Asian Journal of Multidisciplinary Research (AJMDR)
ISSN: 2395-1729

CHANGES IN THE COMPOSITION AND STRUCTURE OF THE NATIONAL CURRICULUM OF CHEMISTRY IN IMPROVING THE QUALITY OF CHEMISTRY EDUCATION IN OUR COUNTRY

KHASANOVA SEVARA GIYOSIDDINOVNA
Head of Department, Republican Scientific and Methodological Center for the Development of Education, Republic of Uzbekistan
sevarax83@gmail.com

Annotation. This article discusses the efforts of our government to improve the effectiveness of natural science education in our country, establish high-quality chemistry education, develop students' natural and scientific literacy, and the reforms being carried out in this regard. It also provides information on changes in the composition and structure of the National Curriculum developed for the basic secondary education stage of chemistry, and changes in the organizational requirements of the educational process.

Keywords: Natural sciences, critical and creative thinking, chemistry, natural and scientific literacy, National Curriculum, chemistry teaching process, research skills, principles of green chemistry.

In the current period of rapid development, it is important to engage young students in science, to educate them as fully developed, well-rounded, and perfect individuals. Therefore, it is necessary to meaningfully organize students' free time in educational institutions, involve them in educational activities in academic subjects, and systematically improve the effectiveness of this activity. The basis for improving the education system in Uzbekistan is the Law of the Republic of Uzbekistan "On Education", which is aimed at forming a new generation of students with a high general and professional culture, creative and socially active, capable of independent thinking in socio-political life, able to set and solve future-oriented tasks.

In our country, special attention is paid to the intellectual development of students, improving their natural scientific literacy, and preparing the ground for the development of critical and creative thinking skills in the process of organizing high-quality and effective natural science education.

Asian Journal of Multidisciplinary Research (AJMDR)
ISSN: 2395-1729

The scope of reforms being carried out by our government to increase the effectiveness of natural science education is wide, and in particular, the Resolution of the President of the Republic of Uzbekistan No. PQ-4805 dated August 8, 2020 "On measures to improve the quality of continuous education and scientific efficiency in the areas of chemistry and biology education" includes measures to increase the share of practical exercises in natural science curricula in order to improve the natural scientific literacy of students, and to develop the level of knowledge of students in natural sciences as urgent tasks.

Ensuring the implementation of the identified priority tasks will further expand the opportunities for adapting the quality of teaching natural sciences to world standards, increasing the level of students' mastery and increasing their motivation to learn in them. For this purpose, a National Curriculum has been developed for chemistry, along with the subjects included in the Natural Sciences. The National Curriculum for Chemistry for the basic secondary education stage has been developed on the basis of state educational standards, and it serves to support the personal, mental and physical development of students.

Changes in the content and structure of the program

1. The National Curriculum for Chemistry has been developed separately for the basic (grades 5–9) and secondary (grades 10–11) stages of general secondary education, and the goals corresponding to the level of development of each stage and the learning needs of students have been clearly defined.

2. The program structure was improved, and the structural directions, methodological approaches, assessment system, glossary and applications were formed as coherent and interconnected sections.

3. All learning objectives were systematically developed within the framework of three main areas - content area, research activity and application of science, and they were aimed at the gradual development of students' acquisition of knowledge, scientific thinking and their ability to apply it in real life.

4. Learning objectives in the content area were systematized in the areas of "Matter and its structure" (Mt), "Properties of matter" (Mx), "Changes of matter" (Mo') and "Chemistry in a sustainable world" (Bd) and were set in a way that ensures consistent development for each grade.

5. In order to develop scientific thinking and research skills, research activities (mf, mr, to', bx) were integrated into the system as a separate direction, and students' scientific questioning, planning, information collection, analysis, and conclusion-

making skills were formed on the basis of spiral development.

6. Learning objectives were developed in each grade that reflected the application of science to life, consistently revealing the application of chemical knowledge in personal, social, and environmental contexts, and served to increase students' motivation to learn.

7. A total of 191 learning objectives were developed in the curriculum across content areas, research activities, and application areas, and clarity was provided for each content objective through explanations that supported student understanding.

8. Each learning objective was organized based on a single coding system, which allowed teachers to effectively organize the processes of monitoring, analyzing, and evaluating learning objectives.

9. The gradual development of learning objectives in grades 10-11 was expressed in a table format, providing a sequence of development that serves to consistently deepen students' knowledge and skills.

10. The content and levels of research activity were determined for each grade, ensuring a spiral development in accordance with the age characteristics and level of preparation of students.

11. The “Curriculum Scope”, “Work Plan” and “Instructions for the Teacher” were formed as a system of interrelated resources, and their joint use was aimed at ensuring the effectiveness of the educational process.

Changes in the organizational requirements of the educational process

12. The goals of teaching chemistry at the secondary stage of general secondary education were clearly defined.

13. The curriculum was aimed at educating students as curious, determined, responsible, independent thinkers and creative individuals.

14. The curriculum included “Organizational Requirements for Teaching” on the distribution of teaching hours, necessary equipment and safety.

15. In accordance with the principles of green chemistry, special attention is paid to the use of alternative substances instead of hazardous reagents, reducing the scale of experiments (micro-scale experiments), saving energy and resources, and ensuring environmental safety.

16. The requirements for the safe organization of practical work were consistently reflected throughout the curriculum. The requirements for conducting experiments under the supervision of a teacher, following safety rules, taking measures to assess and reduce potential risks in advance, and using personal

protective equipment were integrated into all relevant educational activities.

17. The curriculum was developed taking into account the principles of sustainable development goals, climate education, global citizenship, inclusion in education, and social equity.

In conclusion, it can be said that it is urgent to organize educational processes in all educational institutions in our republic based on the requirements of the time, introduce the most advanced innovative technologies into them, and thereby achieve the quality and efficiency of education. In this regard, the issue of developing strategies and tools that serve to develop students' competence in mastering natural sciences, stimulate creative thinking and the results of creative activity is of particular importance. The Decree of our esteemed President No. PF-60 dated January 28, 2022 “On the Development Strategy of New Uzbekistan for 2022–2026” and other regulatory and legal documents related to this area set out priority tasks aimed at improving the education system and thereby forming the creative qualities of students and young people, bringing them to a level that allows them to compete with the youth of developed countries of the world.

LIST OF REFERENCES

1. O‘zbekiston Respublikasining “Ta’lim to‘g‘risida”gi Qonuni. - O‘zbekiston Respublikasi Qonun xujjatlari to‘plami, 2020 y., 23-sentyabr.

2. O‘zbekiston Respublikasi Prezidentining 2022-yil 28-yanvardagi “2022–2026 yillarga mo‘ljallangan Yangi O‘zbekistonning Taraqqiyot strategiyasi to‘g‘risida”gi PF-60-sonli Farmoni.

3. O‘zbekiston Respublikasi Prezidentining 2020 yil 8 avgustdagi “Kimyo va biologiya ta’lim yo‘nalishlarida uzluksiz ta’lim sifatini va ilm-fan natijadorligini oshirish chora-tadbirlari to‘g‘risida”gi PQ-4805-son Qarori.

4. Rahmatullayev N.G. va boshqalar. «Kimyo fani yutuqIari va zamonaviy ta'lim texnologiyalarini amaliyotga joriy qilish rnasalaIari». Respublika ilmiy-arnaliy konferensiyasi maqolalari majmuasi. T., «Fan va texnologiyalar markazi bosmaxonasi». 2007.

5. Saparov K.A., Xasanova S.G‘. Organizing sciences in universal schools on the basis of innovative approaches. American Journal of Interdisciplinary Research and Development. Volume 23, December, 2023.

6. Khasanova S.G. Didactic And Methodological Principles Of Organizing Natural Science Education Based On Personalized Educational

Technologies // American Journal of Advanced Scientific Research (AJASR). Vol. 1 Issue 6, September – 2024, Pages: 42-44.

7. Omonov H.T., Mirvoxidova M. Kimyo metodoIogiyasi va metodikasining ayrim masalalari. O'quv qo'llanma. T., Nizomiy nornidagi TDPU, 2003.

8. Usmonboeva M.H., Sayfurov D.M., To’raev A.B. Innovatsion ta’lim texnologiyalari. O’quv-metolik qo’llanma. – Toshkent: 2015. – 208 b.