



THE ESSENCE OF THE USE OF STEAM TECHNOLOGY IN THE TEACHING OF BIOLOGY

Karimova N.A

associate professor Tashkent State Pedagogical University named after Nizami, Uzbekistan

Rakhimova S

Student, Tashkent State Pedagogical University named after Nizami, Uzbekistan

Abstract

The article provides an extensive analysis of the introduction of STEAM educational, aimed at increasing the knowledge of students on the basis of new international experiences entering the educational system. Today, the introduction of STEAM technologies into the biological education system will radically change the attitude towards education, and the article will talk about STEAM technologies, which the future specialist should master, and their introduction into practice.

KEYWORDS

STEAM, biology, natural sciences, competence, STEAM competencies, approach, Interactive Information Communication.

INTRODUCTION

Since the Natural Sciences contain elements of interdisciplinary physiology, anatomy, biology, being available to schoolchildren in the classical scientific case, interactive informatecommunication technologies and applications are displayed in QR codes. These projects not only combined knowledge in biology, chemistry and mathematics, but also as hardened in the application of socially significant information in life. The STEAM approach is an effective tool not only in deepening knowledge in the process of teaching biology, but also in shaping students' new approaches to scientific and technological problems. The fact that the theoretical and practical knowledge of the study of biology at the moment is not at the same level is the reason for the decline in interest in science. The careful step-by-step removal of young people to the top is the painstaking, responsible, but extremely honorable high-gentleman task of every teacher. We educators will also have to create favorable conditions for each movement of students to be treated with responsibility and for the perfect person to become an expert in his profession. At the moment, the application of the STEAM program in the field of Education will be desirable for teaching.

STEAM - science-Natural Sciences , T-technology—Technology, E-engineering-engineering, a-art-ART, M-math-mathematics.

STEAM has integrated natural sciences, technology, engineering skills, mathematics, observing the further activities of its graduates in some schools as developed in America. So the STEAM system came up. Art(Art) was later added to it, and steam was shaped to the end.

The STEAM curriculum is based on the idea of teaching students using an interdisciplinary and hands-on approach. STEAM ilim allows the recipient to carry out project and study activities of young people at school and outside school.

STEAM education technology puts such tasks as taking a lesson in general educational schools with an approach to project activities from the classroom-lesson system, moving fundamental knowledge to functional knowledge, looking for new ways of solving problems at the intersection of science integration through the process of actively applying them in practice, directing them to discovery if necessary.

Steam-benefits of Education:

1. Integrating teaching by subject rather than academic subjects. STEAM education combines an interdisciplinary communication and design method, on the basis of which lies the integration of natural sciences into technology, engineering, and mathematics. In this, training for engineering-related professions is carried out.
2. Application of scientific and technical knowledge in real life. In STEAM education, with the help of practical training, children are shown the use of their scientific and technical knowledge in real life. In each lesson, students develop, develop, build and model models of modern industry.
3. Critical thinking is the development of skills and solving problems. The STEAM program develops critical thinking problem-solving skills that will be necessary to overcome the difficulties that children face in their daily lives. For example, children assemble a model of a speeding machine, and then test it. After the first Test, they think about its causes and find out if an unexpected result is not achieved. Balchim, the size of the wheels or aerodynamics may not be accurate. After each test, they eliminate the shortcomings.
4. Increased sense of self-confidence. Children go closer to their goal every time they build a bridge, start a car and a model of samality. In the end, they achieve their goal by overcoming all problems with their own strength. It means inspiring, winning and rejoicing for children. After each victory, they believe in 'Oz's forces.
5. Active communication and work in the team. The STEAM program is distinguished by active communication and work in the team. During the period of communication, a free environment is created for the statement of one's own opinion and for the conduct of debate. They learn to speak and give presentations. Children interact with their regular ' streaming classmates. Children actively participate in the process well remember the training.
6. Interests in technical sciences in education. The mission of STEAM education is to provide a framework for developing students ' interests in the Natural Sciences. Since STEAM training is very dynamic and fun, children will not get bored during training and will not notice how the time has passed.
7. Creative and innovative approach to projects. STEAM education consists of six stages of question discussion, design, construction, testing and development. These stages are the basis of a systematic design approach.
8. The bridge between education and career according to various assessments it is precisely STEAM knowledge that will be necessary in 9 of the 10 professionals who are currently the most demanding. Such professions include; Engineer - Chemist: engineers in oil; computer systems analytics engineers-mechanics, engineers-builders; robotics; nuclear medicine.

9. Preparing children for a technological innovative life. STEAM education prepares children to live in a technologically advanced world. Over the next 60 years, technology has developed rapidly.

STEAM is applied as an adjunct to school programs. The organization of STEAM training to give direction to students it is advisable to organize seminars, because in order to further improve the quality efficiency of education for the rise of our country, it is important to abandon old-fashioned traditional methods and organize classes using international methods. For the rise in education, we must first use textbooks with modern design and content from their programs, which can meet the requirements of today's international standard. In its place, it is advisable to use direct integration in teaching students the topics given in textbooks. The application of the STEAM approach in the process of teaching Natural Sciences is considered as one of the important innovations for the current educational system. This approach encourages students not only to limit themselves to theoretical knowledge, but also to actively participate in practical projects aimed at solving life problems. During the discussion, it is analyzed what benefits and problems the STEAM approach brings in teaching Natural Sciences.

In conclusion, compared to traditional teaching methods, the STEAM approach in high school encourages children to experiment, build models, independently create music and films, turn their ideas into reality and create the final product. This educational approach allows children to combine theory and practical skills in an effective way and facilitates university admission and further study. The STEAM approach is a powerful way to achieve effective results in Natural Science Education, and serves to prepare students to fit modern challenges and integrate interdisciplinary knowledge.

REFERENCES

1. Sabirova, F. Professional Competences in STEM Education / F. Sabirova, M. Vinogradova, A. Isaeva, T. Litvinova // International Journal of Emerging Technologies in Learning (iJET). – 2020. – № 14. – P. 179–193.
2. STEAM-uchitel – uchitel dlya budushchego. CHemu i kak uchit? [Elektronnyy resurs]. – Rejim dostupa: <http://stem.ort.org/onlineconf20-lector/>.
3. Arshanskiy, E.YA. STEAM-obrazovanie: ot modeli k prakticheskoy realizatsii / E.YA. Arshanskiy, N.S. Sologub // Adukatsiya i vychavanne. – 2020. – № 9. – S. 22–30.
4. Abjalova. M See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/349608205> STEAM ta'lim dasturi Presentation· February 2021 DOI: 10.13140/RG.2.2.28787.66084
5. Эргашева Г.С. Умумий ўрта таълим мактаб биология дарсликлари ўқув материалларини лойиҳалашнинг дидактик асослари. Дис” автореф. п.ф.н. – Тошкент, –2006. – 245 б.

