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USING CHEMISTRY MATERIALS IN BIOLOGY EDUCATION INCREASE LESSON EFFECTIVENESS

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Abstract
The article uses the integration of sciences in teaching biology,comments on teaching in connection with the most important concepts of chemistry in the study of some topics in teaching human science and health.

Keywords: Differentiation, integration process, didactic principle, calcium hydroxides, calcium ions, chemical bonds, denaturation, nucleic acids, bionics, space biology.

Аннотация
Мақолада биология фанини ўқитишда фанлар интеграциясидан фойдаланиб, одам ва унинг саломатлиги фани таълимидаги баъзи мавзуларни ўрганишда кимё фанидаги энг мухим тушунчалар билан боғлаб ўқитишга оид мулоҳазалар баён қилинган.

Калит Сўзлар. Дифференциация, интеграция жараёни, дидактик тамойил, калций гидоксидалар, калций ионлари, кимёвий боғланишлар,денатурация,нуклеин кислоталар, бионика, космик биология.

Аннотация
В статье используется интеграция наук в преподавании биологии, комментирует преподавание в связи с наиболее важными понятиями химии при изучении некоторых тем в преподавании науки о человеке и его здоровье.

Ключевые слова: Дифференциация, процесс интеграции, дидактический принцип, гидроксиды кальция, ионы кальция, химические связи, денатурация, нуклеиновые кислоты, бионика, космическая биология.

Introduction

The process of differentiation and integration in the development of numerous disciplines changed dramatically during the next few decades. While science differentiation is mirrored in school curricula, the integration process in school textbooks and methodological manuals is still delayed.

Despite the fact that interdisciplinary links are widely discussed in the literature, we believe there are still some flaws in this area.

Materials and methods of investigation

It is well known that the distribution, structure, vital functions, and metabolic processes of living species in nature receive increased attention in the study of biology. It is very important to examine such themes in connection with chemical materials because vital activities such as nourishment, respiration, excretion, reproduction, and development of organisms are not normal without chemical elements and substances. Unfortunately, many teachers do not take advantage of these chances. In their lessons, they exclusively address the topics provided in the science curriculum and pay no attention to interdisciplinary linkages. Curricula in a variety of fields have recently provided guidelines on how to leverage interdisciplinary connections. However, it's difficult to say whether or not all teachers are following this policy.

It is well recognized that students are taught the most significant issues in educational institutions through numerous natural sciences, such as the planet's inanimate and animate nature, their diversity, traits, and the precise rules that govern this diversity. For example, chemistry concentrates solely on teaching scientific content about natural chemical processes, physics is limited to teaching objects, events, and their physical qualities in nature, and biology is concerned with teaching biological features and laws of life. Teachers, on the other hand, are restricted to the subjects they teach in practice. Teaching in schools based on the interrelationships of natural sciences is still not in demand, owing to an almost complete lack of interaction amongst science teachers. The usage of interdisciplinary ties, on the other hand, corresponds to the didactic principles of the educational process for students, and these connections aid in the proper selection of subjects, specific goals and objectives of topic study, methods, and tools. Furthermore, the utilization of interdisciplinary connections in education is a systematic organizing of the subject's most relevant concerns using

information from several disciplines. The fact that the structure and living activities of living beings are in conformity with the laws of the foregoing sciences confirms the view in some literatures that life is the total of the sciences of chemistry, physics, and mathematics.

The study of the relationship between living and dead nature in the biological sciences has evolved in recent years due to the rapid development of science and the integration of sciences such as molecular biology, genetics, plant and animal physiology, ecology, biochemistry, biophysics, bionics, and space biology. As a result, one of the most serious challenges is the necessity to teach biology in educational institutions based on the achievements of these fields. The Mendeleev periodic chart, for example, now has 118 distinct chemical elements. These components have a critical role in the structure and functioning of living creatures. Six chemical elements, such as carbon, hydrogen, oxygen, nitrogen, phosphorus, and gold, play an important role in the normal transition of living organisms, accounting for 97.4 percent of the weight of living organisms, sodium, potassium, calcium, magnesium, aluminum, iron, and elements such as silicon, according to scientific research. But did it explain to students from a chemical point of view how important these chemical elements in living organisms are in the lives of plants, animals, and humans?

As a result, we concentrate on the options for studying specific themes in 8th grade biology (O.Mavlonov and T.Tilovov). Man and his well-being Tashkent, Tashkent, Tashkent, Tashkent, Tashkent, Chemistry is a science that is related to this. The progress of practical training is demonstrated by the solving of logical issues related to interdisciplinary interrelationships. The outcomes were obtained.

Along with chapters on cell organelles, the textbook "Cellular Structure of the Human Body" shows that its chemical makeup is made up of inorganic and organic molecules. Despite the fact that water makes up 60-70 percent of inorganic substances, materials on its importance in cell life have been provided, but not enough information on the role and importance of water in the cell has been provided. As a result, paragraph 7 of the 7th grade chemistry textbook was written to better illustrate the importance of water in the cell (I.R. Askarov, N.H., Tukhtaboev, K, G, Gafurov. Tashkent-2017.) "Water is a multifaceted substance. Physical and mental health. We consider it necessary to use the materials on the topic. This is because the use of materials such as water combining with active metals in the cell to form potassium and calcium hydroxides, which are essential for cell and organism life, and to control a number of catalysis processes in the cell, will undoubtedly enrich the content of the material.

"The construction of bones. growth," says paragraph 10 of the textbook. The issue demonstrates that bone's chemical composition includes both organic and inorganic

components, in addition to its structure. However, things such as the chemical elements that make up organic and inorganic substances, as well as their significance, are not provided. Calcium carbonate and calcium phosphate have been discovered to make up the makeup of bones. There is no information about the qualities of these compounds. To replace this void in the field, it is recommended that bone strength, calcium salts in its composition, and the importance of calcium ions in bone development be used. To explain bone strength, demonstrating that calcium ions in bone are easily bent when acidified also serves to establish that calcium salts strengthen bone.

The examination of the "chemical makeup of the blood" is discussed in paragraph 15 of this textbook, which claims that 90% of it is water and the rest is dissolved organic matter - lipids, proteins, carbohydrates, and mineral salts.

The presence of iron ions in hemoglobin in red blood cells allows the red blood cell to efficiently connect oxygen to itself, as explained in this topic. Furthermore, blood vessels are ripped due to the presence of calcium ions in the blood, and when they are cut, this chemical element immediately coagulates the blood, patches the injured area, and stops bleeding. In the study of gas exchange in the lungs and tissues of the Respiratory System, chemical bonding is also significant.

The 7th grade chemistry textbook "Oxygen" (paragraph 17), "Chemical characteristics of oxygen," is helpful in learning about this topic. "Biological importance and application" (paragraph 19). In the chemistry textbook, the properties of oxygen, its ability to easily react with all elements except halogens, its importance in human respiration, the fact that it makes up 65% of the human body, the presence of oxygen in the body, many positive reactions to human health allows students to explore the topic of the respiratory process more thoroughly.In particular, when oxygen (O) enters water and organic compounds during the aerobic phase of respiration in the cell, carbon (C) is engaged in all organic compounds, and hydrogen (N) is present in both water and organic compounds and is involved in the transfer of energy from one type to another.

The use of materials such as nitrogen (N) amino acids, proteins, nucleic acids, ATF, chlorophyll, vitamins, and the presence of nitrogen (N) amino acids, proteins, nucleic acids, ATF, chlorophyll, vitamins, and the use of materials such as their importance in the human body will undoubtedly enrich the content of the studied topics. Chemical oxidation is also required in the exchange of gases between the lungs and bodily tissues. The "Digestive System" is the following topic in the biology textbook (8th grade). Students will gain scientific knowledge and skills on topics such as "Organs of the Digestive System," "Structure and Functions of the Digestive System," and

"Organs of the Digestive System", "Digestive management", "Gastrointestinal diseases and their prevention." The study of the basics of chemistry, acids, salts, the role of sulfuric and hydrochloric acids in the digestive process, the importance of chemicals in digestion. For example, the breakdown of proteins under the influence of gastric juice, hydrogen hydrochloric acid in the juice serves for the breakdown (denaturation) of proteins.

Conclusion

The utilization of interdisciplinary ties in biology and chemistry instruction adheres to the didactic principles of the educational process; such connections allow students to choose specific aims and objectives, techniques, and tools for studying themes in other fields.

Because natural objects and events are interconnected, a thorough examination of the most pressing concerns in biology, as well as materials from other natural disciplines, is required.

Interdisciplinary links in the educational process should first and foremost motivate teachers to work creatively, organizing and implementing lesson materials based on concepts and rules from other areas.

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