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CHEMIST-CHILD! OR INNOVATIVE APPROACH TO THE DEVELOPMENT OF CHEMICAL WORLDWIDE IN CHILDREN

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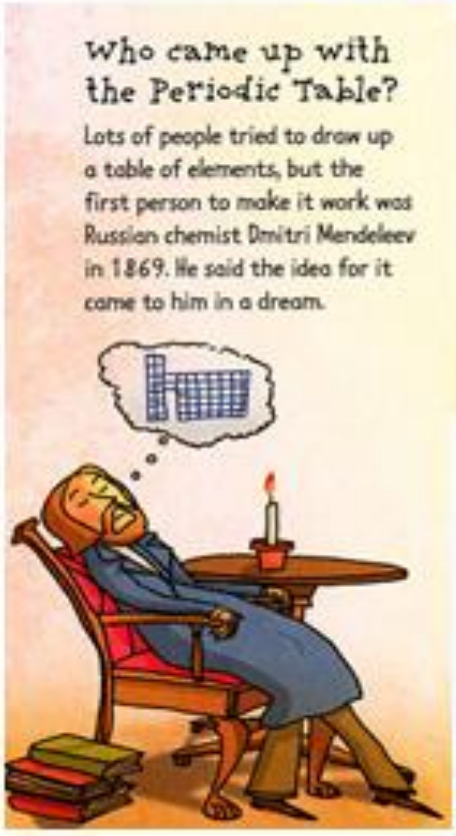
Annotation:
The article provides advice on how to increase the interest of primary school students in nature through the formation of chemical knowledge, and the importance of chemistry in their daily lives.

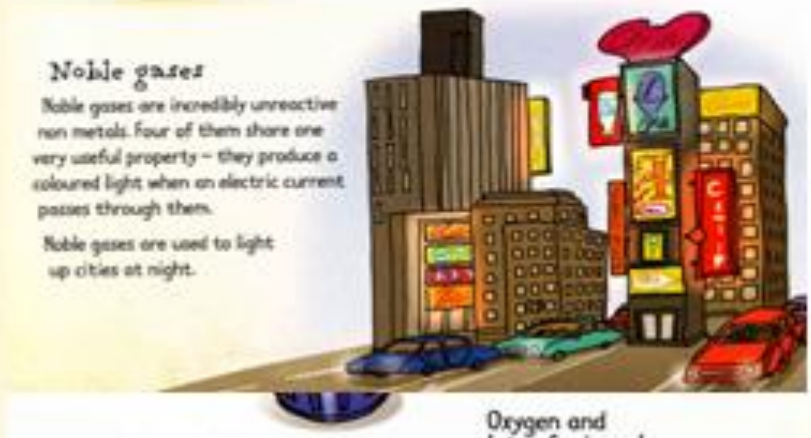
Key words: ChemKind, 3D technology, virtuality, children's laboratory room.

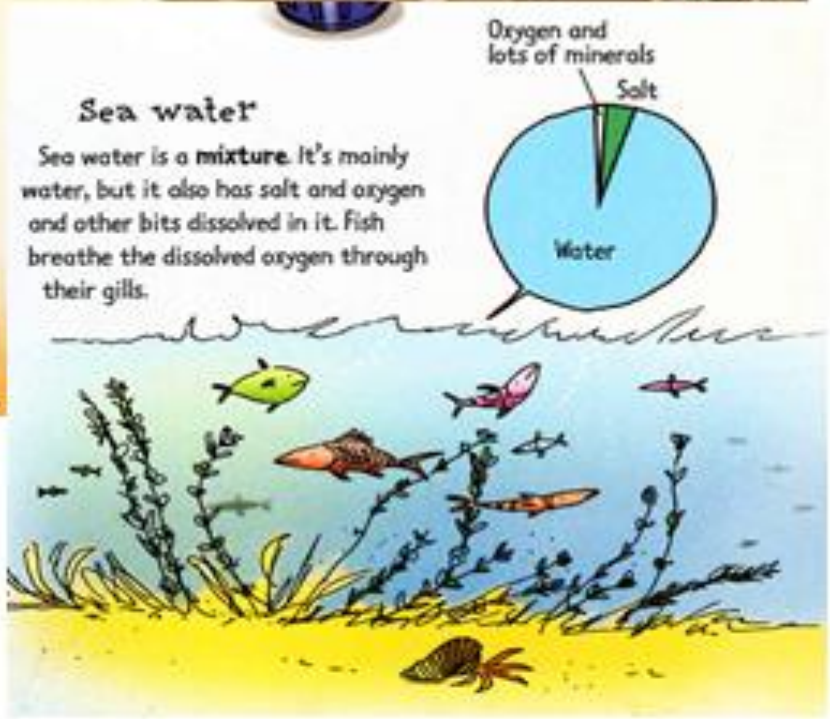
Advances in science and technology and information technology have made it possible to solve a wide range of new problems facing humanity.
Current changes in school curricula, the introduction of innovative technologies in the curriculum, the process of complicating the curriculum, the application of distance learning, didactics of person-centered and developmental education. Requires certain knowledge, skills, abilities, as well as psychological preparation and adaptation from the students themselves.
On August 12 this year, the President signed a decree "On measures to improve the quality of continuing education and scientific efficiency in the field of chemistry and biology." Improving the quality of education and the effectiveness of science has been identified as a priority.
It is also necessary to radically improve the quality of education in chemistry and biology, to introduce a completely new system of teaching these subjects in secondary schools, to provide educational institutions with modern laboratories, textbooks and other teaching equipment, Involvement of qualified teachers and trainers in these areas, training and close interaction and cooperation between the fields of education, science and industry in the use of scientific results attention.
In order to ensure the implementation of this decision, it was determined that it is expedient to teach chemistry in secondary schools from the time when the worldview emerged in children (primary school). First of all, it is necessary to organize the effective implementation of the following recommendations in secondary schools:

1.To organize "ChemKind" extracurricular chemistry clubs for grades 1-4 of general secondary school, as well as to organize their work effectively. It involves teaching children interesting facts related to life; For example:

Do you know what chemistry is about?







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2.Development of innovative electronic textbooks and literature for grades 1-4 of secondary school, such as "What is Chemistry", "Do you know its composition", "Chemistry and the world around us", "Virtual Chemistry Laboratory" has a great effect on the formation of the desired passion.

We've all heard about concepts like 3D image, three-dimensional graphics, and three-dimensional modeling that are all new to us today.

If we look at the modern film industry, architectural design and even education, we can observe real processes through various 3D special effects. When 3D technology is used in the teaching of chemistry in the organization of virtual laboratory classes, high efficiency is achieved in the teaching of science. The virtual chemistry lab rooms are created in a web environment and students are explained that the experiments can be performed as desired. Explosive experiments and experiments with toxic properties can also be performed in a virtual chemistry laboratory. (Figure 1).

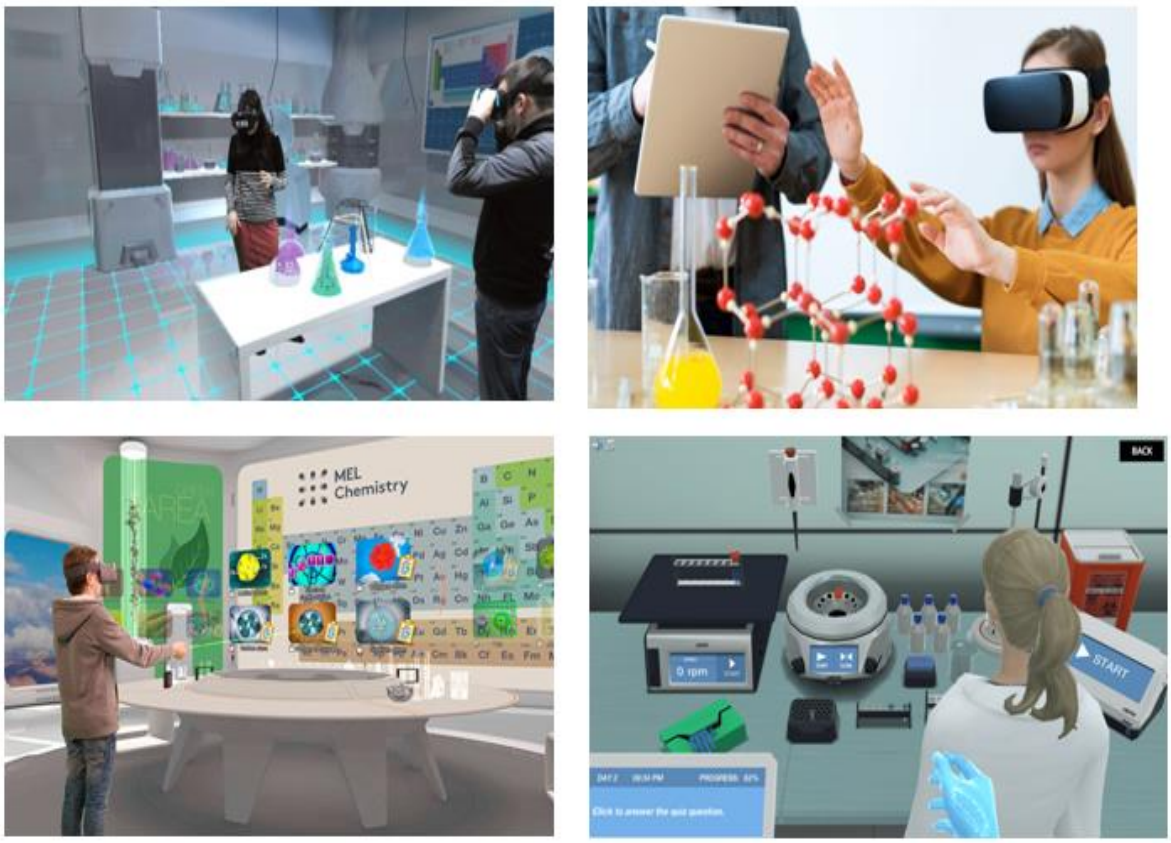

Figure 1. Chemistry room and chemistry laboratory reflecting the virtual being.

In the article we present another element of 3D technology, Nazzar.uz, which is now widely available. We want to talk about the program. Nazzar.uz is an innovative

program that can integrate elements of augmented reality into any material environment.

In this case, connect your Smartphone to the screen Nazzar.uz. when you point to the icon, the actual object image will appear on the Smartphone and will be filled with various effects. The static image in the media “comes to life” and the video becomes a piece.

The photos and images on the screen will be three-dimensional, allowing you to see them from all angles and from all angles. The audio is played using the user's Smartphone speaker. "Learn more" from the image will appear on the Smartphone screen while watching. With this service, we can monitor the movement of the molecules of chemicals.

It is advisable to use this technology to arouse the interest of primary school students in chemistry. In the study of elements, photographs of oxides, acids, bases, and salts, as well as their naturally occurring substances, give a vivid picture.(Figure 2).

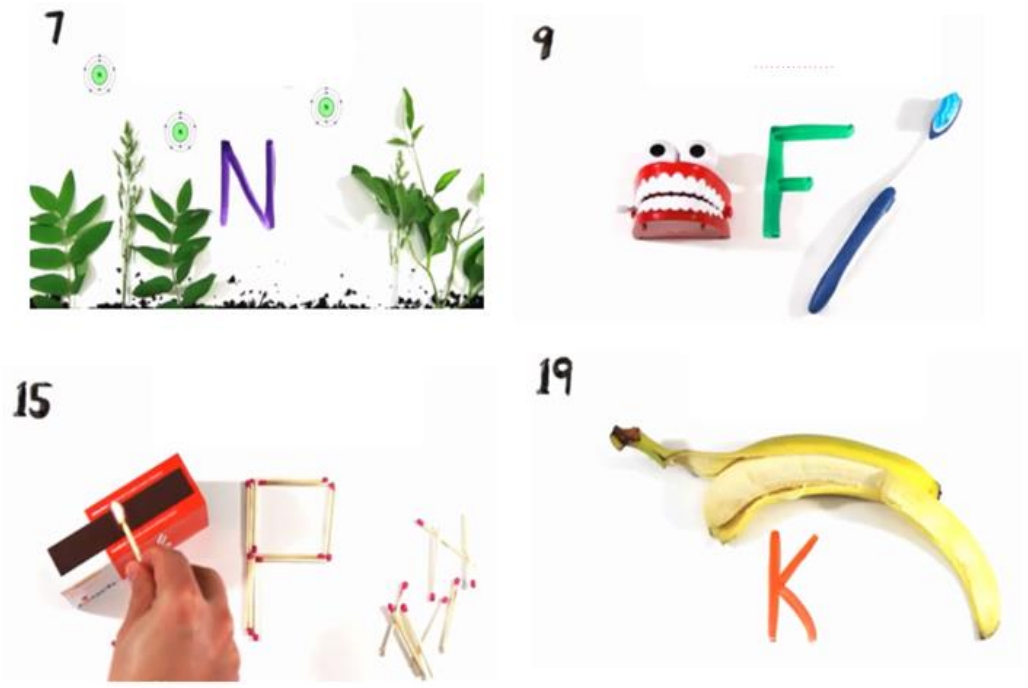

Figure 2. Nazzar. uz. Ability to see the movement of elements through the program

3. Preparing students for the next stage by organizing various competitions "Students of Mendeleev" among students interested in chemistry between grades 1-4 of secondary school also instills in students a love for chemistry.

As an example, the following questions can be prepared:

• How many chemical element symbols and atomic masses can you write?
• Explain with real-life examples the importance of chemistry in everyday life.
• What substances do you know about?
• In what substances are elements found?
• What is water? What is salt?
• Are you in a chemistry lab? What would you do?

In conclusion, we would like to emphasize that if the process of studying chemistry is formed from the primary school using the above programs and recommendations, students will develop passion, love and interest in chemistry. It is no secret that school Students' opinions on chemistry in the course of research among students:

• Chemistry is a very difficult science - (92%)
• Chemistry is not interesting - (56%)
• Chemistry is not well taught - (80%)
• Chemistry experiments are not performed - (90%).

We need to explain chemical knowledge to students from the beginning of the primary school with real-life examples in order to change their way of thinking. The results will change significantly in the upper grades. Chemistry will be taught in secondary schools from the 7th grade. Until then, most students will be able to determine their major. There will be very little interest in chemistry.

If the learning process is organized using the programs recommended above, students will gain a deeper understanding of chemistry, which will increase the quality and effectiveness of education.

It is also important for today's chemists to create a virtual 3D space of e-learning environment in general secondary education, to organize virtual chemistry laboratories, to organize the educational process in this environment and to improve the quality of education.

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