To enhance pupils' and students' spatial imagination and logical thinking skills

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ABSTRACT

Every day we are faced with many tasks, the solution of which requires us to think logically. The ability to think and logic as a cause takes us in many cases, from sequentially and consistently finishing judgement interlocutors and shoppers, starting with complex technical and business tasks. But, despite the great need for this skill, we often make logical mistakes without knowing it. In fact, among many people the right mindset can be based on experience and so-called common sense, not on the idea, using laws and special methods, said "the official logic". To perform simple logic operations, the initial proposal and statements of simple conclusions can lead to often errors in the general sense of closeness and common sense, and if you know or understand something more complex. In this article, ideas and feedback are made about how to increase the spatial imagination and logical thinking ability of students and students.

O'quvchilar va talabalarning fazoviy tasavvurlarini va mantiqiy tafakkur ko'nikmalarini oshirish

ANNOTATSIYA

Har kuni biz ko'plab vazifalarga duch kelamiz, ularni hal qilish bizdan mantiqiy fikrlashni talab qiladi. Sabab sifatida fikrlash va mantiq qobiliyati bizni ko'p hollarda murakkab texnik va biznes vazifalaridan boshlab, suhbatdoshlar va xaridorlarning xulosalarini ketma-ket va izchil yakunlashdan tortib oladi. Ammo bu mahoratga katta ehtiyoj borligiga qaramay, biz, ko'pincha, bilmasdan mantiqiy xatolarga yo'l

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qo'yamiz. Aslida, ko'p odamlar orasida to'g'ri fikrlash qonunlar va maxsus usullar yordamida g'oya emas, balki tajriba va deb atalmish sog'lom fikr asoslangan bo'lishi mumkin, deydi "rasmiy mantiq". Oddiy mantiqiy operatsiyalarni bajarish uchun oddiy xulosalarning dastlabki bayonotlari, ko'pincha, umumiy ma'noda xatolarga olib kelishi mumkin. Ushbu maqolada o'quvchi va talabalarning fazoviy tasavvurini va mantiqiy fikrlash qobiliyatini qanday oshirish haqida fikr va mulohazalar bildirilgan.

Развивать пространственное воображение и навыки логического мышления у учащихся и студентов

Ключевые слова:
учащиеся и студенты,
пространственное
воображение,
логическое мышление,
способности,
развитие,
значение образования.

АННОТАЦИЯ

Каждый день перед нами стоит множество задач, решение которых требует от нас логического мышления. Способность мыслить и логика как причина уводит нас во многих случаях, от последовательно и последовательно заканчивая суждениями собеседников и покупателей, начиная со сложных технических и деловых задач. Но, несмотря на большую потребность в этом умении, мы часто совершаем логические ошибки, сами того не подозревая. Ведь у многих правильное мышление может быть основано на опыте и так называемом здравом смысле, а не на идее, с использованием законов и специальных методов, говорит «официальная логика». Для выполнения простых логических операций первоначальное предложение и формулировка простых выводов могут привести к часто ошибкам в общем смысле близости и здравого смысла, а если вы знаете или понимаете что-то более сложное. В этой статье представлены идеи и отзывы о том, как повысить пространственное воображение и способность к логическому мышлению учащихся и школьников.

"Only a few people think logically. In most cases, we express a wrong opinion, we are smeared with a wrong conclusion, doubt, fear, pride and envy".

Dale Carnegie

The causes of these errors are based on the principles of the formation and formation of the basis of logical thinking of people, which are established in childhood. Education is not targeted at logical thinking and is being determined by the lessons of mathematics (for children or university students in school), as well as by the decision and the passage of a variety of games, tests, tasks and puzzles. But such actions help develop only a small part of logical thinking processes. It is also primitive enough to explain to us the principles of solving assignments. Develop verbal-logical thinking (or verbal-logical thinking) the ability to perform mental operations correctly, consistently draw conclusions, and then we will not be taught this. Therefore, the level of development of logical thinking of people is not enough.

In our opinion, a person's logical thinking and ability to feel should be developed on a regular basis and on the basis of special terminology and logical means. In the online training class you will learn the techniques of self-education for the development of logical thinking, learn the main categories, characteristics of principles and laws of logic, but also learn the examples and exercises of the application of acquired knowledge and skills, for example, what is logical thinking, spatial imagination and how can you develop them?

It is known that modeling is one of the most effective forms of classroom work that develops the spatial imagination of students and students. The didactic advantage of such exercises is that they not only make it easier to imagine about the spatial properties and relationships of the described object, but also help to better understand all the remaining information on the basis of the drawing. The essence of this method is that it is the formation of mental activity inherent in the process of imagination. Practical changes in appearance in the modeling process will be the basis for the formation of the necessary mental activity. In the process of modeling, the student not only perceives the image of the body, but also through the skin sensation is engaged in such activities as the construction of the organism, logical analysis, distribution.

Well logical thinking? To explain what "logical thinking" is, we divide this concept into two parts: thinking and logic. Logical thinking-a thought process in which a person whose goal is to judge, and characteristic, uses logical concepts and design of evidence, whose purpose is to get the sound coming out of the existing premises. Let's define each of these components. Thinking of a person is a mental process of processing information and establishing relationships between objects, their properties or phenomena of the surrounding world. Thinking allows a person to find the connection between events of reality, but communication, of course, thought, in other words, found that the object properly reflect the actual state of affairs or should be, it is logical that logic is subject to the laws.

In translation from the Greek language of logic, there are several meanings: "correct thinking", "the art of thinking", "speech", "thinking" and even "thinking". In our case, we act as a normative science of the forms, methods and laws of human intellectual activity, one of the most logical definitions. The logic is not an emotional experiment, but a study of ways of achieving truth in the educational process through mediation, but it is also taken forward, to take on knowledge so it can be defined as the science of how to get out of knowledge. One of the main tasks of logic – to determine how to get accurate knowledge about the subject of reflection in order to understand the nuances of the relationship with the object of thought and other aspects of the phenomenon, to conclude existing premises and well-studied.

What is spatial imagination and how to develop it? One of the best ways to develop spatial imagery in students and students is through the use of modeling and cutting-edge technology. The reason for the development of this spatial imagination in students and students should be preliminary, theoretical information about space, the universe and its structure in them earlier in the beginning. Only then it will be possible to develop in them such thinking.

Fine-logical thinking (English. symbolic thinking) – the situation involves the processing of visuals and images of its structural objects, the so-called "shaped" problem-solving, different thought processes. Visual-figurative thinking is a synonym for the word

"imagination", which allows you to accurately and accurately create a variety of different real properties of an object or phenomenon. This kind of mental activity of a person is formed in childhood, approximately from the age of 1,5 years.

Verbal logical thinking (verbal-logical thinking) is one of the types of logical thinking, the use of which is language objects and speech structures. Such thinking involves not only the skillful application of thought processes, but also the skillful mastery of speech. For us, verbal-logical thinking is necessary public speaking, writing texts, conducting discussions, and in other cases, it is necessary to express our thoughts with the help of language.

It's no secret that many students do not have a very developed spatial imagination. The problem is old, but relevant. If the teacher heads the junior and middle classes, it will be a few years later that the lessons with the same students after a few years will lose their multiplicity. Everything is psychological processes, development and improvement of spatial imagination among other things. This activity should be encouraged and sent. You need a system of physical exercises. Over the years at school, I came to the conclusion that the spatial imagination of students should be developed from the first lessons of Mathematics from the fifth grade. At the moment, there are various systems of developing spatial imagination high school students, including computer. For several years, I call the course "geometry", which is designed for training in 5-6 classes. Its purpose is to prepare students for mastering regular geometrics. When determining the composition of the "administration", it was necessary to regularly understand what exactly is the most difficult for children. This course is a faith. Almost motivation, its logic is hidden from children. In fact, it starts with points and straight, the corners go, then triangles, etc. But the students do not know what will happen before, I do not know about cylinders or pyramids. The interruption of the ministry and very harmful for business. Pupils are suppressed by spatial imagination. The latest edition of the textbook "geometry", 10 – 11 classes of the authors of "Lsato Syan" attempts to stop the transition to a colored container, but the transition of students to the use of the textbook, this attempt is over. The image of the form on the laptop becomes colorless, and students will have difficulty reading and describing such pictures.

Engage in the use of logical means in almost all spheres of human activity, including concrete and humanitarian, economics and business, rhetoric and lectures, creative processes and inventions. In some cases, strict and formalized logic is used, for example, in mathematics, philosophy, technology. In other cases, logic provides a useful technique to draw conclusions only in economic, historical or simple "living" conditions.

Often the use of logical reasoning is associated with the rapid solution of logical tasks and the passage of tests to determine the level. Intellectual development (IQ). But this direction is a huge linkage to the extent that it leads to the automation of thinking operations, which is a very small part of the usefulness of logic for a person. *Logical thinking and spatial imagination combine many skills in the application of different thinking processes and include the following:*

• Knowledge of logic and spatial theoretical framework. Ability to correctly perform intelligent operations, such as classification, clarification, generalization, comparison, comparison, etc.

• Reliable use of the main forms of thinking: concentration, judgment, exodus.

• Logic and the ability to argue thoughts in accordance with the laws of space.

• Able to quickly and efficiently solve complex logical and spatial problems (both educational and practical).

The conclusion is the third form of thinking, in which one, two or more debts are called parcels, a new proposal is formed, so-called conclusions or conclusions. The indicators are divided into three types: deductive, inductive and output by analogy. If the deduction is preferential (preferential), a general conclusion is drawn from the general rule for a particular case. Induction is the consequence of which the general rule arises from several separate cases. In analogies with hysteria, based on the similarity of things in certain signs, the conclusion is drawn about their similarity in other signs. In this lesson, you will get acquainted with all kinds of conclusions, learn how to create any cause-effect relationships. The term "space" refers to an area that is devoid of boundaries. Millions of stars, celestial bodies, planets, the solar system, meteorites, and natural and satellite satellites can all be found there. To communicate this enigmatic Infinity to readers and to feel this dynamic environment, the same compositional style is applied. Additionally, the utilization of information technology and media sources, such as video, photos, and audio, will aid in the development of spatial imagination in students' minds. Complex procedures should be taught to pupils, who should be able to explain and apply them in simple terms. This necessitates the use of an instructor with specialized abilities. It's also crucial to consider how students and students differ in terms of their knowledge and thinking. Several composing strategies are frequently utilized in this process. The most important thing is that the development of spatial thinking is based on the content of knowledge, vision and hearing and perception.

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