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Шабля В. Засоби формування компетентнісної особистості в інформаційному суспільстві у процесі вивчення фізики. *Освіта. Інноватика. Практика,* 2019. № 1 (5). С. 48-53.

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MEANS OF FORMING THE COMPETENCE OF THE PERSON IN INFORMATION SOCIETY IN THE PROCESS OF STUDYING PHYSICS

Abstract. *In the article from the position of realization of the competence approach to studying the problem of formation of the key competences necessary for each modern person for his life in the process of studying physics is considered. Proposed means of forming key Competences of students on the example of an integrated "tractor" lesson on the topic "Thermal machines. The principle of operation of heat machines. Cycle of heat machines. EFFICIENCY of heat machines. Tractor Engines".*

Ключові слова: *competence approach, life competence, problematic education, information technologies, interactive teaching methods, professional orientation of training.*

Formulation of the problem. One of the ways to update the content of education in Ukraine and align it with modern needs, integration to European and world educational spaces is the orientation of the educational process on the acquisition of life competences and to create effective Mechanisms for their implementation. Today's society needs young people who can operate in difficult situations, in the conditions of competition and conflict, rivalry and cooperation with representatives of the world community. In this regard, graduates of educational institutions must master such qualities and skills that would allow them to be flexible, mobile and sociable, adapt quickly to the variables of life situations and the needs of time, to be able to see and formulate Problem (personal, professional, public), find ways of rational solution, realize where and how the acquired knowledge can be used in the environment, be able to work with the information (to collect the necessary facts, To analyze them, to impose and substantiate the hypothesis to solve problems, to make necessary generalizations, to compare with similar or alternative variants of solution, to establish statistical regularities, to make reasoned conclusions, Use them to solve new problems, take care of your health, be responsible for your future and succeed in life.

Analysis of recent research and publications.. The investigation of the problem of forming the personality competence of the individual was engaged in a significant number of domestic and foreign scholars (a. Konapaka, O. Ovcharuk, I. Safonova, etc.). However, until today, the scientific approaches to shaping pupils ' life skills Not become sufficient development in the secondary school, therefore, the appeal to the study of this question consider it relevant.

The purpose of the research. The coverage of individual technologies of life competences students forming in the process of studying physics.

Presentation of the main research material. Physics as a teaching object, which influences the development of intellectual capacities, provides unique possibilities for forming of system thinking and competences of pupils. The competence approach in training is not the pupil's awareness in the first place, but its Skills based on self-acquired knowledge to solve problems that arise in different situations. That is why a number of practical tasks are being faced by the physics teacher:

- Formation of the pupils skills of an independent acquisition of knowledge;
- Organization of research works;
- Use of physical tasks of practical, economic and ecological content;
- The use of information technologies;
- Development of students ' health-saving skills;
- Formation of Civic and general cultural competences.

Consider ways to solve these problems by means of innovative learning technologies. "Everything I know, I know why this is what I need, where and how I can this knowledge apply" is the main thesis of a modern-day understanding of the *method of projects*. The significance of the method of projects for the student's development is the ability to use various research Methods: Collecting information, facts, ability

to analyze them from different perspectives, to nominate hypotheses, draw conclusions and generalizations. Skillful combination of *computer technology* and *Interactive* subject teaching methods give the desired result:

- -To make the lesson interesting, on the one hand, due to the novelty and unrelevance of this form of work for students, and on the other, to make it exciting and bright, varied in form due to the use of multimedia capabilities of modern computers;
- -to effectively solve the problem of clarity of education, to expand the possibilities of visualization of educational material, making it more understandable and accessible for pupils, to provide opportunity to search freely the necessary educational material;
- -Individualize The learning process due to the presence of multilevel tasks, self-study of educational material with the use of convenient methods of perception of information, which will arouse positive emotions and form positive Educational motives;
- -independently analyze and correct mistakes made, adjust their activities due to the presence of feedback, resulting in udoskonalûvatimutsâ skills of self-control;
- -To perform independent educational activity of pupils (modelling, project method, development of presentations, publications, etc.), developing creative activity.

It is advisable to use *game technologies* that allow every student to unleash their abilities, to be active, to gain confidence and their knowledge, to encourage learners to improve their knowledge. Examples Didactic of the game: "Physical football", "word-sentence-question-answer", "Find Error", "Auction of physical Tasks", "Virtual Shop", "chain", "Physical Domino", "Surprise", "Remove excess", "Find by description", "Yes – no", "Physical Mosaic", Solving crossword puzzles, rebeads, mysteries, explanations of the physical content of proverbs and proverbs.

An important place at the physics lessons is the *group work*. When learning many topics, students unite in groups: "Scientists", "historians", "sociologists", "experitors", "Practicians", "ecologists", "constructors", "Mechanics", "engineers" Who Prepare messages, presentations, qualitative, calculated and experimental tasks on the subject of performance. Often the pupils have uncertainty about the fulfillment of the tasks. A method "creating a situation of success" will help here.

Motivation of educational activity is advisable to carry out in the form of discussion of *problem situation*. Economic issues for the organization of problematic studies is effective. For example, "How to transport gas The most economical? ", and the study of transmission and use of electricity can start from the study of its losses in the wires of a certain length of different voltage values and, recalling a large network of power lines, should assess the possible loss of the state at Transmission of electricity. The students are then ready to answer the question: "What ways can we reduce energy loss and which are economically most advantageous?"

Common knowledge that physics is an experimental science. It is the *physical experiment* that provides the students with necessary practical skills, research skills and personal experience of experimental activity. By observing and performing the experiments, the pupils gain on their own. Knowledge. They feel like pioneers.

It is advisable to use *historical material* for emotional stimulation of training, formation of civic competence.

Solution of physical problems is one of the most important kinds of educational activity which promotes deep and meaningful assimilation of physical knowledge, development of intellectual abilities of personality. Own experience shows that formation of skills Solve tasks is one of the most difficult tasks of teaching physics. Therefore, the lessons are advisable to implement forms of work with the use of interactive exercises, such as "Brain Attack", the method of PRESS. Material consolidation is carried out by solving qualitative, experimental, computational and applied tasks that contain tasks that need to involve the experience of their own activities, close to everyday life and stimulate an active Fluency activity. The positive didactic result is involving pupils into such tasks. Consequently, the study of physics must have a pronounced application character, aimed at shaping life competences students. It is very important to constantly emphasize integration of physics with Mathematics, chemistry, Biology, economics, astronomy, etc. In solving the problems in physics, theoretical derivation of laws, formulas, processing experimental results widely used knowledge of mathematics (converting expressions, solving equations and systems of equations in different ways, building function graphics, research of it, application of derivative, integral, properties of exponential and logarithmic function, etc.); Chemistry (for solving the problems of electric current in liquids, problems of molecular, atomic, nuclear physics, where the definition of atomic and molecular weight is used); Biology (Movement and force, the use of simple mechanisms in living organisms, physical features of adaptation of different animals to the environment, exposure to radiation, weightlessness, overloading on the human body, physical foundations of ecology, etc.).

Today requires the formation of the basis of economic thinking of pupils, which will allow them as rational consumers, effective producers, competent investors, future workers and employers, active participants of the world economy to accept Effective solutions. It is necessary to emphasize the special significance those applications of physics, which resulted in saving raw materials, fuel, energy. Thus, considering the phenomenon of friction, we can not restrict the mere konstatacìêû of the fact of a significant reduction in friction when using ball bearings, it is necessary to show what it benefits (for example, on the rail bearings slide in the wagons are replaced Ball bearings, which reduces friction and reduces the necessary for the movement of thrust power, which, in turn, leads to a decrease in the cost of diesel fuel in electric locomotives or electric power.

Students are not always able to *work with the textbook* at the proper level.. therefore, it is necessary to teach the student that work with the textbook consists not only of "I read", but also with: "I understand"; "I have remembered"; "I can apply this in practice."

The basic principle of teaching physics in vocational educational institution is the principle of *professional orientation of physical Education*. The knowledge of basic fundamental laws and their application in professional Orient in technology, technology (in their physical bases). In this case, one of the main tasks is to establish connections between the disciplines of professional-practical and natural-scientific training. In particular, the teaching of physics is an important close relationship of theory and practice that promotes the elimination of formalism in knowledge, approaches to future profession, provides practical skills that should help young expert to understand the production processes with which He will meet, confidently participate in the work and find the right ways to rationalize and improve the case he decided to devote himself to. It is the interrelation between fundamental and professionally aimed knowledge to promote the unification of physics with professional disciplines which are practical in the embodiment of which lessons can be *integrated*. One of these lessons is offered Your attention.

Topic of the lesson: Heat machines. The principle of operation of heat machines. Cycle of heat machines. EFFICIENCY of heat machines. Tractor engines.

The purpose of the lesson: to study the structure of heat machines, physical processes describing their work, the notion of efficiency of the thermal machinery (efficiency) of heat machines. Study structure of internal combustion engines, their classification and workflow, basic concepts and definitions, Main indicators of engine operation.

Create the search style of thinking, ability to compare and analyze, develop the ability to conduct research work using a computer. Nurturelogical thinking,attention and observation,visual and auditory memory.

Educate students in the ecological culture, respect for the chosen profession, interest in subjects on the examples of inter-subject connections, promote self-realization of pupils.

Lesson Type: Mastering new knowledge

Inter-disciplinary relations: Physics, Tractors, mathematics, informatics, occupational safety.

Equipment: computer, projector, interactive board, presentations, applications, textbook v. D. Syrotyuk "Physics" 10 class. Standard level.-K.: Genesis, 2018, textbook of A. F. Golovchuk «exploitation and repair of agricultural machinery: kn. 1: Tractors».-K.: Diploma, 2003

Epigraph lesson

The only way that leads to knowledge is activity. George Bernard Shaw

Lesson Progress

Lesson Stages	Methods and Methodical methods
I. Organizational Stage **Instructor subject "tractors".** Good day! Today we have a rather unusual lesson. We will combine two objects-physics and tractors, because the technique is a result of scientific discoveries. In the future, thanks to the knowledge gained, you will become professionals and will be able to improve the existing types of Tractors. **Teacher of physics.** For each stage of today's lesson, the statements of famous people are selected. And we begin with the words of Confucius "from that mood with which you enter a day, or in some case your progress depends, and possibly failures". So, let's start a lesson with a good Mood and get great results that you will record in the self-evaluation form that is in your workplace. You will get two grades: evaluation on physics and evaluation with the	Creating a positive psychological atmosphere in class. Presentation Teacher explanation

Lesson Stages	Methods and Methodical methods
subject "tractors". Each task is evaluated by appropriate scores. Sign the self-assessment form **Instructor subject "tractors".** Epigraph Lesson We did not accidentally took the words of George Bernard Shaw: "The only way that leads to knowledge is activity." Therefore, in order to give birth, it is necessary to work with texts, ideas, facts and get practical experience in finding knowledge both in physics and from Subject "tractors". **Teacher of physics.** Open the working notebooks in physics and write the topic "heat machines. The principle of operation of heat machines. Cycle of heat machines. EFFICIENCY of heat Machines ". **Instructor subject "tractors".** Open the notebooks with the subject "tractors" and write the subject of the lesson "tractor Engines"	Post a theme lesson
II. Checking your homework **Teacher of physics.** Molière said: «How Pleased to know that you have learned something. " Today, each of you will have an opportunity to make sure that in the previous lesson you really learned something. To check the correctness of the written homework (no460, no472 *) offer with the help of card-answers. If the task is done correctly, you put 2 points in the form, with errors – 1 point. If you have not completed a written assignment, then put 0 points. And now we will work with the exercise "continue the sentence". You will need to quickly, for no more than 10 seconds to continue the sentence. I'll begin, and you finish. (Evaluation: 1 point for correct answer). **Instructor subject "tractors". Answer** the question (slide). Write down the scores in the Self-evaluation worksheet .	The "imaginary Microphone" method with the role game elements Oral survey.
III. Updating of of pivotal knowledge **Teacher of physics.** Polish Proverb "bread does not fall from heaven-it is necessary to work". Now I will ask you to unite in 4 groups. Each group is receiving the task of conformity. The answers are recorded on the screen using an interactive pen. (Evaluation: The students of the group, who received the correct image, put 2 points in the self-evaluation form if mistakes-1 point were made).	Work in groups. Work on interactive whiteboard.
The IV.The lesson's goals and objectives. Motivation of educational activity **Instructor subject "tractors".** "When you you start the case, ask yourself," What should I do? "After the end:" What did I do? "Pythagoras. The purpose and task of the lesson Are reported. What unites these technical tools? (slides). Conclusion: Dthe interout for the tractor is as important as the heart for man.	The front conversation.
V. Learning a new topic. **Teacher**of physics. Heat and cold are two arms of nature, which it gives almost everything. Francis Bacon. Write in Notebooks Plan 1. Thermal machines, the overall structure, the principle of operation. 2. Cycle of heat machines. 3. EFFICIENCY of heat machines.	Outdoing Homework: Group "Historians"-to prepare the publication "History of the emergence and development of heat engines" Group "Physics"-presentation "Thermal machines" «Constructors» Group-«Classification of DIC, basic concepts and definitions»

Lesson Stages	Methods and Methodical methods
Instructor subject "tractors". "There Is Not enough only to gain knowledge, you must be able to use them" by Y. V. Goethe Write in Notebooks Plan 1. Internal combustion engines and their classification. 2. The working process of the four-stroke diesel engine. 3. The work of multi-cylinder engines, their advantages. 4. Engine performance Indicators	"Mechanics" Group-"working cycle of four-stroke diesel engine" The "engineers" group-"The work of multi-cylinder engines. Their advantages» "Analysts" group-"tractors of the Future". Students take turns acting as teachers in turn.
VI. Consolidation of the studied "Theory without practice is dead and sterile, practice without a theory is impossible". Rene Descartes. Solving of professionally aimed problems The task is 1. During the combustion of fuel in the diesel engine allocated the amount of heat 200 Kj, and refrigerators transferred the amount of heat 120 Kdzh. What is the EFFICIENCY of this engine? The task is 2. The tractor engine that has an EFFICIENCY of 30% is developing a capacity of 72 Kw. How much diesel fuel is required for 1 hour of tractor. Specific heat of combustion of diesel fuel $4.7 \cdot .10^7 \frac{Дж}{кг}$ **VII. Summary** of the lesson "The root of learning is bitter, and the fruits of his sweet." Aristotle. Did the lesson objective be achieved? Did all the lesson tasks work? Continue phrases: I learned... I understood... I consolidated... I repeated... I can apply this so... Evaluation of students ' knowledge. The students count the scores in the evaluation sheet and announce to the teachers, make an independent analysis of their work in class. Teachers put and comment on the evaluation. **VIII. Homework** "As a drop of the stone is not a force, but a frequent fall, so a person becomes a frequent student." Disterweg. **Teacher of physics.** Write down your homework. Study § 42, no461 tasks, no480 *, to prepare a presentation "the principle of operation of the refrigeration machine". **Instructor Subject "Tractors"** record your homework. Study Section 2, Questions and tasks 1-8 on p. 24 **Teacher of physics.** I would like To finish the lesson with the words of Spinoza: "If you want life to smile to you, give it a good mood first. We wish you always wonderful mood and conquering high peaks of knowledge. **Teacher subject "Tractors"** Thank you for the lesson. Good luck and new accomplishments! To meet!	"Brain Attack" method

Conclusions. In combination of various means of forming competences personality in informational society The main thing:

- Make the process of learning interesting and rational;

- Systematically define the practical orientation of educational material, implement modeling of vital situations;
- To combine mental, civil, moral, ecological, aesthetic and labor law education.

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ЗАСОБИ ФОРМУВАННЯ КОМПЕТЕНТНІСНОЇ ОСОБИСТОСТІ В ІНФОРМАЦІЙНОМУ СУСПІЛЬСТВІ У ПРОЦЕСІ ВИВЧЕННЯ ФІЗИКИ

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Анотація. *У статті з позиції реалізації компетентнісного підходу до навчання розглянуто проблему формування ключових компетентностей, необхідних кожній сучасній людині для її життєдіяльності, у процесі вивчення фізики. Запропоновано засоби формування ключових компетентностей учнів на прикладі інтегрованого уроку фізики та предмету «Трактори» з теми «Теплові машини. Принцип дії теплових машин. Цикл теплових машин. ККД теплових машин. Тракторні двигуни».*

Ключові слова: *компетентнісний підхід, життєві компетентності, проблемне навчання,інформаційні технології,інтерактивні методи навчання, професійна спрямованість навчання.*

СРЕДСТВА ФОРМИРОВАНИЯ КОМПЕТЕНТНОСТНОГО ЛИЧНОСТИ В ИНФОРМАЦИОННОМ ОБЩЕСТВЕ В ПРОЦЕССЕ ИЗУЧЕНИЯ ФИЗИКИ

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Аннотация. *В статье с позиции реализации компетентностного подхода к обучению рассмотрена проблема формирования ключевых компетенций, необходимых каждому современному человеку для его жизнедеятельности, в процессе изучения физики. Предложены средства формирования ключевых компетентностей учащихся на примере интегрированного урока физики и предмета «Тракторы» по теме «Тепловые машины. Принцип действия тепловых машин. Цикл тепловых машин. КПД тепловых машин. Тракторные двигатели ».*

Ключевые слова: *компетентностный подход, жизненные компетентности, проблемное обучение, информационные технологии, интерактивные методы обучения, профессиональная направленность обучения.*