

## PECULIARITIES OF PHYSICS STUDYING PROCESS ECOLOGIZATION

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Teenagers of schools are ready for acquiring ecological knowledge, as they have the certain stock of it in the foundation of science, sufficient life experience and understanding of environment. Side by side with it pupils have some elements of scientific thoughts: they can analyze, compare and conclude. Owing to this, they are provided with the ample opportunity of some ecological questions in high studying physics and at the same time pupils can extend their knowledge. Besides such way has a great influence on some reasons of studying ecology as teenagers can see practical applications of physics laws, process and effect.

As to teacher it's very difficult to make up ecological materials for the pupils which are in highly specialized and difficult of access publications. Therefore it's necessary to pay attention to the definite ecological questions connected with school's physics. The teacher must know the methodical studying and experience by himself. In the 10 grade it' would be better to give teenagers the following ecological knowledge's in studying molecular physics: interaction of society and nature in the conditions of STP; intercommunications of ecological factors ( humidity, temperature and others ) and it's effects on the biological system; consequences of changing  $t^0$  of the air, water, soil and climate; changing thermal balance of the Earth in connection with the changing  $t^0$  and pollution atmosphere; the main laws of thermodynamics in nature; heat engines and problems of environment; rational using of heat – energy resources; moist use of flu air, changing and influence on the living system; surface tension of liquid and its role in nature.

The teenagers imaginations about biosphere as the integral planetary form let them understand and learn atmosphere and its building as the elements. Each pupil mast understand all the elements of biosphere connected with the complicated rotations of matter and energy in it, which are conditioned by changing  $t^0$  and explained by the laws of thermodynamics. Especially it's clear the state of changing planet depends on the two main facts: natural and artificial connected with the man's actions.

Nowadays anthropological facts have a global character. Their influence may be as direct as indirect. For example it may be shortness area, a lot of roads, cities, plants, industrial establishments are growing. It's sometimes very difficult to point the cause of changing environment because of direct influence on it. For example, to the direct we can have flu changing of the air, soil as a result of traffic's work, chemicalization of agriculture.

It's necessary to form understanding of pupils successively that the physical ideas are found up with chemical and biological facts and are impotent parameters of natural environment.

In the 10<sup>th</sup> grade they are considered the heat engines and the problems preservation of surroundings. In the 8 grades these problems were considered later. To come closer to these problems in the 10 grades it's necessary to use some scientific and applied research taken in both our places and abroad. In spite of taking measures of warning and lowering of pollution atmosphere, this problem is still main and sharp let's see some physical and chemical ways of lowering pollution: to achieve the burning of fuel in the way of taking alcohol which protect the oxidize of carbon; neutralization of toxic components where unhealthy matters change into the products, not harming man; the economy of fuel; cathodic neutralization of exhaust gases.

By learning electrodynamics it's necessary to get to know teenagers with the following main ecological questions: the electrical field and its influence on the vegetable kingdom and animal world; getting and rational using of electric energy, its advantage from the ecological point of view in contrast with the others ways of energy; using the electric current in the national economy, the electrification of industry and agriculture; meaning of atmosphere electricity in our life, as the source of energy; water and air cleaning by the electrofilters; the Earth's magnetic field.

The main new ecological ideas are growing in the 11 grades. Teenagers can learn a great number of some important physics factors and parameters of biosphere: scale of electromagnetic waves; electromagnetic field; lightness; natural and artificial radioactivity, pollution of environment by the radioactive materials. By studying physics in schools teenagers learn the following information's: about the permissible norms of different parameters for our living nature; about some causes and factors favoring the pollution of biosphere; about rational using of nuclear energy; about doses radiation and biological protection; about searching for the new sources of energy; about some physical methods and protection of the polluted environment.

On hearing chemical actions of light, it will be useful to remind flu pupils about photosynthesis from botany and biology. Having given some special lectures and checked up their knowledge's in these subjects, it's necessary to see the following questions: intensity of the sun radiation; action of the sun radiation on the living organisms; some ecological groups of plant, its influence on the light and its special orientation in the man's and animal's life.

With of view to protect the atmosphere it's necessary to point out the following analyses we can say, that owing to the development of astronautics for the last time the spectrum analysis has become one of the main methods of learning the air cover the terrestrial globe.

The pupils must know, that with the help of piloted space ships and orbital stations we can register the Earth's spectrums of day and night, pollution of the atmosphere at different altitudes

and regions. Owing to these information's we can learn the atmosphere forecast and take measures against pollution and to solve a lot of ecological problems.

On collecting some ecological materials for learning "Quantum physics", it's necessary to know that nowadays there are a lot of men having professional contact with the radioactive materials. Nevertheless there are a lot of technological processes of getting and using nuclear energy, which is very dangerous for our life and environment. In addition to it the nuclear and hydrogen weapon test is formed a new unregulated factor which has a great influence on the Earth's biosphere. You see how important for the younger generation to have a clear view of the situation on our planet, how dangerously it is for our nature, life and future. Our planet will die if we don't take precautions. The teenagers must know that the dangerous of radioactive pollution of the air is in two causes: as a result of nuclear and thermonuclear explosion; if we have a lot of waste nuclear products.

When examining the following materials about physical nature it's necessary to tell about some mechanical and biological actions with ionize the radiation, about medical-hygiene conductions. So the pupils must have an idea of the following: about the perspectives progress of energy on the basis of using nuclear fuel; polluted air, water and soil by the radioactive materials as a result of the natural processes in nature; about prevention of radioactive materials in the environment. It should be noted that the radioactive pollution of environment is the most dangerous, as a half-value period of some radioactive materials is the greatest and there are collected in nature. Nowadays the most part of liquid waste products are thrown into the rivers, lakes and seas. But hard ones are put into the special containers, which sent to the bottom of the ocean. For the right imagination of picture using of nuclear energy and educated ideas the pupils should be told about useful and peaceful using of nuclear explosion in the national economy: for the intensification of getting natural gas and mineral oil; for the building underground depots for the mineral oil's products and gas; for the foundation of ore deposit; for the liquidation repair gas and oil – gushers and the others ways of nuclear energy.

Ecological knowledge we can generalize at the final lecture on the theme: "Physics and scientific-technical revolution". There is the following information in it: the scientific-technical progress, nature and amen; the peculiar relations between the man and environment in conditions of STW; the problem of getting energy and conservation of the energetical resources; mechanization and automation of the national economy; the methods of modern monitoring of environment. So you see we've shown you some contents of ecological education in school's subject of Physics. Our point of view is the content of school's materials and pupil's actions must be in a close intercommunication for successful solving tasks of forming ecological ideas and knowledge's in the pupils study in physics.