

MODERN APPROACHES IN EDUCATION AND ITS OPPORTUNITIES

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Abstract *The article will talk about modern approaches to education and the work that is being done on its capabilities, about integrative steam education in the teaching of physics and its practical significance.*

Keywords: *steam education, republic, methodology, evaluation programs.*

The main goal of modern education in our republic is to increase the intelligence of the nation by increasing students' understanding of the taught material. Competencies in our country since 2014, after independence on April 6, 2017, through the approval of the first "State educational standards of general secondary and secondary special education" and its processing, state educational standards, curricula and educational literature is constantly studied by comparing it with the educational and normative resources of developed foreign countries, and best practices are tested in practice, including the beginning and implementation of which is currently being implemented in the 7th and 8th grades, that the curriculum is developed taking into account the requirements and methodology of internationally recognized evaluation programs, in addition to the experiences of countries such as Singapore, the Republic of Korea, the USA, Hong Kong and Japan. The performance of these tasks depends on the ability of the teacher, because the teacher is the implementer and developer of the program. Although the teacher does not initiate the concept of the curriculum, he can be the translator of the curriculum, as well as process and structure the curriculum[2,3].

The teaching process and the results of students' learning are determined not only by the school, its laws, structure and curriculum, but also by the qualifications of the teachers who teach and guide most of the students.

Physics is one of the fields of science that scientifically studies natural phenomena and is presented systematically in order to develop students' thinking ability [1]. A deeper study of physics requires more constructive principles and understanding from students [2]. Expected learning models are student-centered learning, interactive, flexible, cooperative, group learning, developing the potential of each student, and critical thinking.

In order to master physics and increase its financial value, it is appropriate to use different approaches in the course of the lesson and to involve students in creativity. In the process of teaching physics, STEAM-education implies a mixed environment in which students begin to understand how to apply scientific methods in practice. In addition to mathematics and physics, the student of this program will be able to make different mechanisms used in consumption with his hands.

What STEAM education gives students:

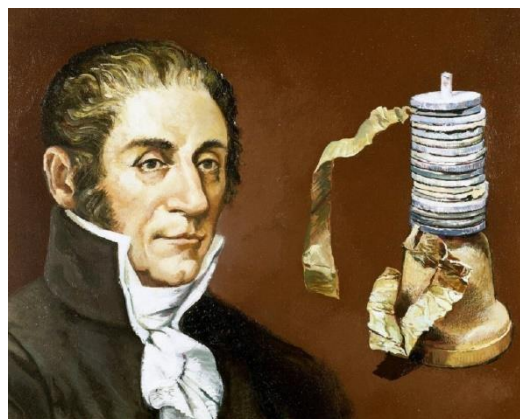
- Engaging children in STEAM. This education should start from preschool age, when future students take their first steps as technologists.
- Girls can do things that boys can't because of their discipline in Science.

- The lesson process should be organized in a high mood and the students should be an indirect participant, it should be an interesting and attractive task for the students.
- They make a practical performance of the learned topic with their own hands.

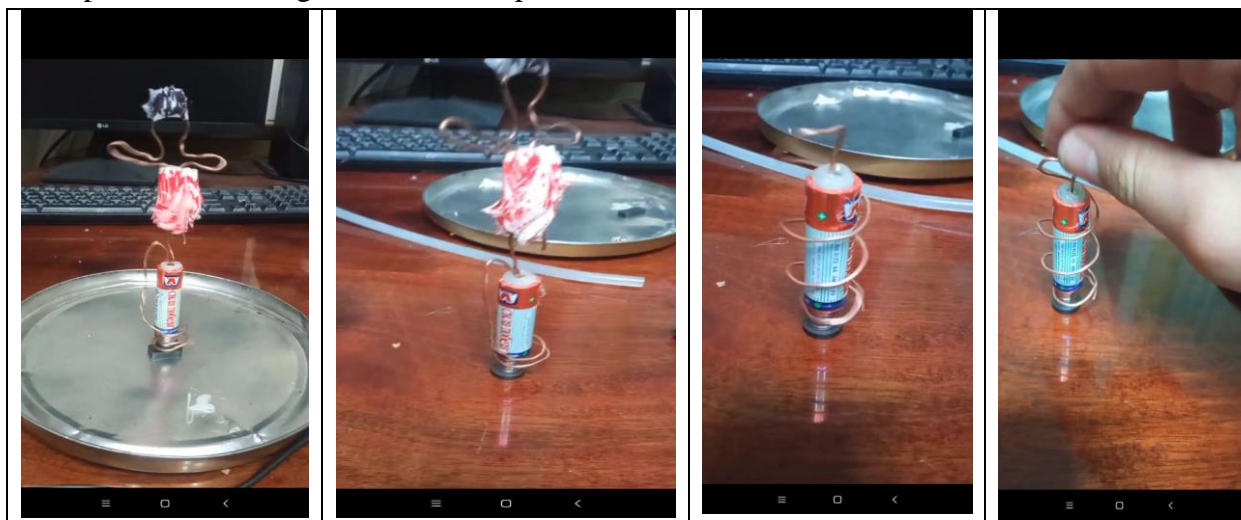
Based on the above considerations, it is appropriate to provide the following materials on the subject of "Power Sources" in the main part of the lesson, i.e., in the new topic description, in general secondary schools. The current source separates positively and negatively charged particles. Separated oppositely directed particles are collected at the poles of the current source and an electric field is formed between these poles. An electrophoretic machine is also a source of current. In it, mechanical energy is converted into electrical energy. When the electrophore disks are rotated, positively and negatively charged particles are separated, and oppositely charged charges accumulate in the poles, i.e., spheres. If the electric field inside the conductor is constant, the amount of charge passing through the cross section of the conductor in equal times is the same, and a constant current flows through the conductor. In order for a light bulb connected to a conductor to light up, it is necessary to have a source of regular electric current in the conductor - a current source. The flow of charged particles at a constant rate is called a constant current. A constant current source is a source that has a positive and negative pole and produces a constant current. Today we use different types of constant current sources. These include a galvanic cell,



battery, solar cell, etc. are examples. Galvanic cells Devices such as electronic watches, televisions, and car remote controls use galvanic cells as a source of electricity. The simplest galvanic element was first discovered by the Italian scientist Alessandro Volta. When A.Volta passes acid between zinc and copper rings, the copper ring becomes positively charged and the zinc ring becomes negatively charged. If these rings are connected by a conductor, an electric current will begin to flow through the conductor. In order to increase the current strength, Volta focuses on increasing the current strength by increasing the number of zinc and copper rings separated from each other by acid cloth. Thus, a simple current source is created. The separation of charges in this source is chemical occurs as a result of the reaction. Therefore, it is also called a volt galvanic element. Alessandro Volta (1745–1827) Constant current source, galvanic cell, batteries, electric circuit, electricity. In order for a light bulb connected to a conductor to light up, it is necessary to have a source of regular electric current in the conductor - a current source. Currently, there are various types of galvanic cells. To increase the power obtained from galvanic cells, they are connected in series with each other. Such a system of cells connected in series is called a battery of galvanic



cells [7]. Devices such as a computer (laptop), radio, television and refrigerator remote control are equipped with a battery of galvanic elements. Usually, galvanic cells are disposable current sources. The word accumulator means accumulator in Latin. Accumulators are widely used for various purposes. For example, it is used as a source of electricity to start the engine in cars, in submarines, and in satellites of the Earth. Accumulators are reusable power sources that can be recharged over and over again. Solar battery. Photoelectric plants are now widely used along with water, thermal, atomic and wind power plants. Photoelectric plants convert light energy from the sun into electricity. These stations do not pollute the environment. A device that converts light energy into electrical energy is called a photocell. All current sources have positive (+) and negative (-) poles, and current is assumed to flow from the positive pole to the negative pole along the circuit. Current direction is indicated. Therefore, different sources of electricity are used for electricity consumption. When using current sources, it is necessary to use electricity sparingly. We use simple physical experiments related to the topic to organize students' independent work. For this, we use the above galvanic elements. Copper wire and galvanic elements are needed for the experiment. Making the first self-experiment for students we will show.



Using this experience creatively, we can make multi-tools used in our lives. Below are the tools made by the students.



STEAM lessons increase students' interest in independent activities. For example: in physics classes, when studying the modeling of a device or its operation algorithm, the algorithmic ship-sequence software model is written on the board and explained, STEAM builds and launches rockets, airplanes, parachutes and strengthens their knowledge. Students do not always quickly understand terms that they have not seen or heard. We can see that they can easily understand these terms when they conduct interesting experiments in STEAM classes.

In conclusion, we would like to emphasize that, compared to traditional teaching methods, the STEAM approach in high school allows children to conduct experiments, build models, independently create music and films, and turn their ideas into reality. and drives the creation of the final product. This educational approach allows children to effectively combine theory and practical skills and facilitates university entrance and further studies.

REFERENCES

1. K, Smit, C. T. de Brabander, and R. L. Martens, 2014. Student-centred and teacher-centred learning environment in pre-vocational secondary education: Psychological needs, and motivation. *Scandinavian Journal of Educational Research*, vol. 58, pp. 695-712
2. Рахматов М. , Б. Зарипов Yangi O‘zbekiston Uchinchi Renessans ostonasida. -T: “Zamin nashr”, Toshkent 2021
3. I.V. Grosheva, L.G.Yevstafeva, D.T.Maxmudova, Sh.B.Nabixanova, S.V.Pak, G.E.Djanpeisova ”Ilk qadam” davlat o‘quv dasturi T: 2018. 1-81-b;
4. Sudarto, and A. Aco, 2018. The syntax of humanist learning science model based gender and optimization of the right brain - the left brain function of the learners with the TIMSS/PISA assessment type. *IOP Conf. Series: Journal of Physics: Conf. Series*. vol. 1028, pp. 1-6
5. A.L. Rudolph, B. Lamine, M. Joyce, H. Vignolles, and D. Consiglio, 2014.
6. Introduction of interactive learning into French university physics classrooms. *Physical Review Special Topics - Physics Education Research*, vol. 10, pp. 1-8