

Possibilities of Organizing Independent Education for Future Chemistry Teachers

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Abstract: In this article of students independent the work assignments competence of formation theoretical conditions clarification about take went research results to the analysis circle thought and considerations are given.

Key words: reproductive and productive assignments, pedagogical approaches, analysis to do competence.

Currently, the modernization of education is reflected in the special attention paid to students' independent activities, the organization of various projects, and independent work. The national program reflecting this trend pushed forward the problem of searching for new effective methods of organizing and managing the student's independent work, which ensures close interaction of the participants of the educational process. In this regard, the problem of choosing the most effective electronic educational tools and platforms that complement traditional educational methods and contribute to improving the quality of the educational process remains relevant.

In scientific literature, it is customary to divide the student's independent work into several types: independent work during class activities and outside the classroom when the student performs various homework.

The success and efficiency of the student's independent work is determined by a number of factors, such as the completeness of methodological support, the opportunity to receive the teacher's advice on time, the teacher's control over the progress of independent work, as well as incentives for its quality performance.

Independent activity is the main factor in the development of basic and chemical competences in students. Independent educational activity is a form of organization of student activity, based on the establishment of subject-subject relations: students plan educational goals, choose ways, methods, and tools to achieve them, monitor their own activities, evaluate their own activities, and the teacher is a consultant and coordinator providing individuality, goal orientation, and informational support of the educational process. Despite the fact that the problem has been studied in depth in the researches of many scientists, the efficiency of the work carried out on the organization of independent learning activities of students and, in connection with it, the desire of students to learn independently is not at a high level. During the analysis of the essence of the idea of independent educational activity, concepts such as "cognitive activity", "learning activity", "independent cognitive activity", "organization of independent work" were studied.

V. B. Bondarevsky says: "Not a person who can follow the right path only when he is under the control of parents, educators, but a person who is able to control himself internally, spiritually, who understands the importance of independent study and self-education, who organizes his life meaningfully and creatively. the most important task is to educate a person who can do it."

According to the definition of A.K. Gromseva: "the student's independent learning activity can be considered as a goal-oriented, systematic, self-directed cognitive activity necessary for improving his knowledge."

Currently, a number of important signs of independent education can be distinguished. I.A. Redkovets' book "Formation of social and moral motivation of independent education in students" contains the following descriptions and features:

1. A high level of independent and active cognition is characteristic for independent learning activities.
2. Independent education is a voluntary activity, therefore any coercion is unacceptable. This is what determines the specific motivation of independent learning activities.
3. A unique and important feature of independent learning activity, which differs from educational activity, is that this activity has a selective nature.
4. Independent learning activities are characterized by goal orientation, systematicity, regularity.
5. The goal of independent learning is largely reflected in the orientation to creative knowledge.

A. Gorodenskaya gives a more complete description of independent activity: "independent activity is the activity that students perform without the help of others, relying only on their own knowledge, thinking, skills, life experience, beliefs, and by enriching the student with knowledge, developing and educating him, he forms the qualities of freedom and independence in him. can be said to be an activity; independent activity expresses the quality of the cognitive process, the characteristics of the student's personality and the form of teaching".

Independent work helps to implement the educational, educational and developmental tasks of teaching. Educationally, independent work helps to independently acquire theoretical knowledge, practical skills, repeat, strengthen and deepen them. In the educational sense, they educate a person's qualities such as independence, hard work, and responsibility. Independent work helps the development of thinking, skills and abilities, trains the will of a person. These teaching methods are of great importance in preparing students for independent education and work.

It is correct to understand independent work as a means of educational activity that helps students to consciously and deeply master knowledge, skills and abilities and to form their independence of knowledge as a personal trait in the conditions of systematic reduction of the teacher's direct support. In the course of the research, the use of independent work tasks in chemistry was determined as a factor for the effective organization of independent educational activities of students, which is the basis for the formation of basic and science-related competencies in students.

The student's independent work assignments serve to develop the knowledge independence of students in chemistry lessons, based on the development of knowledge, skills and abilities, independent and logical thinking skills, as well as on the basis of organizing independent work of students in extracurricular activities.

Below are examples of lessons designed in conjunction with "Independent Work Assignments" and organized on the basis of "Inorganic Chemistry Independent Work Assignments".

Methodology of theoretical training

Lesson topic. Halogens.

Educational purpose. To acquaint students with the occurrence, extraction and properties of halogens in nature. Providing students with scientifically based knowledge on the given topic, creating practical skills in them and forming their relevant qualifications.

Educational purpose. By explaining the place of halogens in the periodic table, their occurrence, extraction and properties in nature, as well as by explaining the use of their compounds in industry and the national economy, to expand the scientific worldview of students, to interest them in chemistry, and to provide economic education. Educating our students in the spirit of

love for the Motherland, our historical and cultural heritage, great figures of the Uzbek people, parents and national pride. Formation and upbringing of ecological culture in them.

The goal of the developer. To learn the place of halogens in the periodic table, their occurrence, production and properties in nature, a lecture, a logical test on the topic, the ability to solve problems and examples independently, and to work independently on the textbook with the help of the technologies and animation models used in the lesson. developing skills, increasing students' knowledge and thinking, interest in books, forming and developing independent thinking skills, increasing interest in chemistry and professions in this field.

Equipping the lesson. Animation models of various drawings depicting the place of halogens in the periodic table, their occurrence and extraction in nature, their physical and chemical properties, and their use. Demonstration equipment showing properties of halogens.

Pedagogical technology used in the lesson.

Collaborative learning technology and spinner method.

The course of the lesson:

I. Organizational part.

II. Monitoring and evaluation of students' acquired knowledge of the previous topic. (cluster is done via Venn diagrams)

III. Acquaint students with the topic, purpose, course of the lesson.

IV. Learning a new topic.

Plan:

1. Description of the position of halogens in the periodic system.
2. Description of the occurrence of halogens in nature.
3. Description of processes for obtaining halogens.
4. Explain the physical properties of halogens.
5. Explain the chemical properties of halogens.
6. Explain the use of halogens and their compounds.

It is necessary to use the problem-based method of teaching to determine the acquired knowledge, skills and abilities of the students on the subject of "Halogens" included in the "Chemistry" 8th grade textbook and computer. Accordingly, it is appropriate to create different levels of reproductive and productive tasks that cover the memory levels of subject-related control tasks.

In the reproductive process, information, chemical processes, are recalled, in which the material can be repeated exactly without changes, or these concepts can be obtained in writing from all students in a short time.

In the productive learning process, the student will have the information given in the textbooks based on the acquired knowledge and skills. In the educational process of the productive level, the knowledge acquired on the basis of logical thinking is processed, improved and studied in new conditions. The productive level of knowledge acquisition allows the student to independently draw conclusions about changes in chemical processes, using certain rules, helps to create an algorithm for solving problems.

Relevant questions and tasks were created to determine the effectiveness of the lesson on the subject of "Halogens" using the cooperative teaching method. Students can present the requirements set during the survey orally and in writing, and at the same time compare the results and check each other. It can also be seen from the answers to the questions that the students were encouraged to repeat the information on the topic by completing the task given as

a task, to perform the function of working on themselves and perform periodic exercises, to understand the concepts of the topic, to ensure their consistency, and to make logical observations.

V. To organize a question-and-answer, educational discussion among small groups on a new topic.

VI. Monitoring and evaluation of students' knowledge using test questions and problems. Solving test questions and problems selected for the topic.

VII. Processing and finalizing a new topic.

Carefully study the order of chemical reactions given in the topic, the properties of halogens and determine which types of reactions are included.

VIII. Homework assignment.

Study the preparation, properties and uses of halogen compounds by reading the given information carefully.

IV. Reinforcement

1. "Third plus" exercise is performed.

Identify the excess substance.

1. CaO, CH₄, N₂O,

2. SiO₂, O₂, H₂O,

3. KOH, CuO, CO₂,

4. Al₂O₃, ZnO, H₂

2. Match the formula of the oxide with its name. Write the letter corresponding to the number.

1. SO₃ A. Nitric oxide (IV)

2. ZnO B. Sodium oxide

3. NO₂ C. Sulfur (VI) oxide

4. SO₂ D. Zinc oxide

5. Na₂O E. Sulfur (IV) oxide

V. Giving homework. §20, assignment No. 5, p. 60

VI. As a result of reflection, the students themselves evaluate how effectively they learned the lesson, note its interesting moments and the productivity of the activity.

The effectiveness of the training will increase if the necessary information is obtained from the computer and shown to the students during the training, together with innovative technology. It should be said that visuality only encourages curiosity, and innovative technologies used during the lesson should not limit the student's thinking. Each innovative technology used should be selected according to the physiological characteristics of the learner.

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