of acids and bases of a different streght, junior and senior
    - Calculation of the composition of a system consisting of 2 miscible liquids (phase equilibrium, composition of liquid a and gaseous phase), senior
  - Organic chemistry
    - Properties of a nitrogen containing derivates of hydrocarbons
    - Synthesis of nitrogen derivatives
  - Biochemistry and chemistry of natural compounds
    - Fatty acids (nomenclature, structiue, properties, reactions, iodine number), junior
    - Fats (hardening, rections, production of soap), junior and senior
    - Fats (metabolic pathways, β-oxidation, reactions), senior
  - Technological calculations
    - Evaporation and crystallization of mixture, junior
    - Sugar beet processing, junior and senior
    - Dissolution of limestone in sulphuric acid . senior

CHEMISTRY OLYMPIAD - CATEGORY EF IN 2023/2024 (NATIONAL ROUND)

- Practical part
  - Additional problems in analytical chemistry (Calculations)
    - Back titration with EDTA
    - Conditional stability constant of a complex
    - Capacity of an ionex
  - Laboratory work
    - Standardization of EDTA
    - Determination of metal (Cu, Fe) by titration with EDTA
    - Breakhrough curve of a catex
    - Determination of a capacity of catex
    - Determination of three metals in sample (titration with EDTA, titration of H^+ with NaOH)

CHEMISTRY OLYMPIAD

- Tasks for the 60th Chemistry Olympiad, 2023/2024
- https://www.iuventa.sk/olympiady/ucitel-organizator/chemicka-olympiada/

SECONDARY SCHOOL VOCATIONAL ACTIVITY

- The Secondary School Vocational Activity is a **competition** focusing on **17 professional areas** (science, technology, humanities and social science).
- Its aim is to support and search for talented and gifted secondary school pupils, to develop pupils' creative competences, critical thinking, professional-theoretical knowledge and professional-practical skills and abilities.
- The prerequisite for participation is a written professional work and registration of the pupil in the competition by the online application system.
- The author(s) **defend the thesis orally** before a professional evaluation committee.
- By participating in the competition, pupils solve topical issues, use cross-curricular relationships, learn to work in teams, search for information, cooperate with experts from universities and economic practice.
- Pupils' **extraordinary achievements are taken into account in university admissions**.
- Pupils present their professional scientific research at Expo-Sciences International (ESI) and Expo-Sciences Europe (ESE).

SECONDARY VOCATIONAL ACTIVITY AT SOŠCH

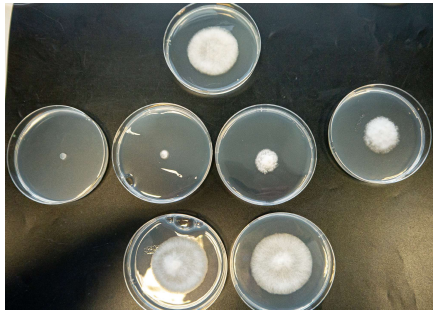
- School year: 2015/2016
- Students: Dominik Juračka, Marián Pevný
- Title:
  - English: Development and testing of an innovative method for the determination of 5-hydroxy-L-tryptophan in the diagnosis of colorectal cancer
  - Slovak: Vývoj a testovanie inovatívnej metódy na stanovenie 5-hydroxy-L-tryptofánu pri diagnostike kolorektálneho karcinómu
- Award:
  - 1st prize at National round
  - Qualification to MILSET Expo-Sciences Europe 2016 in Toulouse, France

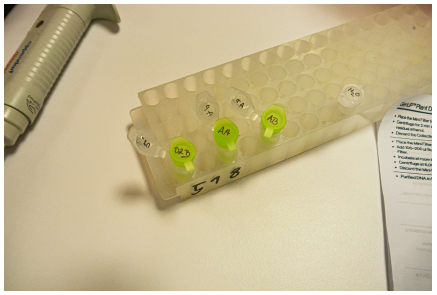
SCIENCE AND TECHNOLOGY FESTIVAL AT SOŠCH

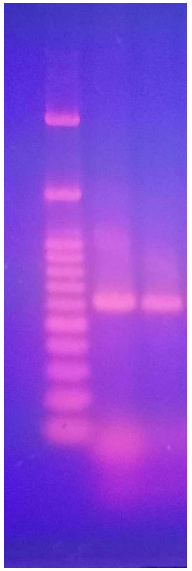
- School year: 2017/2018
- Students: Kristián Jaček, Barbora Fülöpová
- Title:
  - English: Innovation of a method for determination of creatinine in urine and blood serum
  - Slovak: Inovácia metódy na stanovenie kreatinínu v moči a krvnom sére
- Category: Medicine and healthcare
- Award: National round, AMAVET Science and Technology Festival Jury Award

SCIENCE AND TECHNOLOGY FESTIVAL AT SOŠCH

- School year: 2018/2019
- Student: Matúš Mlynár
- Title:
  - English: Effect of uric acid on endothelial function in vitro
  - Slovak: Efekt kyseliny močovej na endoteliálnu funkciu in vitro
  - Category: Medicine and healthcare
  - Award:
    - 1 st prize at National round
    - Qualificaton to ESI in Abu Dhabi 2019
- Student: Laura Nižníková
- Title:
  - Development and application of an analytical method for the determination of iodide anion in highly mineralized water matrices
  - Slovak: Vývoj a aplikácia analytickej metódy na stanovenie joidového aniónu v silne mineralizovaných vodných matriciach
  - Category: Chemistry
  - Award:
    - 1 st prize at National round
    - Qualificaton to EUCYS, The European Union Contest for Young Scientists in Sofia







SECONDARY VOCATIONAL ACTIVITY AT SOŠCH

- School year: 2023/2024
- Category: 03 - Chemistry and Food Science
- Student: Marek Kocian
- Title: Prevention and treatment of honey bee larva calcification with substances of natural origin contained in essential oils
- Award:
  - regional roud, 2nd prize
  - The student qualifies for the national round (April 2024)

GREEN ANGEL (ZELENÝ ANDEL)

- Organiser: the Department of Environmental Sciences of the University of Cyril and Methodius in Trnava
- Terms and conditions of the competition:
  - Submission of a SOČ work related to the Protection and Restoration of the Environment, which was carried out at the relevant secondary school.
  - Completion of the school round of SOTS in the school year 2023/2024.
- Target group: Pupils of all years of grammar schools, secondary schools and conservatories who have worked on a SOT project at school.
- Scope: national competition
- Rounds: national
- Implementation of the competition: assessment of the work by an expert jury
- Prize: the "Green Angel" award for the best project in the field of environmental protection and restoration
- Web: https://www.ekokatedra.sk/zelenyandel/

MOTIVATION OF STUDENTS TO PARTICIPATE IN COMPETITIONS

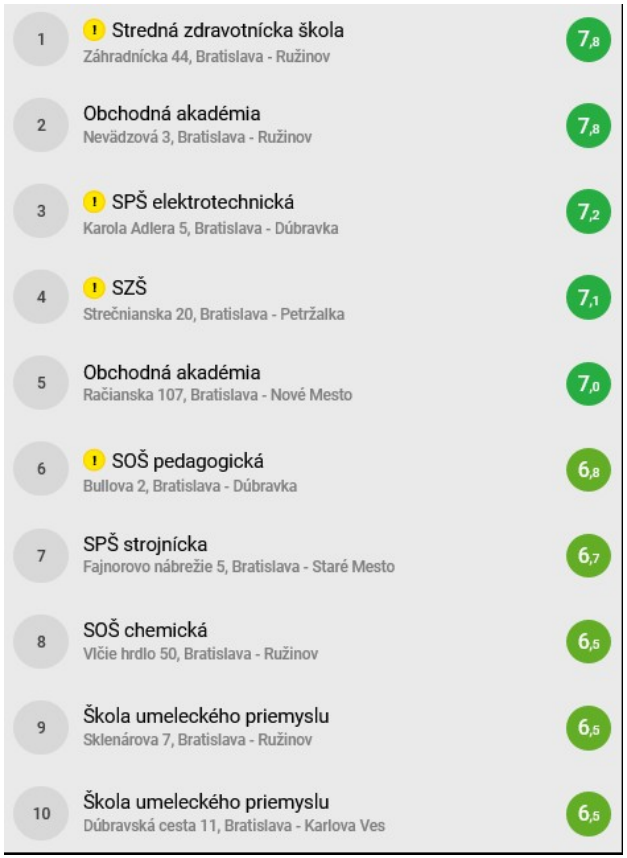
- The opportunity to perform the practical part of the professional component of the final examination in the form of a defence of a successful competition
- Admission to selected universities of natural sciences without passing the entrance examination
- Financial reward recognition by the professional public

MOTIVATION OF THE SCHOOL

- The prestige of the school
- School success in competitions - a factor in choosing a secondary school
- School Outstanding Achievements
  - Schools are allocated funds on the basis of pupils' outstanding achievements in selected competitions, subject Olympiads, international projects and programmes according to the Ministry of Education's list.
- INEKO school rating (INEKO - Institute for Economic and Social Reforms)
  - School Outstanding Achievements is one of the evaluation criteria

INEKO SCHOOL RATING

- INEKO - Institute for Economic and Social Reforms
- School year 2024/2023
- Rating: 6,5 school with very good results
- Website: https://skoly.ineko.sk/skola/?ID=4086
- The highest rating in outstandig results



1	Stredná zdravotnícka škola Záhradnícka 44, Bratislava - Ružinov	7,8
2	Obchodná akadémia Nevädzová 3, Bratislava - Ružinov	7,8
3	SPŠ elektrotechnická Karola Adlera 5, Bratislava - Dúbravka	7,2
4	SZŠ Strečnianska 20, Bratislava - Petržalka	7,1
5	Obchodná akadémia Račianska 107, Bratislava - Nové Mesto	7,0
6	SOŠ pedagogická Bullova 2, Bratislava - Dúbravka	6,8
7	SPŠ strojnícka Fajnorovo nábrežie 5, Bratislava - Staré Mesto	6,7
8	SOŠ chemická Vlčie hrdlo 50, Bratislava - Ružinov	6,5
9	Škola umeleckého priemyslu Sklenárova 7, Bratislava - Ružinov	6,5
10	Škola umeleckého priemyslu Dúbravská cesta 11, Bratislava - Karlova Ves	6,5

0,0	-	0,9	škola s veľmi zlými výsledkami žiakov
1,0	-	1,9	škola s veľmi zlými výsledkami žiakov
2,0	-	2,9	škola so zlými výsledkami žiakov
3,0	-	3,9	škola s podpriemernými výsledkami žiakov
4,0	-	4,9	škola s priemernými výsledkami žiakov
5,0	-	5,9	škola s dobrými výsledkami žiakov
6,0	-	6,9	škola s veľmi dobrými výsledkami žiakov
7,0	-	7,9	škola s výbornými výsledkami žiakov
8,0	-	8,9	škola s vynikajúcimi výsledkami žiakov
9,0	-	10	škola s excelentnými výsledkami žiakov

INEKO SCHOOL RATING

- School year 2022/2023
- SOŠCH is the 8th among vocational schools in Bratislava region, the 25th among all types of secondary schools
- 68 secondary schools in Bratislava region were evaluted
- Schools with a small number of graduates (less than 80 in the last 4 years) were not included
- Website: https://skoly.ineko.sk/

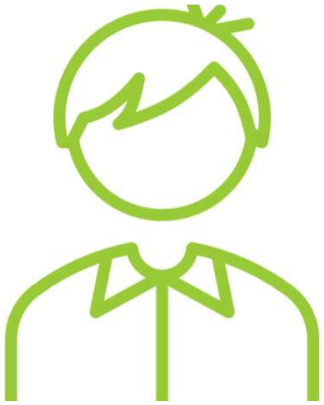
	SOŠ CHEMICKÁ VLČIE HRDLO 50 **BRATISLAVA - RUŽINOV**	SOŠ RASTISLAVOVA 332 **NOVÁKY**	STREDNÁ ODBORNÁ ŠKOLA ŠTEFÁNIKOVA 39 **SVIT**	SPŠ S.M. AKADEMICKÁ 13 **BANSKÁ ŠTIAVNICA**
	odobrať školu	odobrať školu	odobrať školu	odobrať školu
HODNOTENIE ŠKOLY (2020 - 2023)				
CELKOVÉ HODNOTENIE	6,5	6,3	3,8	4,2
MATURITY	7,2	4,6	3,1	6,4
TESTOVANIE 9	-	-	-	-
PRIDANÁ HODNOTA	6,2	4,6	5,2	3,2
NEZAMESTNANOSŤ ABSOLVENTOV	5,4	8,3	4,6	2,2
PRIJÍMANIE NA VŠ V SR	8,6	5,5	6,2	7,1
INŠPEKCIA	-	-	-	6,8
MIMORIADNE VÝSLEDKY	9,9	2,7	3,1	4,7

INEKO SCHOOL RATING

- School year 2022/2023
- Comparison of schools with chemistry study programs in different regions
- Website: https://skoly.ineko.sk/

ACTIVITY

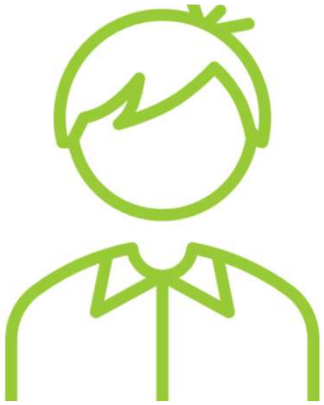
DISCUSSION WITH CONTESTANTS



Peter Mitana

Grand prix chimique

1st prize



Jakub Chabada

National round of Chemistry olympiad

3rd prize

Marek Kocian

Regional round of Secondary school vocational activity

2nd prize

DISCUSSION WITH CONTESTANTS

- What was your motivation to participate in this competition?
- How did you prepare for the competition?
- What proportion of your preparation was school-organised preparation and what proportion was independent preparation?
- What professional skills and knowledge did you acquire during the preparation for the competition and during the competition itself?
- What soft skills did you develop?
- Which part of the Chemistry Olympiad/secondary school vocational activity was the easiest and, on the contrary, the most difficult?
- Estimate how many hours or days it took to prepare for each round of the Olympiad.
- Would you recommend participation in the competition to other classmates?
- Would you like to be involved in the preparation of pupils for next year e.g. help with your advice on how to prepare effectively etc.?

DISCUSSION

- Discuss the following questions in groups.
- of the group to summarise the answers.

DISCUSSION

- What science and technical Olympiads and competitions does your school take part?
- What is the number of participants in these competitions?
- What success have your pupils achieved in these competitions?
- What is the motivation of pupils to participate in the competition?
- Which competences developed during the preparation and realisation of the competition do you consider the most important?
- Who prepares pupils for competitions, individuals or a team of teachers?
- What is the motivation of teachers to prepare students for the competition?
- How are teachers evaluated for their preparation?
- What are the benefits to the school if a student is successful at a national or international level of competition?