дыхания, соблюдение принципов, плавность выполнения упражнений – обо всём этом нужно помнить во время занятий.

Заключение

Подводя итоги сказанному выше, и опираясь на богатый опыт различных инструкторов по пилатесу, можно резюмировать следующее.

Занятия по системе пилатеса тонизируют мышцы, развивают равновесие, улучшают телосложение, помогают справиться с болями в спине, развивают дыхательную систему. Упражнения разработаны с акцентом на развитие мышечной сипы, в особенности на укрепление мышц пресса и спины, улучшение гибкости и подвижности в суставах.

Как никакая другая, программа по пилатесу помогает развитию позитивного мышления и борьбе со стрессами. Пилатес учит сознательному контролю над выполнением движений, самоконтролю, умению ощущать свое тело, воспитывает легкость и грациозность. Эти навыки наиболее актуальны именно для студенческой молодежи, поскольку они необходимы в напряженной жизни учащегося, а без должной тренировки их легко утратить.

В учебном расписании рекомендуется введение как минимум двух занятий в неделю по 2 академических часа каждое. При этом студент также будет обязан отработать ряд упражнений дома, тем самым приобретая навыки правильной самостоятельной тренировки по системе пилатес.

Привлекательность метода пилатеса состоит в получении удовольствия от занятий, а не в изнуряющей тренировке, нередко приносящей боль и дискомфорт. В системе пилатеса большое значение отводится психологической установке на настойчивость в достижении цели и вере в положительное воздействие методики. Таким образом, качество целеустремленности во время занятий прививается студенту и постепенно становится частью его личности. А раскрытие собственного потенциала начинается с веры в свои возможности и преследования цели постоянного физического и умственного самосовершенствования.

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STEM- ПОДХОД В ОБУЧЕНИИ ХИМИИ ПО ОБНОВЛЕННОМУ СОДЕРЖАНИЮ ОБРАЗОВАНИЯ

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STEAM - AN APPROACH TO TEACHING CHEMISTRY ON THE UPDATED CONTENT OF EDUCATION

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ABSTRACT.

This article solves the problem in the framework of the state program of development of education and science for 2016-2019, provided for the implementation of STEM Education. To implement the new educational policy, it is planned to include STEM elements in the curriculum, which are aimed at the development of new technologies, scientific innovations and mathematical modeling.

Almost none of the existing school programs in chemistry pays enough attention to the quantitative experiment STEM. In practice, only individual chemistry teachers use, and the emphasis is usually shifted to extracurricular activities of students, in particular, the organization of project work, field research, elective courses and circles. Thus, there is a contradiction between the classical quantitative chemical experiment and at the same time

almost unclaimed, didactic potential of digital laboratories and the need to increase the cognitive activity of students, awareness of their knowledge of chemistry.

Particular attention is paid to the possibility of using the Pasco digital laboratory in the study of natural Sciences, as well as the use of ready-made applications for the development of creative thinking and creating your own learning scenario, such as Storyboard That. The author developed and adapted laboratory work using the PASCO tool, created a methodical case of practical work on the updated chemistry program for 7, 8 classes using various sensors in three languages: English, Kazakh, Russian.

The result of using the digital laboratory was the creation of an application by students in the Play market and AppStore applications chemicals.kz "3D map of Kazakhstan chemical elements", this application is also translated into various languages, making it available to a wide educational audience, and most importantly, it is planned to finalize, voice and can be implemented as an inclusive education

Ключевые слова: STEM, цифровая лаборатория, методический кейс, наука, практика, образование

Keywords: STEM, digital laboratory, methodical case, science, practice, education

Introduction

The teacher realizes the possibilities of STEM education so far, only through the subject and in the classroom and using various software and through the project activity, but the interdisciplinary integration is not sufficiently pronounced. First of all, I think it is necessary to prepare staffing on the basis of its discipline in the specialty STEM-teacher. Creation of STEM laboratories in each school with the necessary equipment and IT-support on the basis of integration.

The purpose of this work is how to implement the PASCO digital laboratory in the framework of STEM in the program of updated educational content of the Republic of Kazakhstan, under the conditions of extensive program material, and lack of time, introduction through the system of lessons and in project activities.

In the process of doing the work, the following used research methods were :

1. Theoretical: problem analysis based on the studied philosophical, pedagogical, psychological and pedagogical literature; analysis of theoretical studies and pedagogical experience on the methodology of the digital laboratory.

2. Empirical: pedagogical experiment; observation of the educational process; conversations with students and teachers; surveys, questionnaires to determine the problems of using a digital laboratory in chemistry classes; testing;

Experimental base of the research: Nur-Sultan Municipal Public Institution School-Lyceum №1 the total enrollment of students was 180 people.

The pedagogical novelty in the application of PASCO digital laboratories and the integration of educational resources bilimland.kz is the provision of students not only with equipment, but also with pre-prepared scenarios for performing work with the problem. The experiment itself, the observations, the readings obtained and the processing of the results should push the “researcher” to his discoveries, to build up a mathematical model unknown to him. The most important point in this approach is the final discussion of the results obtained, the collective analysis, the final conclusions. It is this approach that makes it possible to build a training system in which the maximum quality of learning is achieved, and the main point is the introduction of STEM into the program of updated educational content. Virtually none of the existing school programs in chemistry, the quantitative experiment does not pay enough attention to STEM. In practice, only a few chemistry teachers use, and the emphasis is usually transferred to the extracurricular activities of schoolchildren, in particular, to the organization of design work, field research, elective courses and circles. Thus, there is a contradiction between the classical quantitative chemical experiment and at the same time the practically unclaimed didactic potential of digital laboratories and the need to increase the cognitive activity of schoolchildren, the awareness of their knowledge of chemistry.

Hypothesis: improving the quality of knowledge in the classroom in the context of a chemical experiment using digital laboratories can be achieved if:

1. Students understand the capabilities of digital laboratories for researching substances and phenomena;

2. Digital laboratories are used to create a problem situation and its resolution in the conditions of student cooperation;

3. The use of digital laboratories ends with a reflection phase, during which students are aware of what knowledge they have gained and how this new knowledge has been gained.

To achieve the goal and test the hypothesis put forward, the following research problems were set:

Research problems:

1. Using the STEM approach through integration not by subject, but by topic (use of the SPARKvue application with educational resources Bilimland.kz)

2. STEM opportunities for the development of critical thinking, active communication in group work using Storyboard That, on this basis, the development of creative thinking in students, respectively, self-reliance and the development of success

3. STEM implies a combination of science and IT technology, so this paper addresses the issue of using various applications with the PLAY market and AppStor in project activities, that is, as an addition to the school curriculum.

The methodological basis of the study is:

The system-activity approach to the construction of the educational process (A.N. Leontiev, Z.A. Reshetova, E.E. Minchenkov).

The concept of problem-developmental education (V. V. Davydov, D. B. Elkonin, I. Ya. Lerner, etc.).

The practical significance of this study is to develop and successfully test the methodology for applying SPARKvue in chemistry lessons, which includes:

1. Development of a methodical case using

PASCO digital laboratories in the framework of the program of updated content in chemistry education

2. Methodical recommendations for the program of experiments using SPARKvue

3. Methodical recommendations for teachers and instructions in three languages: English, Kazakh and Russian

Results and conclusions:

The study and analysis of the experience of foreign countries have shown that modern information technologies and digitalization of industries production, economy and other spheres of human activity have become initiate the development of STEM education as a necessary platform for mastering new technologies.

1. The capabilities of STEM digital laboratories for carrying out a quantitative experiment are defined and a new approach to their implementation has been developed, which consists in the clash of students with phenomena and facts, quantitative measurements that require theoretical explanation; in encouraging students to compare, juxtapose and contrast the facts.

2. Problems arising from the use of CL were identified (the danger of switching students' attention from the phenomenon under study to interaction with measuring instruments; substitution of educational goals; reduction in the efficiency of independent work of the student, when all the "routine" calculations and constructions are performed by the computer; "black box effect" when it is difficult for the student to establish a causal relationship between the observed phenomenon and the graphs on the screen; the extinction of the “novelty effect”).

3. It has been established that the organization of independent cognitive activity of students using digital laboratotry is possible if the students understand how digital laboratotry can be used to study substances and phenomena; to solve the identified problem. The pedagogical effect is achieved when educational research is conducted in small groups and ends with reflection, during which students realize what knowledge they have acquired and how.

4. A methodological case for teachers and instructional cards for students for laboratory experiments using PASCO digital laboratories for grades 7–8 have been developed as part of the updated curriculum.

The stereotypes that have existed in society for a huge number of years give the image of a completely different teacher. In the best performances, this is a pretty, kind woman, who infinitely loves her students, “broadcasting” a lesson in a pleasant and even voice. And her monologue is aimed at encouraging students to think, the formation of children's morality and culture. All this, of course, is important ... The response from the words of the teacher, not all students receive. Only 10% of students can study with a book, 90% differently. Therefore, every teacher should be guided by these 90%. Time has changed, the speed of thought has changed, and the children themselves have changed accordingly. Therefore, the question arises: Why does the interest in learning disappear? How to teach children? How to increase motivation?

Analyzing the data obtained, it is possible to note the independence of students, their desire to partially search and research activities. The important point is that for most students the interest is not the result, but the process of activity.

At present, a chemistry teacher has the opportunity to use digital laboratories (DL) in their practice, which allow organizing a chemical experiment at a new level, moving from an exceptionally qualitative assessment of the observed phenomena to analyzing their quantitative characteristics, and studying the phenomena and properties of substances in a new way. Interpretation of the results of quantitative experiments plays an important role in the development of critical analysis of information, allows students to learn to compare and summarize, identify the most important and establish patterns, independently formulate a problem, put forward and experimentally test a hypothesis, draw conclusions; allows you to teach methods of knowledge. This approach is determined by the target requirements of the program of updated content of the Republic of Kazakhstan.

In the Republic of Kazakhstan, having a national educational system, mathematical education and education in the field of natural sciences (physics, chemistry and biology) have always been a priority. The study of mathematics as a compulsory subject begins the first class of a comprehensive school. The study of such disciplines as physics, chemistry, biology and computer science (from 1986-1987) are also compulsory for several years in a secondary school.

The importance of STEM direction for the system of secondary education of the republic is confirmed by the curricula, as well as the experience of the well-known in Kazakhstan and abroad Republican Physics and Mathematics School (RFMS, 1972), Nazarbayev Intellectual Schools of Physics, Mathematics and Chemistry and Biology (NIS, since 2009) and many other schools with in-depth study of mathematics and physics, chemistry and biology.

However, at present, a modern approach to the study of key items STEM direction looks very different, i.e. modern information society contributed to the emergence of a new, more adapted for use in life, a form of education that involves the integration of teaching mathematics, physics, chemistry, biology and engineering (software engineering, molecular genetic engineering, technical engineering and others) through available and possible scientific research. It is assumed that the integration of mathematics, natural sciences and engineering practices in combination with technological literacy contributes to an in-depth understanding of the problems and the presentation of prospects in the complex process of finding solutions. [p.160]

What gives STEM in teaching chemistry?

- integrated training on “topics” and not on subjects.
- Application of scientific and technical knowledge in real life.
- Development critical thinking and problem solving skills.
- increase self-reliance.
- Active communication and teamwork.
- Development of interest in technical disciplines.
- Creative and innovative approaches to projects.

● the bridge between learning and career.
● preparing children for technological innovation.
● STEM as an addition to the school program.

If you look at what STEM gives approaches in teaching chemistry, it complements and develops the current curriculum of the updated educational content, therefore, it began to be used in teaching practice, as an addition to the school curriculum, in project activities, in chemistry classes in 7, 8 grades.

The STEM approach to teaching is fundamentally different from the traditional methods of teaching accurate and natural science subjects. The fundamental difference between the STEM approaches is an integrated educational environment and interdisciplinary organization of the educational process. This methodology allows students to get a complete picture of the world under study and demonstrates the conventionality of the division of science into separate subjects. Students learn to use the achievements and information from one scientific discipline to solve problems when studying other scientific disciplines. This very modern educational methodology develops in students' creative thinking and the breadth of vision of the problem, which are necessary for solving scientific problems with many variables, and also focuses their attention on the real application of knowledge to solve existing problems.

The first approach is based on extensive experience in the study of individual STEM-subjects using the methods of problem-oriented learning, in which analytical concepts are applied to real world problems, in order to better understand complex concepts; **the second approach** involves the integration of STEM items in order to create a deeper understanding of their content, which will eventually lead to research and design and creative opportunities of students;

The third approach assumes that a multidisciplinary approach should prevail in STEM education, which uses integrativeness in learning STEM disciplines, as is done in real working conditions; It involves the introduction of innovations in the teaching methodology for each STEM subject, where, based on the integration of the concepts of science, technology, engineering and mathematics, they are transferred to one curriculum called STEM.

Thus, based on the analysis of the experience of a number of countries in the development of STEM education today, the following main approaches to its development can be distinguished, in particular, to the development of curricula and programs in STEM areas [1]:

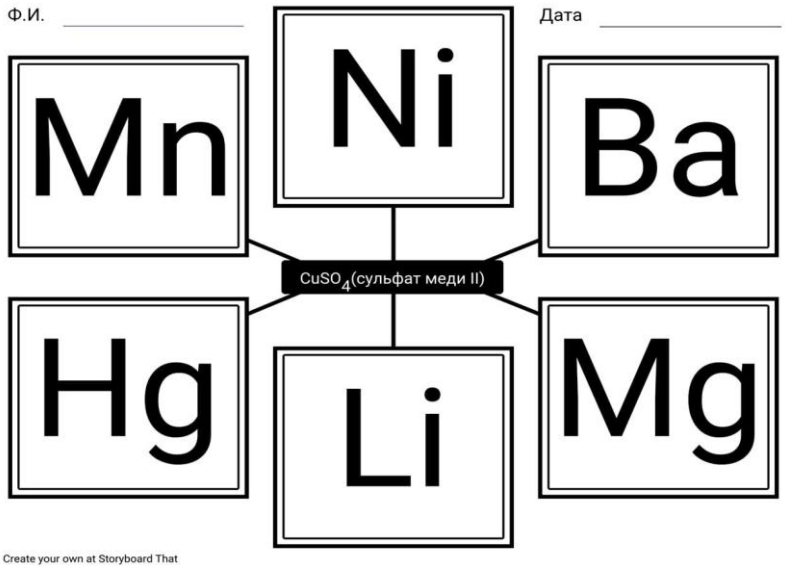
Storyboard that

The creators of the Storyboard that site are looking far ahead, and this does them honor. On the pages of the site, you can implement creative ideas for creating digital subjects and lesson plans for your classes, students will learn how to create their own diagrams, solve problems and lay the foundation for research methods.

To help teachers, we offer a graphic organizer that uses images to tell a story - a storyboard. Storyboarding is the perfect start for digital storytelling, creating graphic organizers and helping students visually enhance their learning. Storyboarding is a sequence of drawings that serves as an aid in creating projects. It helps to visually present the learner's vision of how to present information. The image will say more than a thousand words, and this is very useful as a basis for communication and the ability to convey the ideas of the project participants to the listeners.

These ready-made templates of storyboards, I used when repeating the theme "Alkans and cycloalkanes", the students really liked this format of the lesson, as the author and director are the students themselves, mainly in these storyboards their communication style is traced, which makes these storyboards understandable for all students (picture 1).

Picture 1
*A snippet of students ' work using **the Storyboard That** template*
Grade 11 theme: "alkanes and cycloalkanes"



Picture 2

Use in class 8 chemistry class

“The Interaction of Metals with Salt Solutions” **Storyboard That**

Spider map

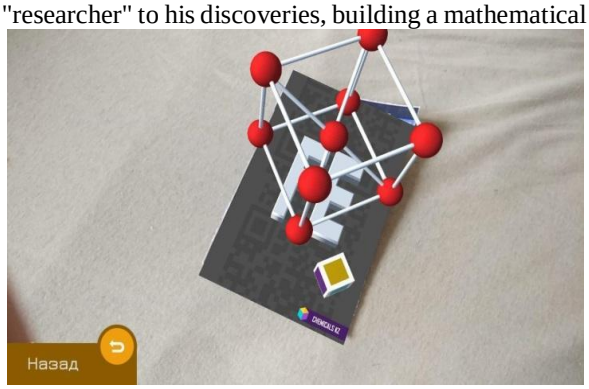
A spider map is a brainstorming or organizational tool that provides a visual basis for learners. Spider maps give learners the ability to record and organize their ideas. This map was used in the formative evaluation of the lesson, when studying the electrochemical series of metal stresses, various metals were given, and it is necessary to solve the problem first hypothetically whether the copper (II) sulfate solution can displace these metals, and then the students test the hypothesis put forward by chemical experiment, which allows to conclude in the correctness or error of their reasoning. This is the basis of the method of science, to prove or disprove the facts of the experiment. After that, students evaluate their own work and count the number of errors. This work allows students to evaluate their activities, and most importantly, to ensure the correctness of their reasoning, forms a situation of success for students. But there is a downside for this application, all these applications are commercialized, that is, after 14 days, you need to buy content.

Pasco

The experiment itself, the observations, the readings and the processing of the results should push the "researcher" to his discoveries, building a mathematical model yet unknown to him. The most important point in this approach is the final discussion of the results, the collective analysis, the final conclusions. This approach allows you to build a system of training, which achieves the maximum quality of training. In the development of this lesson used the integration of mathematics and chemistry, namely in the construction of line charts, as well as the ability to read these charts, combined resources Bilimland.kz and Pasco applications in the SPARKVUE AppStore, using a temperature sensor, to study the cooling and heating processes. The development of this lesson was a competitive selection of the first round in the competition "Teacher Innovator", organized by the educational company Bilimland in the Republic of Kazakhstan, which is engaged in the creation of various educational content. Various forms of research help students to see a lot of interesting problems for their own research, to get involved in the process of comprehension and discovery of new knowledge and revelations. The third direction of using STEM is the project activity of students, creating an application in the Play market and AppStore chemicals.kz "3D map of Kazakhstan of chemical elements" (Annex 4).This application can be used in the study of the topic: "Deposit of metal ores in Kazakhstan"Appendix 1

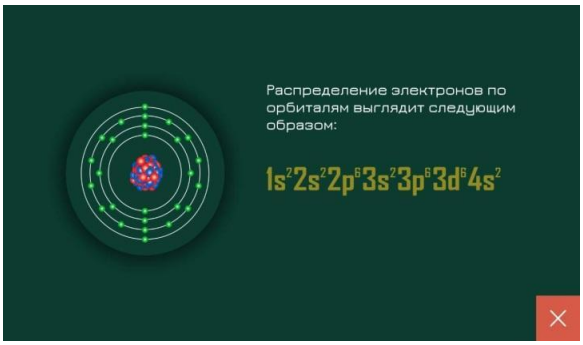
a) 3D format - crystal lattice of metals

b) Iron deposits in Kazakhstan



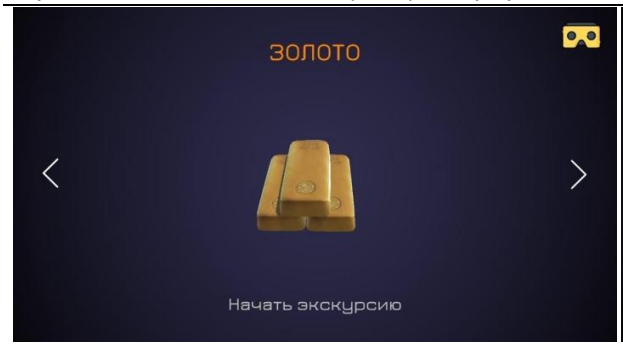
c) Electron configuration of metals and distribution of electrons by energy levels

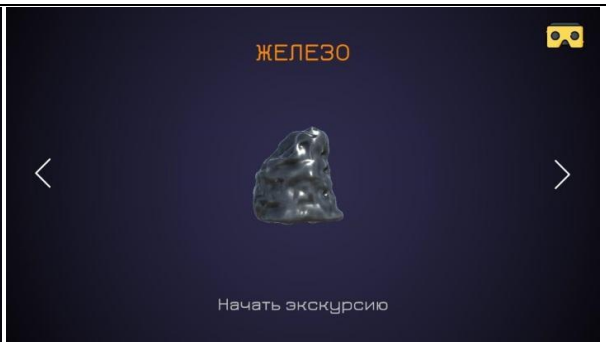
d) The main page on the screen about iron and iron deposits on the map of Kazakhstan



e) The appearance of gold ingot in 3D format

f) The appearance of a piece of iron





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THE IMPACT OF MOTIVATION ON LEVEL ONE AND TWO STUDENTS' PERFORMANCE

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ABSTRACT.

This research is empirical and descriptive. It will be based on literature review, observation, questionnaire and provision of recommendations. The data, which will be used in the research, has been collected at levels one and two. As regards the observation, several colleagues are involved in this process and have been interviewed at the end of the academic year. This research will have two variables. These are dependent and independent. Since, the research topic "The impact of motivation on Level One and Two Students' Performance" is related to the area of social science, these variables cannot be measured. In the experiment, the researchers are looking for the possible effect on the dependent variable that might be caused by changing the independent variable. Precisely, it is based on consideration of cause and effect relationships of factors, which contribute to the intrinsic and extrinsic motivation.

Keywords: Students' performance; intrinsic; extrinsic; motivation