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TEACHING METHODOLOGY OF NATURAL GAS AND COAL PRODUCTS BASED ON INTERACTIVE METHODS

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Abstract
This article presents the theoretical basis of methods of teaching the subject of natural gas and coal products using new pedagogical technologies.

Keywords: Natural gas, coal, oil, pedagogical technology, “Filvord”, “Find a pair”, “Working in groups”.

Introduction

As the content, goals and tasks of education develop over time, its forms and methods also improve. The main directions of human activity are based on integrated systems, i.e. technologies, which enable the full realization of specific goals. Pedagogical technologies have started to be used in the same field of education in recent years. The concept of pedagogic technology is a wide-scale concept that originated on the basis of the needs of the development of educational practice, and now has its place in the sciences of pedagogy and psychology. The material processed in pedagogical technology, unlike various technologies in the fields of production, is the mental, spiritual, and moral qualities of the student (learner), which are used by the teacher and educator to achieve various educational goals. secrets are passed. The concept of educational technology first appeared in the USA in the middle of the 20th century.

Until the mid-1940s and 1950s, it was called "Educational Technology" and this phrase was applied to teaching using technical tools. In the 1950s and 1960s, it meant programmed education, and in the 1970s, the phrase "pedagogical technology" represented a learning process that guaranteed the achievement of pre-planned and clearly defined goals. By 1979, Pedagogical technology was defined as a complex, integrative process by the Association of Pedagogical Communications and Technologies of the USA , and from the beginning of the 80s, pedagogical technology was defined as the creation of computer and information technologies of education [1-2].

Pedagogical technology - This is the process of influencing students (students) in certain conditions and sequence with the help of teaching (educational) tools of the teacher (educator) and forming predetermined personality qualities in them as a product of this activity. . (N. Saidakhmedov)

Pedagogical technology - a set of psychological procedures (settings) that determine the forms, methods, methods, ways of teaching, education, a special collection and composition (location) of educational tools; it consists of organizational and methodological tools of the pedagogical process. (BTLikhachev)

Pedagogical technology is a systematic method of creation, application and determination of all processes of teaching and knowledge acquisition, taking into account technical resources, people and their interaction. (UNESCO)

Pedagogical technology is a unique new (innovative) approach to teaching. It is an expression of social-engineering thinking in pedagogy, an image of technocratic scientific consciousness transferred to the field of pedagogy, a certain standardization of the educational process. (BL Faberman)

The main natural sources of hydrocarbons are coal, oil and natural gas deposits. Coal reserves found in Uzbekistan amount to more than 2 billion tons, and in terms of geological reserves, Uzbekistan ranks second in Central Asia. Coal is currently being mined in the Angren, Shargun and Boysun mines. There are more than 160 oil fields in Uzbekistan, and underground gas reserves are about 2 trillion cubic meters. Oil and gas fields are mainly located in Ustyurt, Bukhara-Khiva, South-West Hisar, Surkhandarya, Fergana regions of our republic. Oil and gas processing plants are operating in Fergana, Altiariq, Shortan, Mubarak and Kok tun [2].

Gaseous hydrocarbons , especially methane and acetylene, are formed as a result of the reaction of carbon dioxide with water vapor at the bottom of the planet Earth, under the influence of heating, radiation and a catalyst, and other compounds in oil are formed. In the upper layers of the lithosphere, the components of liquid oil are vaporized, thickened liquid, and then it is rotated by life. A lot of heat is released when natural gas burns, so it serves as an efficient and cheap industrial fuel. In the chemical industry , natural gas is the primary raw material for obtaining acetylene, ethylene, hydrogen, sputum, dyes, medicines and other products. At first, it was burned without using petroleum gases. Today it is used as fuel and valuable chemical raw material. For example, propane-butane fraction in the form of liquefied gas is used as fuel to improve the engine.

Coal is one of the most common fuels and raw materials for organic synthesis, and coal began to be used as a source of chemicals before rock and natural gas. Initially, this theory was stated by DI Admeleeveev, and in the 20th century, the French scientist P. Soukat modeled the described process in the laboratory and obtained similar oil. The main component is natural gas - methane. It also includes ethane, propane, butane. The higher the molecular weight of a hydrocarbon, the less natural gas it contains [1].

The role of new pedagogical technologies of teaching in order to form and develop chemical knowledge, skills and qualifications of students on the subject of "Natural gas and coal products" within the requirements of today's time is great. At a time when the education of the young generation in our country has risen to the level of state policy, teaching the topic of natural sources of hydrocarbons in the development of chemical education among students, in this case, covering the topic of “Natural gas and coal products” is one of the new educational technologies. issues of use are one of the urgent tasks.

It is effective to use technologies such as “Filword”, “Find a pair”, “Working in groups” in the process of conducting lessons. In this process, each topic organized according to the lesson plan is explained to the students in lectures and laboratory sessions. It is more effective to implement these ideas in groups based on the structure of the classroom. Students in the group discuss and one student answers based on the acquired knowledge while solving tasks on assignments. One student in the group will write down the answers. At the end, the groups' answers will be announced. Below are examples of pedagogical technologies that can be used on the subject of "Natural gas and coal products" [4-6].

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“Filvord” method

Find the following topic words in the table.

Oil, natural gas, coal, hydrocarbon, cracking, homolog, methane, ethane, propane, octane, benzene, fuel, gasoline, ethylene, acetylene.

N	E	T	M	I	R	O	K	T	Y
T	F	O	O’	U	I	N	G	A	O
A	T	Sh	K	G	K	B	E	N	Q
B	A	Z	E	L	E	L	N	L	I
I	G	G	V	K	R	O	Z	G’	I
I	Y	O	O	D	O	N	A	S	E
L	O	M	D	O	R	I	Z	I	T
O	A	N	E	N	B	E	N	L	E
G	T	A	T	A	P	E	L	E	N
M	E	N	P	R	O	T	I	N	A

“Find a pair” method.

Find the pairs of data in the columns of the table below.

CARBOHYDRATES	Methane, ethane, propane, butane, pentane, ...
ISOMERY	Decomposition of saturated hydrocarbons in the presence of a catalyst.
VIRUS REACTION	Organic compounds consisting of carbon and hydrogen atoms.
HOMOLOGUES	It is used as an anesthetic in medicine.
CRACKING	Preparation of saturated hydrocarbons by sodium metal reaction with haloalkyls.
NITRATION	Substances with the same general formula, and substances with different structural formulas and physicochemical properties.
CATALYTIC CRACKING	94-98% methane, 2-6% ethane, propane and butane.
CHLOROFORM	Formation of alkane and alkene mixture by breaking CC bonds of saturated hydrocarbons.
NATURAL GAS	Resin contains more than 400 aromatic heterocyclic compounds.
COAL	of one hydrogen atom of a saturated hydrocarbon with a nitro group NO_2.

In conclusion, the use of pedagogical technologies in the teaching of the subject "Natural gas and coal products" in secondary schools gives effective results, as well as the interest of students in science, their activity and concentration during the lesson are also pedagogical technologies.

Shows higher efficiency in lessons conducted on the basis of traditional lessons. Completing tasks independently helps students gain new knowledge, increase their knowledge and interest in science. Before organizing any lessons, pedagogues should draw up a general technological project of the lesson, taking into account the knowledge, potential of the students, the material and technical base of the educational institution, rescript and laboratory equipment, and organize lessons based on this project. helps the teacher to achieve developmental, educational, and educational goals.

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