



COOPERATION IN TEACHING BIOLOGICAL SCIENCES

TEACHING TECHNOLOGY

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ABSTRACT

This article provides information about the role of collaborative learning technology in the teaching of biological sciences, the organization of creative research in small groups, team teaching, reading together, methods.

After the independence of our country, great reforms have been carried out in all spheres. There have also been very profound changes in the field of education. The strength of any country is determined by the spiritual maturity and intellectual potential of its population. President of the Republic of Uzbekistan Sh. In accordance with the Resolution of Mirziyoyev dated April 20, 2017 "On measures to further develop the system of higher education", the introduction of curricula and programs of each higher education, new pedagogical technologies and teaching methods, to conduct master classes, to create a new generation of textbooks and to apply them widely in the educational process of higher education institutions. Based on the principles of the Law "On Education", the "National Program of Personnel Training" in the third millennium through radical reforms in the education system to direct

young people to the profession, the introduction of differentiated education, Improving the efficiency of the educational process through the introduction of advanced pedagogical and information, innovative technologies in the educational system, strengthening the activity of students and teachers is a topical issue today. The teacher is a key person in raising education to a new level. Stimulation of scientific research and innovation, creation of effective mechanisms for the implementation of scientific and innovative achievements, the establishment of specialized scientific and experimental laboratories, high-tech centers and technology parks at universities and research institutes. special attention is paid as one of the most important directions of development. In order to fulfill this task, it is necessary to increase the professional training of future



biology teachers, expand their pedagogical thinking, to form in them the methodological knowledge and skills necessary for the application of modern pedagogical technologies in teaching biology.

Collaborative learning, developed by American scholars, focuses on developing students' knowledge, skills, and competencies in DTS and science, and co-teaching, which is strongly recommended by Israeli and European scholars, in addition to the above. The program involves the development of learning materials by students, the development of design activities, educational discussions and debates. These ideas complement, didactically enrich and complement each other. The idea of collaborative learning emerged in didactics in the 1970s. Collaborative teaching technology is widely used in educational institutions in the United Kingdom, Canada, West Germany, Australia, the Netherlands, Japan and Israel. The main idea of collaborative learning is to not only do the learning task together, but to learn to read collaboratively. Collaborative learning teaches each student to work hard on a daily basis, to think creatively and independently, to cultivate conscious independence as an individual, to instill in each student a sense of personal dignity, self-efficacy. and building confidence in one's abilities, forming a sense of responsibility in learning. Realizing that the technology of collaborative learning leads to the success of the group in the success of each student, to work regularly and diligently mentally, to perform quality homework, to master the learning material, to partner with peers, prepares the ground for mutual assistance. In order to use

collaborative teaching methods in the educational process, the teacher should: -determine which topics can be studied using collaborative teaching methods and schedule these lessons; - to prepare the recommended assignments for students on this topic and instructions on their implementation; - to design the type, course structure and course of lessons using joint teaching methods; - past and new; should compile test assignments to monitor students' knowledge of topics. When using these methods, it should be borne in mind that in addition to students correctly performing the task in collaboration with their partners, the activity of group members, the formation of cooperation, the principles of communication culture are taken into account. . Thus, group members perform two tasks simultaneously:

1. Academic task - to achieve the goal of educational tasks through knowledge and creative research;
2. Socio-psychological task - to have a high culture of communication during the lesson, to maintain good manners; The teacher monitors the completion of both tasks at a high level . In order for a teacher to use collaborative teaching methods in biology education, he / she has to know how to effectively organize the knowledge, skills and competencies of the specific features of this technology, independent work of students , learning discussions and debates. , and for students on textbooks, popular science literature the ability to work independently and creatively, to express one's opinion concisely and clearly, to substantiate and justify one's opinion, to think logically, to actively participate in academic discussions and debates, and to have developed a conscious discipline.



There are several methods of collaborative teaching technology: In team teaching (R. Slavin), students are divided into two teams of equal numbers. Both teams perform the same task. Team members work together to ensure that each student

develops the knowledge, skills, and competencies provided in the topic.

Technological map of the lesson on the use of teaching methods in small groups in collaboration on the topic "Reproduction and development of insects "

TECHNOLOGICAL STAGES	TEACHER ACTIVITY	STUDENT ACTIVITY
Phase I. Organizational part 3 minutes	Introduces students to the topic, purpose, and course of the lesson.	Understands the topic, purpose, course, and assignments of the course
Phase II Monitoring and evaluating students' knowledge of a previous topic 8 minutes	Monitors and evaluates students' knowledge using test items in Appendix 1 on the previous topic.	Performs test tasks in Appendix 1, compiled on the previous topic
Phase III Introduces students to a new topic and plan 2 minutes	Introduces students to a new topic, plan.	Understands the essence of the issues included in the new topic plan.
Phase IV Learning a new topic 15 minutes	Explains the new topic according to the plan.	The didactic purpose of the curriculum is to understand the instructions for the tasks to be performed.
Phase V Divide students into small groups and achieve independent and quality performance of learning tasks 10 minutes	Organizes independent work of students in small groups. Ensures independent performance of learning tasks. Conducts question and answer, study discussion, discussion between small groups. Provides assistance where appropriate.	Organizes learning activities in collaboration with students. Independently masters learning tasks. Active participation in question and answer sessions, study discussions, discussions between small groups.



Phase VI Monitoring and assessment of students' knowledge 5 minutes	Provides assignments, questions, and didactic tables in Appendix 2 and the textbook on the topic studied.	Completes the assignments, questions, and didactic tables given in Appendix 2 and the textbook.
Phase VII. Analyze and summarize the result achieved Homework assignment 2 minutes	Analyzes student performance and outcome. Students who actively participate in the lesson are encouraged. Students are given assignments to do independently at home.	Analyzes and evaluates its own learning activities and achievements. Takes independent and creative work assignments.

I. The purpose of the lesson:

a) Learning Objective: To provide students with knowledge about the reproduction and development of insects and to monitor their knowledge.

b) Educational goal: To teach students to teach the protection of wildlife, to have a conscious attitude to wildlife, to carry out ecological, geographical, economic, moral education.

c) developmental goal: to expand the scientific potential of students, to develop their skills of independent work on textbooks and additional literature.

d) basic and scientific competencies to be formed: Tk-1, Tk-2, Tk-3, Tk-4, Tk-5, Tkb 6, Xk-1, Xk-3

II. Type of lesson: Theoretical, mixed, non-traditional, traditional.

III. Method of the lesson .: Brainstorming, question and answer, group work, biological dictation.

IV. Lesson equipment: Textbook, visual aids.

V. Didactic equipment: Handouts, slides, booklets, aquariums,

VI. Equipment: Computer, slide projector screen.

VII. Time required for the lesson: 45 minutes:

VIII. Course (plan):

1. Organizational part : a) Greeting, b) Determining cleanliness, d) Determining attendance c) Preparing for the lesson and lesson plan

2. Home Task assessment: a) oral questioning b) checking the notebook c) fishing method.

IX. New topic statement : Reproductive system of insects

. Insects are some species of animals. Male insects are smaller than females and are slender, their whiskers are strong, and they can smell very well. The genitals of insects are located in the abdominal cavity. Females have one pair of ovaries and males have one pair of seeds. In the ovaries, the egg cells mature, and in the sperm, the sperm cells (sperm) mature.

Worm. The bronze beetle lays its fertilized eggs on the trunks of rotten wood or rotten trees. From the eggs develop small worms. Their appearance and way of life are not like those of adult beetles. The white and thick body of the worms is bent like a bow; large head and legs covered with thick yellowish-brown chitin; in the rest of the body the chitin coating is thin and soft.



Breathing holes are visible on both sides of the body (Fig. 45). The worms feed on the remains of rotten, crumbling wood. They peel off once and turn into a mushroom.

Sponge. The appearance of the beetle dome is mature resembles an insect. From the outside, his mouth organ, mustache on his head and intricate eyes, three pairs of bent legs are clearly visible. The chitinous coating of the sponge is relatively thick. The sponge is a *dormant period of insects*. The sponge does not move and does not feed. The food he collected during the worms lives at the expense of. From the sponge as a result of complex changes organs specific to the adult beetle are formed. By autumn, the chitinous cover of the sponge had ruptured and matured from it insects emerge. Beetles overwinter in the humus, only will come to earth in the spring of next year.

Development with partial change. The structure and survival of the larvae of *waterfowl, locusts, dragonflies, and caterpillars* from their eggs is similar to that of an adult insect; it differs from it only in that it is very small and its wings are underdeveloped. The larva hatches four times and becomes an adult insect by the age of five (Fig. 46). During adulthood, the larva's body structure and lifestyle do not change significantly. Therefore, such a *development is called development with partial change*.

Development with complete change. The egg-laying larvae of *beetles, butterflies, flies, fleas, ants, bees* are worm-like in appearance (Fig. 47). The oral organs, internal structure, and nutrition of worms are different from those of adult insects. For example, butterflies asked for flower nectar using a hose. Their worm-like worms have rodent-type mouth organs,

and legs in the abdomen. Butterfly worms eat plant tissue. The green bronze beetle feeds on pollen and other parts of the flowers, while its worms feed on humus.

Reinforce the new theme:

1. Biological dictation.

1. Male insects are smaller and more slender than females, strongly developed, smells very well. 2. The worm is visible on both sides of the body. 3. The sponge is of insects. 4. throws four times and turns into an adult insect by the age of five. 5. pollen and other parts of the flower, and its worms feed on humus.

Replace the dots with the following words:

Larva _breathing holes, dormancy period, green bronze beetle, mustache. 2. Didactic game method. 3. Competition of captains (pronouncing the names of animals in English).

Homework: Control questions.

1. How is the male of an insect different from the female?
2. Where do germ cells of insects form?
3. How is a bronze beetle structured?
4. What do bronze beetle worms feed on?
5. What process takes place when a worm turns into a mushroom?
6. How is the sponge structured?
7. How does development occur with partial change?

R. Slavin, one of the authors of Collaborative Learning Technology, argues that it is not enough to instruct students to complete assignments collaboratively. There should be a real cooperation between students, a sense of joy in the success of each student, a sense of sincere support for each other, a favorable socio-psychological environment. In this technology, in determining the quality of



students' knowledge acquisition, they are not compared with each other, but the daily result of each student is compared with the previously obtained result. Only then will students feel a sense of

responsibility, realizing that the results they have achieved during the lesson will benefit the team, and strive to do more research and better master their knowledge, skills and competencies.

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