AMERICAN JOURNALS
Open Access, Peer Reviewed Journals

American Journal of Pedagogical and Educational Research
ISSN (E): 2832-9791| Volume 9, | Feb., 2023

NATURAL RADIATION SOURCES AND TRAGIC CONSEQUENCES OF RADIATION, EARTH RADIATION, TEACHING A PRACTICAL LESSON ON THE TOPIC OF RADIOBIOLOGICAL PROCESSES USING THE "CLUSTER" METHOD

E. X. Bozorov
O'z RFA Yadro fizikasi instituti professori.
erkinbozorov789@gmail.ru

F. N. Temirov
Samarqand davlat tibbiyot universiteti assistenti
fazli0122@gmail.ru

M. X. Jalilov
Samarqand davlat tibbiyot universiteti dotsenti.

B. N. Burxonov
Samarqand davlat tibbiyot universiteti kat. o`qit.

J. X. Xamroyev
Samarqand davlat tibbiyot universiteti assistenti.

M. N. Ahrorov
Samarqand davlat tibbiyot universiteti assistenti.

X. M. Jalilov
Samarqand davlat tibbiyot universiteti assistenti.

ABSTRACT	**KEYWORDS**
This method provides students of Samarkand State Medical University with the article "TAbiy RadiationNg Resources. Earth radiation. Teaching the subject "Radiobiological Processes" in pedagogical	

technologies "class" mode is a topic of free thinking, open thinking, thinking and radioactive radiation and nuclear the formation of knowledge and skills to freely explain personal thoughts about explosions will help create a sharoit. To conduct this practical lesson, students of the second year of the Faculty of Medical Biology of SamSTU were allocated two hours [1].	

The "cluster" method requires identifying and creating a structure that allows you to think and create relationships between different ideas. This method is a form of thinking and thinking that is not directed to a specific object. Its use is carried out in connection with the principle of active functioning of the human brain. [2,3]

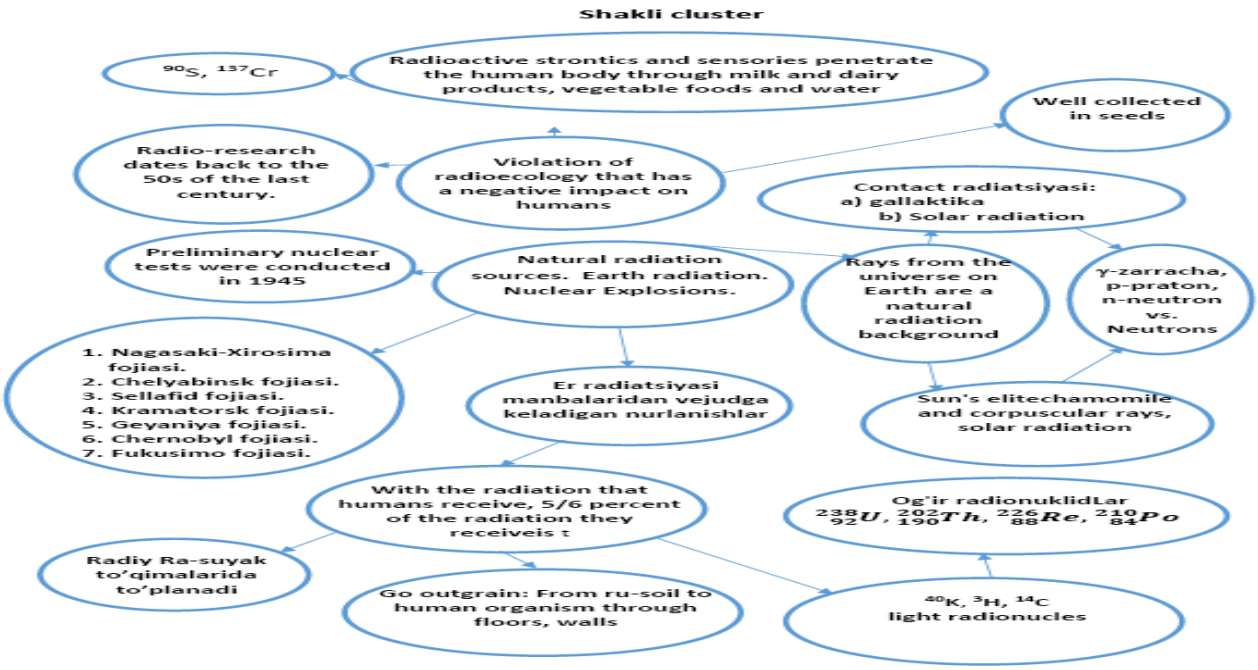
"Tabiy Radiation Sources. Earth radiation. Teaching the subject of radiobiological processes in classroom mode" is a service to ensure that the work of thinking is in a single margin until students develop knowledge and skills it does. The "cluster" method can be used in a single order or in a small group with students. In group-based exercises, this method is demonstrated in the form of a framework of ideas and ideas expressed by members of the group [4]. This allows you to harmonize ideas advanced by each member of the group and to find the connections between them. In classes organized on the basis of small groups, the opinions of each student in the groups are questioned, and each previously asked idea is harmonized. The use of this method requires compliance with the following conditions:

(a) Write down what you are married to. Don't direct your thoughts to specific problems and just write them down, not thinking about them;

(b) Do not stop writing until the deadline is over. If you can't think of an idea for a certain period of time, then start drawing a picture of something on paper. Continue this action until a new idea is born.

c) do not pay attention to spelling errors and clear signs of your writing, the connection of words, or other aspects;

(g) Try to advance as many new ideas as possible within a particular concept and to show the interrelationship and link between these ideas. Do not limit the quality of the sum of ideas and the connections between them.



Text of didactive materials to prepare for the topic

Radiobiology is an area of science that examines the effects of ionising radiation on the body and its population, aimed atpreventing harmful, even destructive effects of ionising radiation by revealing changes in the body from the effects of ionising radiation and the mechanisms and laws lying on the basis of those changes, to develop ways to protect. Radiobiology is an experimental science that requires quantitative expression of the results of the study. The uniqueness of radiobiology is due to the uniqueness of the radiation factor, which affects any molecules and structures in the cell on the basis of pure statistical principles, making it necessary for research to be conducted on all tablets, from molecular levels to populations. [5,6]

The noted characteristics of radiobiology determine the nature of the approaches needed to study it as an area of science. It should consist of a desire to distinguish between the physical nature of the radiation factor, the critical zveno, which is responsible for the consequences of the reaction seen in each case, from within a variety of manifestations of radiation exposure. Radiobiology is in contact with him or at this level with all aspects of biophysics and biology, which is prohibited by the characteristics of its objects of investigation. His research is objectri-macromolecules, viruses, simple and multicellular organisms, tissue and organ culture, plant animal and human organism and biotsenozies.

History of "Radiation Tragedies" [7,8]. In the history of the development of radiobiology and radiobiophysics, the implementation of scientific research in the field of physical properties of radiation and the mechanism of biological impact and the development of practical recommendations for the use, storage, and transportation of radiation sources have been significantly impetus—"radiation tragedies." In the early days of the discovery of radiation radiation, many sad losses were allowed as a result of not having detailed information about the presence of this irradiation net as a lethal negative effect on the human body. New JEarth tragedy: In 1902, technology was developed to produce light-emitting dyes from ^{226}Ra radioactive isotopes. Beginning in 1905, these radioactive dyes began to be used even for the production of toys used to decorate the New Year's Arch. In 1920, US Radium launched the production of radiation dye based on radioactive isotopes in conveyor mode and called itself the Undark, which emits light. Initially, with this paint painted on the targeting part of military weapons, households were later painted in houses with the order number, children's toys, watches, and many other household items. $^{266}_{88}Ra$

Nagasaki-Hirosima tragedy.06.06.1945 belonging to the U.S. Military Air Force, The V-29 Enola Gay bomber dropped an atomic bomb called Little, which contained 64 kg of uranium isotopes, and exploded at an altitude of ~576 to 600 meters above the surface of the earth and at a distance of ~1.6 km (1.6 km) at the equivalent of ~13,000 to 18,000 tons of trotil. As a result, more than ~74,000 people died, more than ~600,000 were diagnosed with radiation radiation, almost ~90% of buildings and buildings (~51,000 objects) were destroyed in Hirosima, and ~140,000 died over a period of 1.5 years. The tragedy of Nagasaki-Hirosima is described as a devastating consequence of one of the achievements of science in human history.

Chelyabinsk tragedy.29.09.1957 In the province of Chelyabinsk, an explosion took place at the Mayak nuclear fuel waste recycling and storage chemistry combination, and eventually, At a cost of ~20,000,000 Kyuri, radiation radiation is distributed to the external environment (Kishtimhalokati), and more than 124,000 inhabitants of the area are at risk of radiation radiation exposure.

"Sellafield" tragedy. The accident at the Sellafield atomic complex in the Winskeyle area in 1957 was assessed on a level 5 scale. The Sellafield atomic major is located on the banks of the Irish River, near the city of Seascale, and was launched in 1951. It took place in 1957 at a nuclear reactor.

Asa result of the H outbreak, ~20,000 Kyuri radiation was distributed into the environment. Tragedy "SL-1"." The SL-1 nuclear reactor is located in the desert area of Idaho, 65 km (65 km) from Idaho-Follz, U.S.A., and on 03.01.1961, the nuclear reactor was hit by a violation of safety techniques, resulting in an explosion, resulting in 3 deaths and a large source of radiation radiation radiation in the environment. The tragedy of SL-1 led to the development of a relatively improved system for controlling its function in the use of atomic reactors worldwide.

Kramatorsk tragedy. In 1980 a capsule containing a significant amount of radioactive isotopes was lost in the Karansk construction materials mining area on the territory of Ukraine. In 1989, the capsule was found among the walls of one of the houses built in Kramatorsk in 1980. It is estimated that family members living in the house (4 children and 2 minors) died as a result of radiation radiation sickness, and 17 people were exposed to severe radiation for a lifetime. Goyania tragedy: In 1987 an isotopic substance was stolen from a radiotherapy device located in Brazil, Goyania, and then, One of the people who lived in the area was intrigued by the radiation-emitting cookie, collected it, and distributed it to relatives, resulting in a 5th level of radiation exposure in the area. Two weeks later, radioactive isotopic residues were collected, buried outside the city. $^{137}_{55}Cs$

As a result of the Goyaniya tragedy, 245 people received radiation radiation, 4 of whom died from a severe radiation illness. As a result of this incident in Goyaniya, MAGATE developed strict requirements and regulations governing the use of radioactive sources used for medical and other practical purposes.

On 08.11.1895, Wilhelm Conrad X-ray, a German physicist and professor at the University of Wursburg, turns off the electrical beam in the experimental laboratory before returning home in the evening, and his eyes fall on the unknown radiation (X-ray) emitted from the cathode tube, which he forgot to turn off in the dark, and randomly discovers X-ray radiation. V. Rentgen notes that the image of the bones of his hand, which distorts the pathway to radiation, fell into photoplastinka and presents the results of his research on X-rays in the form of a scientific article on 28.12.1895. One of the disadvantages of human activity is the violation of the radioecology state of the environment. The environment in which ecosystems are damaged by radioactive substances
like organisms, can be rated as a novel abiotic factor that can affect populations and their communities. Ionized light is considered a moderate and evolutionary factor, so the issue of their impact on all aspects of life plays an important role in the midst of the problems of modern naturalism.

Ionized radiation has been recognized as an important environmental factor since the 1930s. However, the development of radiobiological research dates back to the 1950s. Anthropogenic activity (primarily, nuclear tests) during this period led to a change in the background of natural radiation. Radioactive strondia and caesium are mainly absorbed into the human body by milk and dairy products, sometimes vegetable foods, and only 10% of water. Calcium-rich feed reduces the drop of strontium, and calcium decreases lead to strontium accumulation.

Strontic and cesium radionuclides accumulate well in vegetative organs, sometimes seeds, lose less of other nuclei (Zr, Ru, etc.) than plants and absorb very little into the underground parts. In the form of difficult soluble compounds, radionuclides accumulate poorly by plants, but on the contrary, improved

compounds enter the biological cycle of substances. The ability of organisms to collect radionuclides is expressed in the concentration coefficient.

Some radionuclide concentration coefficients for organisms living in freshwater

Element	C	P	Cs	Sr	Zn	Fe
O'Simliklar	10	1400	500	530	7240	680
Animals	10	2500	250	760	830	550

As their size increases in organisms living on earth, the law of decrease in concentration coefficients occurs. Plants on land collect radionuclides withaconcentration coefficient of 10-1 0 compared to the nutrient solution. In algum, this coefficient is 7x10-10; water filters accumulate even more radionuclides.

The period when radionuclide activity accumulated in the body decreases twiceis referred to as the period of biological semi-eating. The intermolecular force from all these globe globe becomes two diverging paths. Natural radiation background . The natural radiation background consists of rays (cosmic radiation) and radioactive elements (Earth radiation) contained in soil rocks, building materials and foods that fall from the universe.

Natural sources of radiation can affect a person in internal and external ways. External sources include cosmic radiation and radiation in soil and building materials. From internal sources, air, water, food —

food products are noteworthy. The radiation of the universe consists of two types: galaxies and solar radiation. The rays of the universe that reach Earth are a stream of nuclei particles and are considered to be primary cosmic radiation. Uα-protons, contain nuclei of other atoms. Galactic rays of high power (up to 10 to 21 degrees C) differ from outside the solar system to cosmic rays associated with average-powered (10 degrees ≤10) solar activity. The interaction of cosmic particles with atmospheric atoms produces secondary cosmic radiation that produces radionuclides.

Solar radiation is the electromagnetic and corpuscular rays of the sun. During the explosion, the sun emits rays of visible, infrared, ultraviolet and X-ray spectrum. Each explosion affects a person. Especially magnetic field tremors strongly affect sick people. Studying the effects of solar activity on living organisms, A.L. Chijevsky identified a link between changing solar activity and the character of the reaction of drought-related organisms. Space radiation is encountered by pilots and passengers of a reactive aircraft. For example, a transatlantic flight from the United States to Europe has an additional effect on the body of cosmic radiation with a dose of -0.05 mZv. Earth's radiation sources account for a large part of the resistance that occurs at the expense of natural radiation. They are responsible for 5/6 percent of the annual average radiation that the population receives. Mountain ranges containing radioactive elements that originated during the formation and development of our planet are considered the main source of natural radioactive substances to the environment. A number of factors affect the accumulation of radioactive substances by plants. Their absorption in a small dispersed soil takes place with a lower intensity than in large dispersion soil. When nutrients are introduced into the soil, the entry of radionuclides into plants decreases, and the accumulation coefficient in wet soil is less than in dry soil.

Depending on the magnitude of activity it creates, potassium isotope plays a key role among radioisotopes. It is absorbed along with potassium noradioactive isotopes that are proud of the functioning of the body's life. When it falls through the gastrointestinal tract, radioactive potassium

contributes greatly to human radiation. In an adult human body weighing 70 kg, the calcium content is 130 grams (0.19%). especially the skeletal musculuture, nerve tissue, heart, liver and grass bag are considered rich in potassium.

Radiy accumulates mainly in bone tissue. The main part of the lead is concentrated in the skeleton. The human lungs receive 0.0007 Bk Rb with air per milk and 0.07 Bk Pd in the lungs of a person who smokes a bucket a day.

Among the radon isotopes, the most dangerous is considered to be the ²Rn lighter. The radon passes through the soil through the foundation and floor, or separated from the building material, collects in closed, non-ventilation rooms. If the floors are tired and ventilation is weak, individual doses can be dangerous to the lungs (1000Ber/year).

As a rule, natural radionuclides are abundant in granite mountain ranges. In lime and sand rocks, radioactivity is lower. The speed at which the radon falls under the atmosphere depends on the state of the soil, humidity, haroart, and when covered by snow it decreases.

50cm thick snowflakes stored until spring natural γ-lighting during the summer

screens the Earth's radiation by 80%. Water sources of radiation. The current sources of radiation include nuclear tests, medical diagnostic and treatment apparatus, radioactive waste, and atomic power plants.

Preliminary nuclear tests were conducted in 1945. The most powerful tests were carried out between 1054-1958 and 1961-1962. Radioactive rainfall arrived in Crimea on February 13, 1960, four months after the Sahara tests. After the explosion in Nevada on March 7, 1955, radioactive decomposition products were found in St. Petersburg.

Since the discovery of medical X-rays, the greatest advance in the development of X-ray diagnosing techniques has been computer tomography, which allows for several times to reduce radiation compared to ordinary methods [9]. Radioisotopic medicine is widespread. By using radioisotopes introduced into the human body, opuxollokalization is determined or

member function is checked. Light therapy is used to treat harmful opuxols. Burning coal at heating power plants to other sources of radiation; Phosphate covers; consumer goods (radioalyuminessent, electronic printers, colored TVs, etc.); spacecraft materials, smoking, etc. can be included. Although chewing is dependent on a person himself, we would like to say that smoking is one of the leaders among radioactive effects. Today, there are different views on the biological role of small doses of radiation. The first is that according to a hygienic-hygienic view, any small dose has a certain amount of harmful effect, which means that the biological effects of radiation can be expressed by a "dose-effect" Linear link. This view is increasingly conservative, and there is still no clear scientific evidence of its accuracy or imperfectness with respect to small doses. The second point of view is the opposite of the first: the natural radiation background is mandatory for the normal development of the entire living. Radiation gormezis (a rule that small doses of radiation are needed for the normal development of a living organism) are discussed. When natural background radiation dosages are reduced, the results of the experiment are known, which leads to weakening and disruption of living organisms. From a third point of view, ionized radiation has an impact threshold on living organisms, from which lower radiation does not have a harmful effect. The dose of radiation allowed in residential areas is 5 mZv per year (or 0.5 ber per year). For those whose work is directly related to sources of radiation, this dose is higher - 50 mZv (or 5 ber per year).

In 1896, A. Beckerel identified the radioactivity properties of the uranium element (α, β, and γ-radiation), a discovery that is the beginning of the history of the study of the natural radioactivity phenomenon. From 1867 to 1934, they discovered radioactive and elements. Together with Kyuri Pier Curie, Maria Sklodovsqaya discovered radioactive elements radium() and polonium (1998). In 1934, Isotope was detected during the nuclear reaction by Iren Kyuri and Frederick JolioKyuri. $^{238}_{92}U\,^{226}_{88}Rd\,^{209}_{84}Po\,^{226}_{88}Rd\,^{209}_{84}Po\,^{30}_{15}P$

Used and Recommended Literature for Further Study

1. SamDTU mt.sammu.uz platformasi.
2. Sh.S. Khushmatov, A.T. Yesimbetov, G.S. Begdullayeva.Radiobiologiya. Toshkent, 2016.
3. Remizov A.N., Maksina A.G., Potapenko A.Ya. Medical and Biological Physics, Drofa, 2003.
4. M.X.Jalilov, Sh.N.Xudoyqulova. “Биологическое действие постоянного тока” Eurasian Journal of Medical and Natural Sciences. 2022 2(5), 205–210.
5. Yarmonenko S.P., Vainson A.A. Radiobiology of Man and animals.M., "Vysshaya shkola", 2004.
6. A.D.Donika, S.V.Poroysky Educational and methodical manual "Basics" radiobiology" Volgograd – 2010
7. M.I. Bozorboyev, G.G. Rajabova, G.A. Bekmurodova, N.A. Fayziyeva, M.B. Norbutayeva "General and Medical Radiobiology". Tashkent 2018. 270 pages.
8. Remizov A.N. Medical and Biological Physics. Tashkent. Published by Ibn Sino, 2006.
9. Jalil M.X. J.X.Xamroyev. M.N.Axrorov. "X-rays. Teaching the subject of studying the effects of ionizing radiation on substances in the module system. International educational and methodical conference collection. "Reforms of the higher medical education system: On the road to the establishment of the "XAB" of education in Central Asia" Tashkent 2022. 140-143b.