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Research Article

IMPROVING THE METHODOLOGY OF TEACHING CHEMISTRY LESSONS AT SCHOOL WITH THE HELP OF DIFFERENT GAMES

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ABSTRACT

Chemistry education plays a crucial role in equipping students with the necessary scientific knowledge and skills. However, traditional teaching methodologies often fail to engage students effectively, leading to disinterest and limited retention of information. This article explores the potential of incorporating different games into chemistry education to enhance the learning experience and improve students' understanding and retention of key concepts.

The integration of games into the classroom environment offers a dynamic and interactive approach to teaching chemistry. By leveraging gamification techniques, educators can create engaging and immersive learning experiences that foster curiosity, critical thinking, and problem-solving skills. Various types of games, including digital simulations, board games, and hands-on experiments, can be utilized to provide students with a multifaceted learning experience.

Digital simulations provide students with a virtual laboratory where they can conduct experiments, observe chemical reactions, and explore complex concepts in a safe and controlled environment. These simulations not only enhance understanding but also allow students to visualize abstract concepts, making learning more tangible and relatable. Furthermore, gamified elements such as achievements, leaderboards, and rewards can be incorporated to promote healthy competition and motivate students to actively participate and excel in their learning.

Board games designed specifically for chemistry education serve as valuable tools to reinforce knowledge and promote collaborative learning. These games encourage students to apply their understanding of chemical principles in a fun and interactive manner. By working together in teams, students can engage in strategic thinking, communication, and problem-solving, fostering a cooperative learning environment.

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KEYWORDS

Chemistry education, Board games, gamification techniques, leaderboards.

INTRODUCTION

Decree No. PF-134 of the President of the Republic of Uzbekistan dated May 11, 2022 "On approval of the national program for the development of public education in 2022-2026" and "Pedagogical education" dated June 21, 2022 In accordance with the decision PQ-289 "On measures to improve the quality and further develop the activities of higher educational institutions training pedagogic personnel, the 2-4 stages of higher educational institutions training pedagogic personnel are studying in the form of full-time education" in order to ensure that weekly training sessions for students in "4+2" order are carried out in pre-school and general secondary educational institutions, currently II, III, IV year students are involved in practice. I recommend the following points based on my many years of pedagogical experience in order to help these practical students closely in teaching school children.

THE MAIN RESULTS AND FINDINGS

In the 7th grade of secondary schools, chemistry is considered a new subject. In order to memorize the chemical symbols and atomic masses of the chemical elements in D.I. Mendeleev's periodic table of chemical elements, which are often used in chemical reactions (but not all), various games were used in order to prevent students from getting bored in class and to increase their interest in science. can be used. For example, the game "Card". In this game, the teacher writes the chemical symbols of chemical elements on cards made of cardboard (with aesthetic taste, of course). Then two students are invited to a "card game". In this, the 1st student separates one of the cards in his hand, tells the name and atomic mass of the chemical element written on it, puts it in the middle and throws it on the ground. and the 2nd student repeats the same action. If the student correctly says the name and atomic mass of the elements with their chemical symbols on all the cards in his hand, this student wins the game. Otherwise, he will lose the game. In this order, students will be able to memorize the chemical symbols and atomic mass of chemical elements, as well as the serial number of the periodic table. In this case, it is appropriate to evaluate the knowledge of students who have difficulty in verbally explaining the essence of the topic using this method. Students enjoy playing this game because they like different games.

As part of the study, the following hypothesis was put forward: if in the educational process we systematically, competently and purposefully use appropriate didactic games as a teaching tool in chemistry lessons, while relying on certain principles of their composition and application, also taking into account the content of the subject and the age characteristics of students, then one can expect more effective formation of students' learning activities and, as a result, better results in teaching chemistry.

In accordance with the hypothesis put forward and the purpose of the study, the following research objectives were determined: to conduct a conclusive study of the state of the use of didactic games in the teaching, development and upbringing of students, as well as to determine the attitude of teachers towards their use in chemistry lessons; scientifically substantiate and formulate the methodological foundations for the use

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of didactic games in the process of teaching a basic chemistry course: compilation algorithm, methodological recommendations and conditions of implementation, conceptual guidelines, a set of didactic games in accordance with the content of the basic chemistry course; to experimentally test the effectiveness of a system of didactic games in teaching a basic chemistry course.

To solve the assigned tasks and complete the work, general scientific research methods were used (questioning, analysis, comparison, interview, interviewing, study and analysis of scientific and methodological literature), special ones - pedagogical experiment, pedagogical observation and extensive testing of research results in school practice in the Saratov region. Mathematical processing of the experimental results and their methodological interpretation were applied.

The methodological basis of the study was the ideas of using games in the educational process (K.D. Ushinsky, V.A. Sukhomlinsky, A.S. Makarenko, L.S. Vygotsky, A.N. Leontiev, D.B. Elkonin, A. V. Zaporozhets, R. I. Zhukovskaya, O. S. Gazman, P. A. Rudik, E. M. Gelfan, S. A. Shmakov, N. P. Anikeeva, I. S. Yakimanskaya, M. G. Yanovskaya, etc.), as well as in the process of teaching chemistry (N.E. Kuznetsova, B.P. Bolotinskaya, E.G. Ogorodnik, T.K. Aleksandrova, V.E. Nefedova, Zh.V. Fedorova, E.R. Makarova, G.I. Shtrempler, etc.) the concept of school chemical education (G.M. Chernobelskaya, E.E. Minchenkov, I.M. Titova, P.A. Orzhekovsky, N.E. Kuznetsova, M.S. Pak and others), theories of the formation of systems of teaching aids and conditions for their use (S.G. Shapovalenko, Y.K. Babansky, M.N. Skatkin, I.Ya. Lerner, T.S. Nazarova, G.K.Selevko and others) and a systematic approach in pedagogical experiment.

It is advisable to use the game "Popka" to memorize the chemical symbol of chemical elements, atomic mass and order number in the periodic table. the student is required to memorize the name of the element, atomic mass and sequence number written on the pop. ladi Otherwise, it will be removed from the game.

In addition, it is possible to use the game "Damino" to teach students of the 7th grade how to create and balance the equation of a chemical reaction.

In this case, the teacher makes dominoes from cardboard (with aesthetic taste, of course) and the symbols of chemical elements are written on them. he should separate the written chemical symbols of the elements and make a reaction equation. For example, if one of the 3 students picks up a domino with Na, the second one finds an O2 domino, and the third student finds a domino with Na2O, the game continues $4Na+O2 \rightarrow 2Na2O$, otherwise the game ends. is stopped.

In addition, this game can be played with several students at the same time. In this case, it is necessary to write down the chemical reaction equation separately. In this case, students are divided into 4 groups of 8 students in pairs, and the order of the game is explained as follows. For example,

$$2Na+H2SO4=Na2SO4+H2.$$

If the students playing domino pick up the cardboard "damino stones" in this order, this small group is considered the winner. attention should be paid.

All the three games mentioned above are played by the students with interest and they can easily master the subject material required to be mastered in the subject. They will prepare it soon.

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If various games are organized and lessons are organized in this order, students will not get tired, their interest will increase, and it will be easier for them to master the material of the subject.

In order to successfully use didactic games in the educational process in chemistry, a set of 62 didactic games has been developed, different in purpose, form and timing, corresponding to the modern content of school textbooks and programs for grades 8-9, including on the topics: "Initial chemical concepts " (23 games), "Main classes of inorganic substances" (15 games), "Periodic law and the periodic system of chemical elements of D.I. Mendeleev" (24 games).

It has been experimentally shown that the scientifically based use of didactic games in teaching a basic course of chemistry makes it possible to influence changes in the leading motives for learning and the development of cognitive interests in the subject being studied, increase the level of learning and the reproduced amount of knowledge, as well as the quality and success of learning, while improving memory and attention.

Increasing the effectiveness of teaching chemistry by means of didactic games can be achieved if didactic games are used purposefully and systematically in the educational process, taking into account their classification, observing the step-by-step algorithm for their compilation and methodological recommendations for organization and implementation, which is confirmed by the results of a pedagogical experiment.

The study of the methodological foundations of using didactic games as a means of increasing the effectiveness of teaching chemistry is included in the training plans for chemistry teachers at Saratov State University. N.G. Chernyshevsky. We consider it appropriate to include methodological recommendations and developments on the use of didactic games in the curricula of other pedagogical universities.

CONCLUSION

Currently, the study of chemistry in school increasingly begins with propaedeutic courses. Taking into account the results of pedagogical research on the use of didactic games, we believe that the use of games in their courses will also contribute to the development of interest, more successful assimilation of the theoretical foundations of the subject, while avoiding overload of students

REFERENCES

1. REACTION OF 1, 1, 1-TRIFLUOROMETHYL-4-PHENYLBUTANEDIONE-2, 4 WITH BENZOIC ACID HYDRAZIDE KR Rasulovna INFORMATION TECHNOLOGY IN INDUSTRY 9 (3), 939-944
2. Methodology of the organization of the professional circle"Classroom teacher"in pedagogical higher educational institutions KR Rasulovna Jurnal of aeronautical materials 5 (42), 185-189
3. COMPLEX COMPOUNDS OF FLUORINATED B-DIKETONE DERIVATIVES WITH TRANSITION METALS
4. KR Rasulovna International jurnal of Early Childhood Special Education (INT-JECSE), 7948-7951
5. Sagdiyev M.T.,.Alimova R.A O'simliklar fiziologiyasi T.: Yangiyul poligraf service -2007.
6. Rasulov, A., Madjitova, J., & Islomova, D. (2022). PRINCIPLES OF TOURISM DEVELOPMENT IN DOWNSTREAM ZARAFSHAN DISTRICT. American Journal Of Social Sciences And Humanity Research, 2(05), 11-16.

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7. Matnazarov, A. R., Safarov, U. K., & Hasanova, N. N. (2021). THE STATE OF INTERNATIONAL RELATIONSHIP BETWEEN THE FORMATION AND ACTIVITY OF MOUNTAIN GLACES OF UZBEKISTAN. CURRENT RESEARCH JOURNAL OF PEDAGOGICS, 2(12), 22-25.
8. Rasulov, A., Saparov, K., & Nizamov, A. (2021). THE IMPORTANCE OF THE STRATIGRAPHIC LAYER IN TOPONYMICS. CURRENT RESEARCH JOURNAL OF PEDAGOGICS, 2(12), 61-67.
9. Nizomov, A., Rasulov, A., Nasiba, H., & Sitora, E. (2022, December). THE SIGNIFICANCE OF MAHMUD KOSHGARI'S HERITAGE IN STUDYING CERTAIN ECONOMIC GEOGRAPHICAL CONCEPTS. In Conference Zone (pp. 704-709).
10. Rasulov, A., Alimkulov, N., & Safarov, U. (2022). THE ROLE OF GEOECOLOGICAL INDICATORS IN THE SUSTAINABLE DEVELOPMENT OF AREAS. Journal of Pharmaceutical Negative Results, 6498-6501.
11. Nizomov, A., & Rasulov, A. B. (2022). GEOGRAPHICAL SIGNIFICANCE OF THE SCIENTIFIC HERITAGE OF MAHMUD KASHGARI. Journal of Geography and Natural Resources, 2(05), 13-21.
12. Rasulov, A. (2021). The current situation in the district of lower zarafshan plant species-eco-indicator. ASIAN JOURNAL OF MULTIDIMENSIONAL RESEARCH, 10(4), 304-307.
13. Sadikova, S., & Abdusabirova, L. (2022). MAKTABGACHA TA'LIM TASHKILOTLARIDA TASVIRIY FAOLIYAT TURLARI VA MAZMUNI. Science and innovation, 1(B8), 760-764.
14. Sadikova, S., & Sultanmuratova, Y. (2022). THE IMPORTANCE OF TEACHING STREET SAFETY TO CHILDREN IN PRESCHOOL EDUCATIONAL INSTUTIONS. Science and innovation, 1(B7), 1519-1521.
15. Nasreddinova, K., & Sadikova, S. (2022). FEATURES OF THE DEVELOPMENT OF PRESCHOOL CHILDREN IN A BILINGUAL ENVIRONMENT. Science and innovation, 1(B7), 1440-1444.
16. Sadikova, S., & Azamatova, D. (2022). PEDAGOGICAL INNOVATION CLUSTER OF ACTIVITY OF CENTERS IN PRESCHOOL EDUCATION. Science and Innovation, 1(7), 1138-1143.