



The Hungarian Chemical Society Chemistry Teachers' Division Annual Report to the EuChemS Division of Chemical Education for 2021-2022

1. Abstract

The significant changes have continued in the educational systems of Hungary in both high school and elementary school in 2021-2022. This is the second academic year after September 1, 2020, the new National Basic Curriculum was implemented, ultimately meaning further reductions in classes in chemistry and other science subjects. Current consultations related to teachers' promotion and qualification as well as the general financing system of education that have been introduced in the educational system of Hungary in the last few years are underway. Several competitions for students have been successfully organized (as well as the usual annual competitions and other events) by the HCS.

2. National educational policy

The age distribution of chemistry teachers still shows a very high average of age, despite the Klebelsberg Fellowship (aimed at attracting young university students towards chemistry teacher training) launched by the Government. The reduction of severe shortage of chemistry teachers is further attempted by the obtaining of the Klebelsberg fellowship. The one year-round training of practice for those few who have remained has just concluded. Thanks to the Klebelsberg Scholarship the number of applicants to teacher specialty training at universities has increased.

Another serious problem, which still remains unresolved, is the introduction of complex sciences object in special polytechnics. Only a handful of specialties have retained chemistry as their complex sciences subject. Given these training conditions students are unlikely to choose chemistry as subject for continuation at universities if they had no proper chemistry subject to be taught in Classes 9 and 10. A new element for students at special polytechnics is the introduction of professional exam at matura exams. The new textbooks for the Comprehensive teaching curriculum are continuously produced; however, the textbook covering chemistry is missing. The so-called "digital" textbooks were developed by the Hungarian Institute for Educational Research and Development (OFI), with the assistance of teachers who have previously taught these subjects. These textbooks contain all the information

necessary of a ninth-grader student attending polytechnics in physics, chemistry, biology and geography.

The new curriculum that was introduced by the National Basic Curriculum in September 2020 can be found on the site of the Educational Bureau: (https://kerettanterv.oh.gov.hu/03_melleklet_9-12/index_4_gimn.html).

Also, in this year again every 1-12th grader student received their textbooks free of charge, thus relieving their parents from a substantial financial burden.

It is regrettable that fewer and fewer students chose chemistry as matura exam subject at middle level; however, the number of students taking advanced level chemistry has increased 15%, due the university entrance admission requirements including at least one advanced level exam. In this academic year the number of students taking advanced level exam in chemistry continued to increase, most likely due to the salary raise of physicians, where chemistry is one of the three subjects for admission exam to medical schools.

In this academic year the teaching has resumed to the normal personal form. However, the automatic quarantining of students in a class with an individual registered as Covid positive amidst its ranks created substantial difficulties. Therefore, the absence rates have substantially increased. Novel methodologies had to be developed, combining online and personal teaching forms.

A complex program that was started earlier to meet the special needs of talented and gifted children is still continuing. Several more projects, programs, organizations and institutions (new and established earlier) serve this purpose in Hungary and a national network of the individual efforts keeps working too. There were several calls for proposals and the schools could apply for grants to help their various programs, competitions, camps, visits to science museums or university laboratories etc.

3. Events in chemical education

The **18th International Junior Science Olympiad 2021** was held between 13-20 December, hosted by the Department of Chemistry, Faculty of Sciences, ELTE University. The competition was organized in a hybrid way, all three Hungarian competitors received silver medal.

The **European Olympiad of Experimental Science EOES** (for the age groups of 15-16 years). The EOES (European Olympiad of Experimental Science) is an annually recurring science olympiad for young people from the European Union, organised by a member country of EOES NPO. More than 20 countries each send two teams of three participants. These teams have to carry out two assignments, with an emphasis on skills in the subjects of biology, chemistry and physics. The competition was held in Czech Republic (Hradec Králové) 8-14. may 2022. Two Hungarian teams were awarded with silver medals.

For the **54th International Students Olympics in Chemistry** (IChO) the preparatory training was provided by the lecturers of the Eötvös Loránd University. The competition will be held in China (Tianjin) between July 8-18 2022, Hungary will be represented by a delegate of four.

The **56th International Mendeleev Olympiad** The International Mendeleev Olympiad for Schoolchildren in Chemistry (IMChO) is one of the largest competitions for high school students, uniting the winners of national Olympiad tournaments from around the world. This is the only subject Olympiad that UNESCO equates in status with the International Olympiad for Schoolchildren in Chemistry. The competition was held Tashkent, Uzbekistan May 9-15, 2022. The Hungarian participants came home with three medals - one silver, two bronze, and one recommendation.

5th International Chemistry Tournament The Chemistry Tournament is a team and quite creative competition. The host of the competition is the Eötvös Loránd University. The competition will be held in Hungary (Budapest) 16-21. of August 2022. Hungary will be represented by two teams of six.

Regional organizations of the Hungarian Chemical Society organized several competitions on chemistry and environmental sciences for students.

4. Activities of the national chemistry society

In this academic year the Hungarian Chemical Society also participated in organizing the following events:

HCS Chemistry Teachers Division jointly with the University of Debrecen organized the **54. Irinyi János Chemistry Competition** for secondary school students (that is the national Olympiad for age group of 15-16), but because of the pandemic the final round that was to be held between the 1-3. of April. Further details can be found on the following page: <https://www.irinyiverseny.mke.org.hu/>

HCS Chemistry Teachers Division jointly with the Eszterházy Károly University organized the **Hevesy György Chemistry Competition** for elementary school students in Eger, on 25-27th May 2022.

The **7th George Olah National Secondary School Chemistry Competition** was announced jointly with the Szent-Györgyi Albert College of the Budapest University of Technology and Economics. The final was held between the 4-5th of Marc 2021. <https://olahverseny.szasz.bme.hu/>

The Sárospataki Református Gimnázium jointly with the Hungarian Chemical Society organized and held the **XIX. Sárospataki Vegyész Napok** (19th Chemist Days of Sárospatak) between Marc 18 - 19, 2022. In this event the students presented and debated the results of their research work performed in addition to their compulsory chemical classes. The best presentations were honored with awards.

https://www.mke.org.hu/images/hirek/XIX_Orszagos_Diakvegyesz_Napok_Sarospat_ak_Felhivas.pdf

Dr. Kónya Józsefné Memorial Competition for writing essays with chemical subjects. The local committee of HCS announced for the **28th time** the call for elementary and secondary school students of Hajdú-Bihar county. 4 elementary school students and 5 secondary school applicants have been awarded. <https://www.facebook.com/Dr-K%C3%B3nya-J%C3%B3zsefn%C3%A9-Eml%C3%A9kp%C3%A1ly%C3%A1zat-118893175372790>

The Hungarian Chemical Society continued to support the participation of young chemists at international scientific conferences which were mainly organized online.

The Hungarian Chemical Society has maintained the website to help the chemistry teachers' work, see at the following link: <http://www.kemtan.mke.org.hu/> (in Hungarian). Its content is managed by the HCS Chemistry Teachers Division. The HCS member chemistry teachers also have a mailing list where we can discuss the most important subjects in that the teachers are interested in and send information about the various professional events. We improve the quality of the website regularly.

Due to the issue in the lack of future chemistry teachers and the situation of the subject itself, the Hungarian Chemical Society (HCS) holds the continuation of long standing conferences for chemistry teachers in high esteem. In 2021, along with the Eszterházy Károly University, as a consortium partner, together we organized the **"National Summer Training for Chemistry Teachers"**, an accredited continuous professional development for teachers. The National Summer Training for Chemistry Teachers will once again include a 30 hour accredited vocational training for teachers in the city of Eger, organized by the Eszterházy Károly University along with the Hungarian Chemical Society Chemistry Teachers' Division between the 23-26 of August 2021. http://mke.org.hu/EFOP_4_Campus_Program/kemiatanarok-nyarito-2021.html

The Science Research Centre of the Hungarian Academy of Sciences has organised a 'research camp' this summer again for talented students, called The tenth **"Curious Chemist "research camp** (between 26 June and 7 July 2022) (see its website in Hungarian here: <http://www.ttk.hu/aki/2022-aki-kivancsi-kemikus-kutatotabor/>)

Between the 1th - 5th of August we will held the **„Magical chemistry camp for talented youths"** in Pécs for the 14th time. Altogether 20 students participated in the program, ranging from grade 8th to 10th. Among the many programs the camp provided, the children were able to benefit from the laboratory exercises, field trips to factories and scientific presentations. Apart from the professional / technical events, the students were also working together in groups to solve different tasks, which they

presented to each other at the end of the week. (See its website in Hungarian here: <https://varazslatos-kemia-tabor.mke.org.hu/varazslatos-kemia-tabor-2022.html>)

5. Publications

Five issues of the **Chemical Journal for Secondary School Students (KÖKÉL)** (see website in Hungarian: <https://www.kokel.mke.org.hu/index.php>) were published. In 2021 its 48th volume was published, which aims at serving the teaching of chemistry across the entire breadth of public education. With our topics we approached the primary schools. With an expanding spectrum of topics KÖKÉL was published five times for chemistry teachers and students interested in chemistry. 18 students have been awarded with certificates and prizes at the beginner and advanced level competitions in problem solving and English/German language translation in 20. may 2022.

From time to time the **Journal of Hungarian Chemists** (see website in Hungarian: <http://www.mkl.mke.org.hu/>) publishes articles that are interesting for teachers and secondary school students too. Its special issue about the education in chemistry have been written and will be published in the following school year. The 76th volume of the Hungarian Chemists' Journal (Magyar Kémikusok Lapja) was published in 2021, the most recent articles are accessible on the recently updated website, at <https://mkl.mke.org.hu/>

Facebook'site : <https://www.facebook.com/kozepiskolai.kemiai.lapok> – 90921 visitors és 386 likes.

6. Liaison with the chemical industry

For the 21st time, the most prestigious award presented to teachers the '**Teacher Rátz Life Achievement Award**' took place on the 1st of December 2021. The award recognizes the extraordinary work done by teachers of different fields of science. '**Teacher Rátz Life Achievement Award**' was received by two chemistry teachers. For this prize current or previous teachers of biology, mathematics, physics or chemistry for 5th-12th graders can be nominated. The awarding ceremony was conducted in a hybrid way.

'**For Hungarian Chemistry Education Prize**' founded by Richter Gedeon Pharmaceutical Ltd awarded four chemistry teachers again in the autumn 2021. On October 20, 2021, four chemistry teachers were awarded the "**Hungarian Chemistry Education Prize**" for their outstanding professional work, in the Ceremonial Hall of the Palace of the Hungarian Academy of Sciences. Recognition is awarded to secondary school and elementary school chemists who, through decades of dedicating work, have contributed greatly to high quality vocational training and pay particular attention to educate, and cultivate chemistry, and to empower talented students.

7. International and European initiatives

The head of the HCS Chemistry Teachers Division received an invitation to the **15th ECRICE** conference at the Weizmann Institute of Science, Israel, July 11-13, 2022. Our division was represented by Dr. Luca Szalay.

8. Other events and activities

Hungarian chemistry teachers and university professors continuously help the chemistry teachers in Hungarian communities living and working beyond the frontier (in Romania, Ukraine, Serbia and Slovakia) with training courses, teaching materials and staff exchanges).

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