



PEDAGOGICAL TECHNOLOGIES - AS A FACTOR TO INCREASE STUDENT KNOWLEDGE IN SCHOOL TECHNOLOGY CLASSES

Makhmatmurod Khuramovich Shomirzayev

Doctor Of Sciences, Associate Professor, Termez State University Termez, Uzbekistan

ABSTRACT

The article highlights the importance of shaping students' creative abilities in school technology classes through the use of pedagogical technologies.

KEYWORDS:- School, technology, lesson, teacher, student, education, upbringing, knowledge, practice, method, game, group, activity, creativity, profession.

INTRODUCTION

In the current period of gradual reforms in the field of education in our country, based on the requirements of the National Training Program, there is a need to put into practice the existing conclusions and recommendations to improve the effectiveness of education. In particular, one of the main goals of the "National Training Program", which is being implemented in three stages, is to form competitive, active and creative individuals who can adapt to the transition to a market economy. Therefore, the Decree PF-6108 "On measures to develop education and science in the new period of development of Uzbekistan" signed by President Islam Karimov on November 6, 2020 also states that "with new initiatives and

ideas for the development of the country One of the main directions in this area is the training of a new generation of high intellectual and spiritual potential, the formation of the necessary skills and knowledge for graduates of educational institutions to become modern professionals.¹

¹Decree of the President of the Republic of Uzbekistan "On measures for the development of education and science in the new period of development of Uzbekistan." T., November 6, 2020 PF-6108.



This issue, along with other disciplines, is a key task in the teaching of technology. This requires the effective and rational use of teaching methods in the teaching process, as well as the improvement of these methods, the search for new ones, increasing the effectiveness of technology education. Therefore, the main issue in the field of education today is the training of qualified teachers who are well versed in the methods and forms of education and can easily apply them in practice. Because the teacher's personality and his activity are of special importance in educating students, directing them to professions. Consequently, nothing else can overwhelm the teacher's open communication-style learning process. Therefore, improving the quality and effectiveness of education is an important factor for the training of qualified teachers, to improve their professional skills.

The transfer of new knowledge, the formation of work skills play a key role in the educational process due to the nature of the lessons. These classes are organized in two directions: theoretical lessons and practical lessons (or classes). The main task of this type of course is to provide students with new information and concepts (laws, rules, ideas, facts) about the subject or subject being studied, to expand their knowledge and worldview by teaching. Assimilation of knowledge is a comprehensive concept. There are three different levels of mastery: a) acquisition of knowledge at the level of perception, comprehension, memory; b) acquisition of knowledge to the extent that it can be applied to similar conditions; c) mastering knowledge to the extent that it can be applied to new conditions.

Students should be able to express the knowledge in their own words in the lessons of learning new teaching material, to give facts about the knowledge learned, to distinguish the knowledge learned today from the knowledge previously acquired. In this type of lesson the

following tasks are solved: to understand the main idea, the purpose of the educational material; to understand the importance of this knowledge in human activities; comprehension of the general structure of knowledge about the new educational material; understand their basic features; to master the way of recalling the learned knowledge and the ways of applying it in practice. This work is usually done in theory classes. In practical classes, students develop new work skills. These lessons are also important, as they allow students to test the theoretical knowledge in practice, and thus to master and consolidate the initial knowledge gained on the topic. Practical training aimed at inculcating work skills is carried out in three different forms - levels:

- the first level or the initial stage - practical training on the structure of equipment, mechanisms and machines, their adjustment to work and the types, properties, use of materials;
- second or intermediate level - practical training to learn how to perform a work method (operation) and the use of equipment;
- the third or higher level - practical training on the manufacture of any type of part or item.

It is also possible to carry out the work of the fourth stage in the organization of creative work of students. In this case, the work of the fourth stage will include the improvement of the product, the expansion of the range of services.

To impart new knowledge, to form labor skills

The pedagogical technologies used in the program include training, creative problem, morphological table, brainstorming, seminar, discussion, mosaic, relay and other similar methods.

Using cluster and BBB methods. The clustering method can be used in lessons to provide students with information and insights on topics. This will take some time for pre-class



preparation. In the course of the lesson, the teacher simply directs the students' thoughts, generalizes the concepts they express or express, and draws conclusions. For example, learning about the construction and use of lathes can be a bit daunting for students.

Therefore, we chose cluster and BBB methods in the study of this topic. Because these methods are simple and do not cause unnecessary hassle, they are convenient for both the teacher and the students.

For example, in teaching students the basic types of lathes using the cluster method:

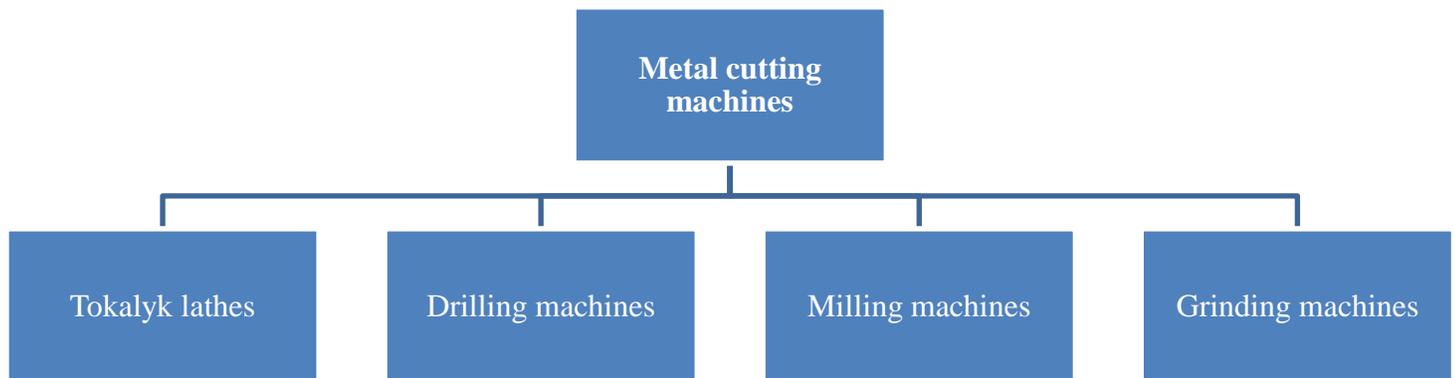
The cluster method shown in Figures 1-2 can be used. Here are the main types of metal cutting machines in the cluster method, through which students will be able to remember the main types of metal cutting machines. This is the

advantage of this method.

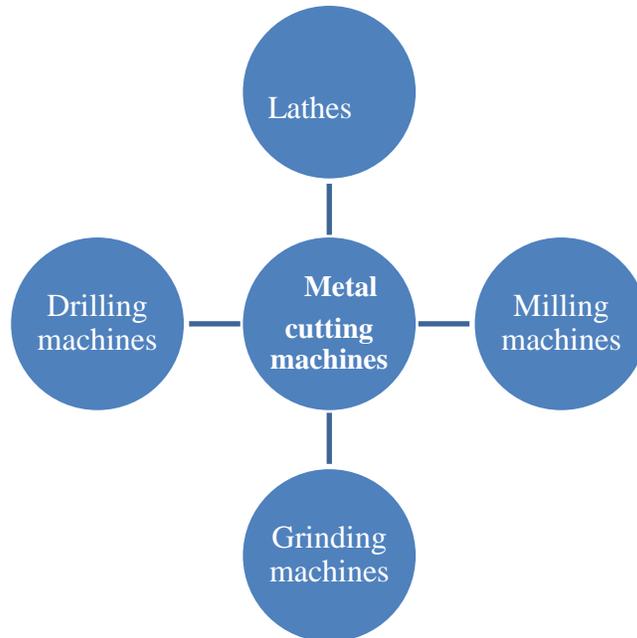
In Figure 3, students quickly grasp the main difference between a lathe and a lathe-screw machine.

Figure 4 Types of work performed on a lathe-screw machine As shown in this form, students turn-screwdriverthey could easily imagine the types of work to be done on the lathe.

The information in Table 1 allows the BBB method to identify information that students know, have learned, and want to know. An important aspect of this method is that it allows the teacher to analyze their own activities and diagnose what information the students want to know.



1-picture. The main types of metal cutting machines (Figure 1).



2-picture. The main types of metal cutting machines (Figure 2)

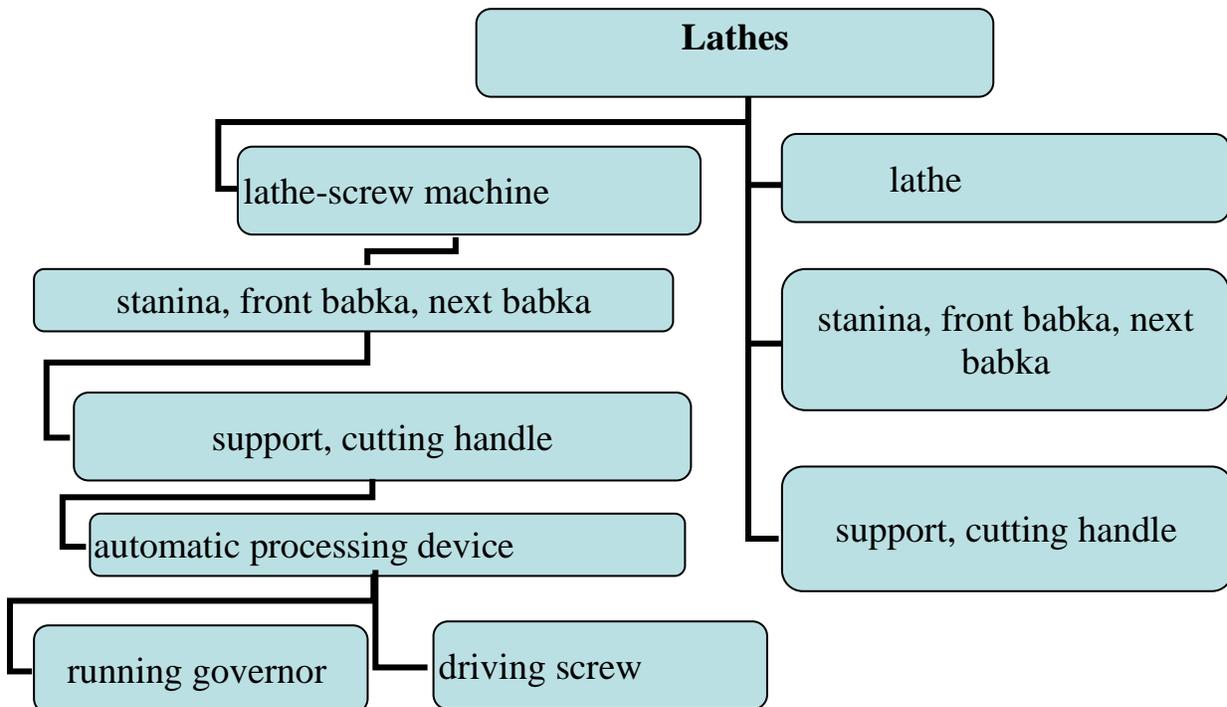
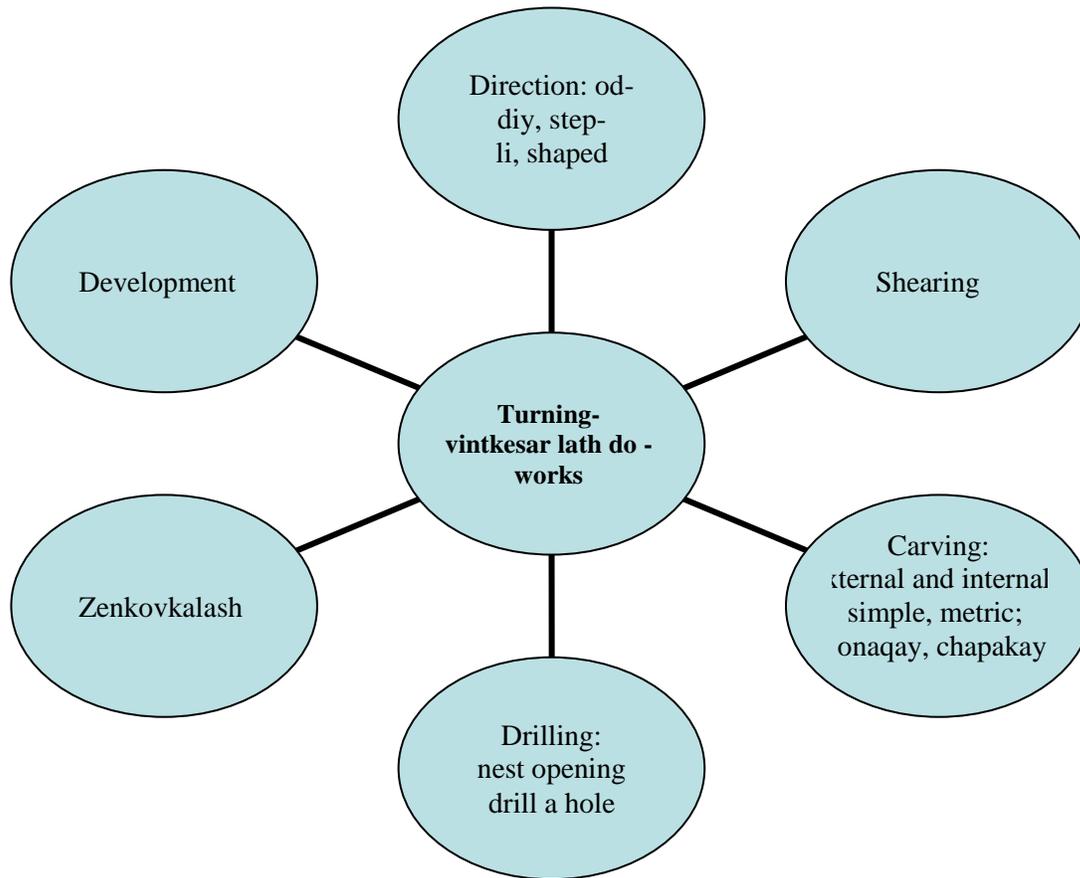




Figure 3. The main difference between lathe-screwdriver and lathe lathes.



4-picture. The main types of work performed on a lathe-screw machine.

1-figure. Identify information that students have acquired and want to know in the B-B-B method.



I know	I found out	I want to know
The structure of lathes	Turning on a lathe	Carving on a lathe
Types of lathe cutters	Use lathe cutters	Sharpen the cutters
Tools that can be used in turning	Setting the settings to work	The internal structure of the three-pointed cartridge
...

Thus, using the above methods, it became clear that teaching the section "Machines, mechanisms, lathes and devices" in technology classes in VII grade using interactive methods is more effective than teaching with traditional methods. By organizing such classes, first, to develop students' ability to work on themselves; second, to increase their activity in the classroom, to develop the qualities of verbal reasoning, sight and perception; thirdly, we will strengthen his memory, improve his ability to think.

Role-playing method. It is known that the substances contained in vegetables and fruits are of great importance for the human body. For this reason, students are given information about cooking, agricultural crops, fruits and vegetables, their medicinal properties, the history of their origin. In such sessions, the role play approach of small group work method can be used to increase student activity. To apply this method, the class is divided into four groups. The first group is called "Historians", the second group - "Naturalists", the third group - "Cooks", the fourth group - "Supervisors". As the name suggests, the members of the group "Historians" are about the history of the origin of vegetables and fruits; "Naturalists" about the composition, types and growing conditions of vegetables and fruits; The "cooks" learn about the use and

processing of vegetables and fruits, and tell about the vegetables or fruits.

"The "supervisors" give a score to the above work. We will try to illustrate the above points in the example of the following topic.

Subject: Vegetables and fruits grown in our country.

Purpose: Students will learn about various vegetables grown in our country and provide information about fruits, their origin, composition, medicinal properties, processing, etc.

Equipment: Various vegetables and fruits, pictures, diagrams, world map.

The course. Dear students! It is known that a variety of vegetables and fruits are grown in our sunny, heavenly place. In today's lesson we will learn with you information about potatoes, tomatoes, radishes, turnips, onions, quinces, their origin, composition, medicinal properties, processing them. As we agreed before, we give the floor to the group members.

About potatoes. Student 1: I am a potato. My homeland is South America. They were brought to Europe in the 16th century. I moved to France in the 18th century. I was also called the "Apple of the Earth" here. I have been cultivating in your country for 120 years.



Student 2: I am also described as the "Second Bread" because the nutrient content of my ingredients is not inferior to bread. I have 18% starch, 2% protein, 1% sugar and a few vitamins.

Student 3: They make all sorts of delicious dishes out of me. I am served steak, potato manti, potato pancakes and a variety of dishes. Again, boil the potato peelings, strain the water, pass through a sieve, and the water can be used instead of starch. Putting potatoes on the burn is also a cure.

About tomatoes. Student 1: My homeland is South America. I am From South America to Peru, from Peru to Spain, from Spain to Europe I am quoted. In the 16th century, I spread from Europe to the countries of the Mediterranean. I was later brought to Turkey via Greece and from there to the Crimea in 1850. In Crimea, I was called the "apple of love."

Student 2: I cook very tasty in the sun. I have relatives such as squash, heart, thyme, jiyina, black eagle, chilgi, potato peelings, Uzbek-kiston variety.

Student 3: They make tomatoes, tomato juice, various salads from me, and when they are added to the dishes, they give a wonderful taste. If a bee stings, I divide the tomato into 2 parts and take the bee venom.

About turnips. Student 1: I am a Turnip, I grow everywhere. I am very popular in Russia and Uzbekistan.

Student 2: If I am planted in a cooler place, I will not be lazy, I will be humble, big as a handkerchief, and soft as butter in a boiling pot. I am white, red, and blue-skinned in Uzbekistan, and a little older. In Russia, my skin is orphaned and my taste is sweet, like potatoes.

Student 3: I am doing well against colds and flu, especially in the fall, winter and spring. French scientists worked on me and came to the conclusion that it was possible to get cheap fuel

from me. They extract 100-120 liters of alcohol from my 100 kg of mime. This means that you can save a lot of electricity by planting a lot of this plant, driving cars with the alcohol extracted from it, and making alcohol lamps.

About quince. Student 1: I am one of the most ancient fruits, my homeland is Iran, the Caucasus, Turkey. I have spread to the world, including Central Asia, from these places. Farmers have been planting and caring for me for over 4,000 years and enjoying my fruit.

Student 2: I'm crazy too. 20 varieties of my variety are grown in Uzbekistan. I have varieties like toshbehi, nonbehi, nokbehi. I cook until the white frost falls.

Student 3: I make a variety of soft drinks, jams, and can be cooked in soups. You can also cut the inside of the quince and cook it with minced meat or buttock oil. I stop sweating. My squeezed juice also cures asthma. I also stop spitting blood. The mucous membrane that surrounds my testicles, on the other hand, benefits from a dry cough and soreness on the tongue.

About onions. Student 1: I am an Onion, I have been cultivated as the best vegetable on the irrigated lands of the Fergana Valley, on the banks of the Zarafshan and Amudarya rivers. From here I spread to the countries of the Middle East, through them to Europe. I went to the Americas via China and Japan.

Student 2: I have over eighty varieties. My in Central Asia

white egg onions, nectarines, turnip onions, noxious yolks and dozens of others my varieties are grown.

Student 3: I am an Onion, I am an Onion - I need seven pains. The thing is, I have a pungent-smelling substance called phytonoid, which kills billions of bacteria in just one minute. I would be cured if I was buried in hot ashes and tied to a rotten wound. When I have a cold or the flu, I can



open my airways by dripping my milky water into my nose. A meal with green onions relieves severe insomnia. They make different salads from me and add them to dishes. Almost every dish is not cooked without onions.

About radishes. Student 1: My homeland is Japan and I was brought to Central Asia about 300 years ago and started planting. I was called "Oriental Turpi", "Dongan Turpi". But almost a century ago, I received a new name, such as "Margilan radish", "Altariq radish". Because the soil and water of these lands of the Fergana Valley are very suitable for my cultivation.

Student 2: I am Turpman, if I take good care of it, my harvest is abundant, and most importantly, my taste is delicious, my bitterness and bitterness are completely gone, and my delicate orphan is only juicy and crispy sweet. The composition of different varieties of radish grown in different countries also varies, of which, on average, 86-87% water, 1-1.5% cellular substance, 1.5-2% protein, up to 05-1% sugar content, some mineral salts, substances such as potassium, calcium, phosphorus, magnesium, manganese, iron, and trace elements include iodine, cobalt.

Student 3: I am Turp, about whom Abu Ali ibn Sina's "Tib

Laws "says a lot about my character. For example, my squeezed water and seed oil are very good for the hand (bod) in the ear. Boiled radish is good for coughs. If it eats me after a meal, I soften the stomach. Ibn Sina discovered that radish was an antidote to poisons. You can make different salads from me. After the topic is explained, the members of the control group give their assessments. If this method is used, it will give good results in the lesson. In doing so, students understand the topic well and their speech grows. Teaching in this way arouses students' interest in the lesson. Because in this case, students will have not only the useful

properties of vegetables and fruits, but also information about where and when they came to our country. Consequently, this is one of the main achievements of the use of harmonized technologies.

Apply the training method. Students in technology classes

The training lesson can be organized as follows to give students an idea of the mechanisms. The teacher begins the lesson with a brainstorming session: "What is the detail?". Students' answers are written on the board and underlined, and general rules are developed: "Integral parts of machines and mechanisms that are not divided into other components are called details." The teacher then divides the participants into 3 subgroups, the first group "What is a bullet?", The second group "What is a shaft?", And the third group "What is a spindle?". asks them to find the answers to the questions for 2 minutes and tell one person from each group. After the students have responded, the teacher provides detailed information about the bullet, shaft, and spindle using a lathe and drawings. A game will be held in between to keep students from getting tired. The teacher throws the ball to the students and asks the meaning of something, and the student has to throw the ball back saying the answer immediately. For example, "What is a typical part?", "What is a special part?", "What is a spindle?" and h. At the end of the game, "What is the mechanism?" he asks and picks up the ball left unanswered and starts the next session. The teacher asks the students, "What do you mean by a mechanism?" The answers are written on the board and a generalized description is developed: "Mechanical devices consisting of leading and guiding links and transmitting motion are called mechanisms." Then the second part of the lesson begins. The teacher divides the participants into two groups and asks, "What do you mean by a car?" And "What are the parts of a car?" asks them to find answers to questions



such as. When the groups are ready, the answers are discussed and the teacher corrects the mistakes made by the students, makes additions, and concludes the lesson. Students who actively participate during the lesson will be assessed at the end of the lesson. The teams that find the most correct answers to the questions asked are the winners. During the lesson, special symbols can be used to identify the winning team. Specially prepared marks are given to the groups and are the marks collected at the end of the lesson, on the basis of which points are given. It is important to note that when students work in small groups, the teacher should guide them and help them correct their mistakes.

Using the relay method. Among the various ways to bring students into the world of work and profession, the subject of technology has a special place. Therefore, to improve the methodology of technology, to strengthen the material equipment, to expand the school's relations with the surrounding industrial and agricultural institutions, vocational colleges, vocational schools, to organize regular socially useful, productive work, to increase its educational and economic efficiency, addition, radically improving the preparation of students for work are its main directions. Although technology lessons, like all subjects, are organized on the basis of general didactic principles, they differ from other disciplines in a number of features. The following tasks, which are common for technological and vocational education, should be addressed, taking into account the age characteristics of students:

formation of a conscious attitude to learning, citizenship, spiritual and intellectual development, physical development;

- diligence, need for work, respect for working people;
- cultivate the qualities of economy, quality, social property and care for nature;

- formation of technical, technological and basic economic knowledge in students, labor skills necessary for participation in socially useful and productive work, knowledge acquired from the basics of science to apply in labor activity.

Practical training in technology classes also has a great impact on the positive solution of these tasks. The main part of technology lessons in secondary schools is practical training. Proper organization and conduct of practical training, increasing its effectiveness is one of the main factors in developing the abilities, skills and abilities of students.

In view of the above, the organization of practical training on the basis of new pedagogical technologies remains one of the most important tasks today. Although conducting non-traditional hands-on activities requires extra effort from the teacher, there is no doubt that it will increase lesson effectiveness and students' interest in the lesson.

The proposed method of teaching below is based on conducting technology classes in a competitive manner. It is known that the creation of a competitive environment among students reflects their qualities such as aspiration, interest, perseverance, enthusiasm for the team.

Let's look at the organization and conduct of the lesson in this way on the example of the topic "Straight quotes". After the teacher has completed the theoretical part of the lesson, the students are divided into groups of 4-5 people. Each group is assigned one desktop. Team members are numbered by lot. The teacher announces the points awarded for the work done. After that, students will once again explore the order of practical work on the basis of the technological map. To create a correct nail joint, you need to perform four operations on the basis of the technological card:



1. The pallet is prepared.
2. The location of the nail and ear is planned.
3. Nails and ears are formed.
4. Joining and finishing works are performed.

After that, with the permission of the teacher, the students do the work

enters. Operation 1 is performed by students number 1, operation 2 is performed by students number 2, and so on. Student number 1 is only allowed to start work after student number 2 has completed operation 1. If Student 1 fails to complete Operation 1, he or she will be replaced by Student 2, but a penalty point will be awarded to that group. The group that completes the task 1st is given a high score. The remaining groups are thus evaluated. During the work, the points collected by the members of the group are distributed by the group leaders according to the quality and volume of their work. It should be noted that when dividing students into groups, care should be taken to ensure that their knowledge and work skills are close. It is advisable for such groups to be active throughout the school year. Because in doing so, students learn to complete assignments in a timely and quality manner by working in small groups in groups, helping their peers who have difficulty completing certain work methods. In this way, students develop the qualities of teamwork, mutual assistance, and their work skills are strengthened.

This will be the basis for students to work independently and positively in the future. In the process of conducting such lessons, the following achievements are achieved: a) students develop the qualities of teamwork, mutual support and control; b) students' interest, demands and aspirations increase due to the creation of competitive conditions; c) All students can be assessed during the lesson.

Using creative issues. One of the most effective ways to organize students' creative work in technology science classes is to use creative issues. It helps students to think creatively, to apply theoretical knowledge in science through observation, to improve their work skills. It should be noted that creative issues have their own complexities in terms of structure. Therefore, first of all, it is necessary to carefully study what creative issues look like and how to use them. However, unfortunately, the pedagogical literature in the Uzbek language does not provide sufficient methodological guidelines and recommendations for the use of creative issues in technology lessons. Consequently, information on many ways to solve technical problems in the creative form, including the creative-inventive form, can be obtained from the Russian language literature. We think there is neither a need nor an opportunity to use most of them in school. Therefore, it is expedient to create and use creative issues that are relevant to the development of science and technology, taking into account the specific needs, local and national conditions. Creative problems that can be used in technology classes can be divided into several groups depending on the purpose and structure, and they can be applied on the basis of the ability to go from simple to complex as follows:

1-group. Creative issues in a simple way. The table in this view

The lessons are based on the "Brainstorming" method, in which students are taught the first creative thinking through oral questioning, introduced into the process of creative thinking. For example: "How to reduce the impact of water waves in a swimming pool?" Let's analyze the problem. Usually most children love to bathe. So this issue may be of interest to them. It is known that during diving and swimming in the swimming pool, the water surface moves, creating waves. The wave hits the edges of the



basin, getting wet around and splashing water on those standing near the basin. These, of course, cause discomfort. So what can be done to prevent this? Many answers can be given by students. The teacher should comment on the advantages and disadvantages of the answers given. For example, the edges of the basin can be made in the form of a neck protruding upwards, or barriers can be installed. However, these make it difficult to use the pool. Experience has shown that if the edges of the basin are worked in a curved, that is, in the form of a slate, rather than a flat, flat view, the resulting wave shock is significantly reduced. It turns out that the solution to creative problems can be multiple, even infinitely many. From the solutions found, the most satisfactory in all respects is accepted. We will now consider the following issues.

1. Confectionery requires a large amount of walnut kernels. What method can be used to bite a lot of nuts? Answer: The nut should be placed in an airtight place.

2. Folding or creasing when sewing large-sized fabric

interferes with work. What to do? Answer: Wet the fabric and freeze it a little.

3. In an automatic control machine, the machine often stops due to scratches during machining, and it takes a long time to clean it. What to do next to get rid of it? Answer: The machine must be installed at an angle.

There are many such examples. They are the future of students

makes it easier to teach how to make a specific item.

2-group. Creative issues related to making a product. In this case, the task of making a specific item is performed. For example, consider the issue of "Make a device that allows you to set the alarm clock on the wall."

It is known that alarm clocks usually stand on a table or shelf. However, such a location is not always convenient to use. That's it

because alarm clocks, especially electronic alarm clocks, are much easier to use if they are mounted on the wall close to the desk or other necessary place, the risk of damage by falling them down for various reasons is reduced. A G-shaped tin can be used for this purpose. In this case, the creative work of students is to choose the material for the construction of the required device, to determine its shape and size, to find a convenient way to mount it on the wall. We recommend the following creative issues and assignments.

1. Make a decorative table for the phone.
 2. Make a new-looking pencil using wood.
 3. Shaped handle for kindergarten children using wood and plywood
- make a shovel and a mattress.

4. Grinder considering the shape and size of the fingers

Make a back handle for the randa.

5. Make a decorative base for the iron using tin, and h.

3-group. Creative issues aimed at improving the product.

In this case, some of the works made on creative issues, such as It is possible to expand the range of services, change the appearance, increase the durability, decoration, artistic processing of them. Defects in certain parts or parts, mechanisms or other devices may also be included in the work in this group. In terms of its position, the work in this group is the highest stage of their creative work. For example, "How to improve the handle of a screwdriver?" - can be explained as follows. When tightening or loosening twisted nails under great force, the



hand slips on the handle of the screwdriver, causing inconvenience to work. To do this, you can improve the screwdriver handle. The handle of the screwdriver can be made round, flat, as well as bent in the form of a pistol, and the surface of the handle can be covered with materials such as wood, plastic, metal, taking into account the shape and size of the palms and fingers.

It is also possible to continue the above work. For example, ask students "How to increase the strength of children's shovels and mattresses?", "How to make room in a pencil for things like paper clips, paper," "What other materials can be used to make a base, and how can they be attached? -di? " such as issues whose content is becoming more complex. In conclusion, the organization of students' creative work is a complex pedagogical and psychological process, which should take into account the following features:

1. In organizing the creative activities of students, it is necessary to choose works that correspond to their age, level of knowledge and work skills, to create items that correspond to them. However, there is also a difference in the physical and mental characteristics of students of the same age need to be taken into account. It is best to do this using the level of complexity of the items.
2. Practical, creative, which can be used by students in the future,
 1. it is necessary to prepare items that meet their specific needs.
 2. Students cannot be taught entrepreneurship all at once. Perhaps with a little patience and skill, they can innovate, should be taught gradually, step by step.
3. Implement the suggestions made by

students during the work

4. increased work, especially news, should be interpreted in its place.
5. Students should be reminded that creativity is not an easy task, it requires knowledge in other disciplines.
6. It should be noted that the innovation found in the manufacture of a particular product can be applied to other products.

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