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Zh. K. Dyusembina, S. Halelova¹Eurasian national university named after L. N. Gumilev, Astana;**ECOLOGIZATION OF EDUCATION AS A BASIS FOR
THE FORMATION OF ECOLOGICAL COMPETENCE IN STUDENTS**

Abstract. The experience of recent decades indicates that attempts to stop the onset of the global environmental crisis using economic measures do not succeed for the reason that the mass the consciousness of mankind is based on consumer attitude towards nature. Therefore, without a new system of views on the world and human's place in it, the future generations, as a species are doomed to physical and spiritual destruction. Solutions to environmental and social issues, both global and regional nature are possible only if a new type of ecological culture, ecologization of education in accordance with the relevant needs of the individual and civil society. A significant role in education which is associated with the problems of environment belongs to a secondary school where the principles of science are studied, on the basis of this higher culture of relationships with nature is formed. At the present stage, the main task of environmental education and education of pupils is to overcome students' utilitarian consumer attitude towards nature, in the formation of responsible attitude to it in connection with all aspects of consciousness: scientific, ideological, artistic, aesthetic, moral, legal, which form the basis of scientific worldview. Nowadays the formation of ecological culture of pupils faces a number of difficulties. As at the school ecology is interdisciplinary science therefore teachers of basic sciences often do not pay enough attention to it, considering ecological material in their lessons as additional, illustrative, and as the result is not obligatory and of minor importance

Keywords: global environmental challenges; ecologization of education; environmental disaster zone; critical condition; formation of ecological competence.

Problems of ecology in the modern era take on greater and greater importance. The relationship between society and nature is complex and contradictory. The development of the productive forces of society, technologies of various industries, knowledge and skills of people has led to an increase in their influence on nature. However, over time, humankind increasingly became dependent on natural resources, which intensified with the development of industrial production. In turn, this entailed a number of global environmental problems: the overuse of the primary product led to the emergence of mankind beyond the boundaries of its ecological niche; production of materials with the use of temperatures and pressures, much higher than existing in nature, gave rise to mountains of undecomposable wastes; fragmentation of landscapes caused a disturbance in habitat of animals and plants; the reduction of species diversity has reduced the sustainability of the ecosystem. All these problems are caused by human interference in natural processes, which would be impossible without the use of technical means [3].

The zones of ecological disaster in the Republic of Kazakhstan are still the Aral Sea and Semipalatinsk regions, where the destruction of natural ecological systems, the degradation of flora and fauna and due to unfavorable environmental conditions caused significant damage to the health of the population. At present, in the regions adjacent to the former Semipalatinsk test site, there is a high level of cancer morbidity and mortality, circulatory system diseases, malformations among newborns and the effects of premature aging. In the zone of ecological disaster in the Aral Sea region, a high level of gastrointestinal diseases and anemia is observed, especially among women and children, infant mortality and congenital pathology. Depletion and pollution of water resources, as well as problems associated with the intensive development of the resources of the Caspian Sea shelf. Kazakhstan belongs to the category of countries with a large deficit of water resources. Currently, water bodies are intensively contaminated by mining, metallurgical and chemical industries, municipal services of cities and represent a real environmental threat [2].

The most acute problems in the field of waste management are "historical pollutions". Today they negatively affect not only the health, the environment, but also the sustainable development of the country as a whole. One of the types of "historical pollutions" is persistent organic pollutants (hereinafter - POPs).

Kazakhstan, thanks to internationally recognized environmental initiatives on the problems of the Aral Sea, the Semipalatinsk nuclear test site, is widely known and supported by the international community. It is also important for the international community to harmonize the policies and approaches of the European and Asian regions through the transboundary and regional programs, harmonize environmental and other standards that play an ever-increasing role in international trade, energy, transport, tourism and other. [6].

The problem of the relationship between society and nature - is a global human problem, therefore, without a new system of views on the world and the place of human in it, future generations, like a biological species, are doomed to physical and spiritual destruction. The solution of environmental and social problems, both global and regional, is possible only if a new type of ecological culture is created, the ecologization of education in accordance with the actual needs of the individual and civil society. The need for environmental education is determined by the need to provide an enabling environment for human life, since the destruction of the system of ecological relations and the lack of responsibility for future generations are one of the components of a crisis ecological situation.

To solve environmental problems in Kazakhstan, it is necessary to form ecological competence among different social strata of the population, and first of all, among students. The urgency of this issue is caused by the fact that any professional activity currently depends on the influence (to a greater or lesser extent) of ecosystems of different levels. In modern conditions, the culture of professional activity includes the human solution of any production and environmental problems, taking into account the priority of natural factors, taking into account their particular importance for preserving people's living conditions, that is, the culture of production processes is enriched by the ecological culture, and in particular environmental competence.

The formation of environmental competence is a social problem, involving members of society of all ages and social groups, because it is society that should create certain conditions for this process - the developed social institutions, existing public organizations of the environmental orientation, the possibility of free implementation of environmental knowledge and skills, participation in environmental practices [5].

As N.M. Mamedov notes, the ecologization of the education system, is a characteristic of the trends of penetration of ecological ideas, concepts, principles, transitions to other disciplines, as well as the preparation of environmentally literate specialists of a very diverse profile. It is in our days that the ecologization of the entire system of education and upbringing is required. The final goal of this transformation is the penetration of modern ecological ideas and values into all spheres of society. For only this way, through the ecologization of the whole social life, it is possible to save mankind from the ecological catastrophe..

Despite the fact that in the last decade, there has been some ecologization of school subjects, and in schools the experience of students ecological education has been accumulated, the formation of ecological culture among schoolchildren encounters a number of difficulties. Since environmental education in the school is interdisciplinary, the teachers of the basic sciences often do not pay proper attention to it, considering the environmental material in their lessons as additional, illustrative, and therefore optional, secondary. But environmental education should be a priority area for improving general education systems, since the ecologization of education is one of the most important conditions for reducing the technogenic burden on the biosphere [4].

For purposes of ecologization of education, we propose to introduce an optional course in mathematics, in which students will learn the ecology, through the solution of various kinds of mathematical tasks and exercises with ecological content.

The objectives of the environmental focus will be developed on the basis of the following topics in mathematics:

1. Hundred. Addition and subtraction.

Task No1: the life expectancy of the snow leopard recorded in the red book of Kazakhstan is 13 years, and the lifespan of the gray monitor, also included in the red book, is 5 years less. What is the life expectancy of a gray monitor?

Kilogram. Liter. Meter.

TaskNo2: The average weight of an argali is 70 kg, and the weight of a manul is 4 kg. How much kg does Argali weighs more than a manul?

2. Problems on difference comparison of numbers.

TaskNo3: Aspen drinks 66 liters of water per day, and birch - 60 liters. How many liters does aspen drink water more than birch?

3. Table multiplication and division.

TaskNo4: The fly has 2 wings, and the dragonfly, the bumblebee, and the bee are 2 times more. How many wings do a dragonfly, a bumblebee and a bee have?

4. Problems on percentage.

TaskNo5: Of Kazakhstan's 105 water bodies, only 18 are classified as clean. How many percent of all water bodies in Kazakhstan are clean rivers?

5. Addition and subtraction of multiplace numbers.

TaskNo6: the total amount of harmful emissions from motor vehicles was 528,336 tons in 2006, and by 2010, the amount of emissions is increasing to 1179235 tons. How many tons more was the amount of emissions from vehicles in 2010 compared to 2006?

Other topics on mathematics will also be considered: problems on difference and multiple comparison of numbers; out of the table multiplication and division; time units: year, month; numbers from 100 to 1000; methods of written calculations; actions over quantities, the relationship between them; multiplication and division of multiplace numbers; speed, time, distance; area, unit area; division and multiplication by numbers ending in zeros, and so on.

At the elective course there will be studied ecology and environmental problems, as well as the skill of solving various problems and tasks in mathematics will be practiced. The interdisciplinary approach in environmental education encourages the search for methods and forms of learning that require the interaction of the contents of various academic subjects. And also, it is possible to achieve good results in environmental education and upbringing of schoolchildren on an interdisciplinary basis (in such subjects as learning the world, biology, chemistry) in the process of using teaching in practice, tasks and problems in mathematics of ecological orientation.

The effective system of environmental education is one of the main tools for ensuring sustainable development of the economy and society. The current trend in the development of the economy of advanced countries is to achieve an everincreasing value added with a gradual decrease in the level of consumable resources, the introduction of resource-saving technologies, waste recycling and pollution prevention. The principles of sustainable development stipulate the preservation and transfer to future generations of certain stocks of ecological capital: a fertile soil layer, clean air, ozone layer, genetic biodiversity. This is possible with the worldwide stimulation of effective high-tech industries, which is largely determined by the quality of environmental training of specialists in all areas of environmental management and administration. The importance of environmental education aimed at the formation of a person capable of creative activity with a high ecological culture was emphasized at many conferences devoted to the problems of modern education. First of all, it was pointed out that environmental education should contribute to the formation of a constructive approach to the environment, both philosophically and pragmatically, not only giving specific knowledge to students, but also developing their ability to see and assess complex problems in the field of environmental protection, which can be political, economic, philosophical, technical and others. Environmental education should deal with the human attitude to its natural and artificial environment, it should cover the problems of the population, pollution, use and depletion of resources, conservation of nature, transport, technology, urban and rural planning in conjunction with the human environment.

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ОҚУШЫЛАРҒА ЭКОЛОГИЯЛЫҚ САУАТТЫЛЫҚТЫ КАЛЫПТАСТЫРУДАҒЫ ЖӘНЕ ТӘРБИЕЛЕУДЕГІ ПӘНАРАЛЫҚ ТӘСІЛДІҢ ҚҰЗЫРЕТІ

Аннотация. Соңғы онжылдықтар тәжірибесі көрсеткендей, жаһандық экономикалық дағдарыс болуын тоқтату шаралары мен әрекеттері экологиялық табысқа жетпеуінің себебі, адамзат, бар болғанытұруға бұқаралық сана емес, табиғатқа деген тұтынушынегізіндегі қатысының әсері. Сондықтан, болашақ ұрпаққа биологиялық түр ретінде бекітілді, ол жерде жеке адамға орын жоқ, бұл көзқарастардың жаңа жүйесін бейбітшілік және рухани жою. Экологиялық және әлеуметтік проблемалардың шешімі ретінде, экологиялық мәдениет жаңа түрді жасау, жаһандық және аймақтық сипаттағы жағдайда ғана мүмкін болады да, жеке тұлғаны және азаматтық қоғамның өзекті білім мәселесін, сәйкесінше экологияландыруға келіп соғады. Қоршаған орта проблемалары, білім беретін мектептерге жүктеледі, мектепте ғылымның негізі салынады, соның арқасында қазіргі таңның өзекті мәселесі – табиғатқа деген көзқарастың жоғары мәдениеті қалыптасады. Оқушының экологиялық білім берумен тәрбиелеудің басты міндеті – қазіргі заман талабына сай, оқушының табиғатқа деген көзқарасы, тек жек басына пайда көрушілік пен тұтыншылық қалыпта емес, ғылыми көзқарастың негізі болатын сананың барлық: ғылыми, идеологиялық, көркемдік, эстетикалық, адамгершілік, құқықтық бағыттарын қамтитын отандық көзқарасты қалыптастыру. Қазіргі күні оқушыға экологиялық мәдениетті қалыптастыруда бірқатар қиындықтар кездеседі. Себебі, мектепте экология сабағы тек пәнаралық сипатта, сондықтан негізгі пәннің мұғалімдері сабақтарында экологиялық материалдарды қосымша және көрініс үшін деп санап, міндетті, қажетті мөлшерде көңіл бөлмейді.

Түйін сөздер: ғаламдық экологиялық проблемалар; білім берудегі экологияландыру; экологиялық апат аймақтары; дағдарыстық жай-күйі; экологиялық құзыреттілігін қалыптастыру.

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МЕЖПРЕДМЕТНЫЙ ПОДХОД В ЭКОЛОГИЧЕСКОМ ОБРАЗОВАНИИ И ВОСПИТАНИИ УЧАЩИХСЯ

Аннотация. Опыт последних десятилетий показывает, что попытки приостановить наступление глобального экологического кризиса экономическими мерами не приносят успеха по той причине, что массовое сознание человечества имеет в своей основе потребительское отношение к природе. Поэтому без новой системы взглядов на мир и место человека в нем будущие поколения, как биологический вид, обречены на физическое и духовное уничтожение. Решение экологических и социальных проблем как глобального, так и регионального характера возможно только при условии создания нового типа экологической культуры, экологизации образования в соответствии с актуальными нуждами личности и гражданского общества. Значительная роль в просвещении, связанном с проблемами окружающей природной среды, принадлежит общеобразовательной школе, именно в ней изучаются основы наук, на базе которых формируется высокая культура отношения к природе. Главная задача – экологического образования и воспитания учащихся на современном этапе состоит в преодолении у учащихся утилитарно-потребительского отношения к природе, в формировании ответственного отношения к ней в связи со всеми сферами сознания: научной, идеологической, художественной, эстетической, нравственной, правовой, которые составляют основу научного мировоззрения. На сегодняшний день формирование экологической культуры у школьников встречает ряд трудностей. Так как в школе экология носит междисциплинарный характер, и поэтому учителя основных наук, зачастую, не уделяют ему должного внимания, считая экологический материал на своих уроках дополнительным, иллюстративным, а значит, необязательным, второстепенным.

Ключевые слова: глобальные экологические проблемы; экологизация образования; зоны экологического бедствия; критическое состояние; формирование экологической компетентности.