METHODOLOGY OF TEACHING MATHEMATICS IN RELATIONSHIP WITH OTHER SUBJECTS

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Annotation: This article discusses different perspectives, methods, and contributors to the teaching of mathematics, interesting topics, and the interrelationships of mathematics with other disciplines, as well as the attitudes of scholars who have contributed to it.

Keywords: Emotional cognition, logical cognition, sunlight, ancient Egypt, Fales, Abu Rayhan Beruni.

Annotatsiya: Ushbu maqolada matematika fanini o'qitishdagi turli qarashlarni, metodikalarni, matematika faniga hissa qo'shgan olimlar, qiziqarli masalalar hamda matematikaning boshqa fanlar bilan o'zaro aloqasi, shu fanga hissa qo'shgan allomalar haqida munosabatlar aytib o'tilgan.

Kalit so'zlar: Hissiy bilish, mantiqiy bilish, quyosh nuri, qadimgi Misr, Fales, Abu Rayhon Beruniy.

The methodology of teaching mathematics is inextricably linked with pedagogy, logic, psychology, mathematics, philosophy and other disciplines in the process of studying the laws of teaching mathematics. This science was the basis for the creation of several disciplines. Not only is mathematics reflected in all areas, it is always present in our daily lives. The subject of mathematics teaching methodology is a specific branch of pedagogical science that deals with the study of the rules of teaching mathematics.

From a psychological point of view, the process of cognition is of two kinds: emotional cognition and logical cognition. Emotional cognition is intuition, perception and imagination. Emotional cognition is reflected in a person's intuition and imagination. Man interacts with the real world through his senses. Along with perceptions, perception is also involved in the process of cognition. Abu Nasr al-Farabi also said that a person can feel and know emotionally. As a result of perceptions, a subjective image of the objective world is

formed, and the reflection of this subjective image in the human mind as a whole is called perception. Logical knowledge is the concept of judgment and conclusion.

Any logical cognition takes place through sensory cognition, so that the things in each studied mathematical object are felt, perceived and imagined from an abstract point of view, and then about the thing in that studied object. a certain mathematical concept is formed. We know a lot about people who have dedicated their lives to creating innovations in math. Abu Rayhan al-Biruni, a Central Asian scholar, also spoke in detail about the types of rectangles. In his book, The Basics of Astronomy, What Are the Types of Rectangles? asks and answers as follows. A square is equal to all its sides, all its angles are right, and its diagonals, that is, the lines connecting its opposite angles, are equal to each other. A right rectangle is longer than a square, all angles are right, only the opposite sides and diagonals are equal. A rhombus has four equal sides, but different diagonals, only two opposite sides. Rectangles that differ from these shapes are called trapezoids. A parallelogram is a rectangular shape in which any two opposite sides are parallel. The line connecting the ends of its opposite corners is called the diagonal. The fact that we encounter these forms in our daily lives also gives us an idea of these forms and increases our interest in learning.

We found it necessary to look at historical events. This happened in the 6th century BC. At that time, the Greeks had almost no geometry. The Greek philosopher Fales visited to get acquainted with science. The Egyptians give him a difficult question: how to calculate the height of one of the giant pyramids? Fales finds a simple and attractive solution to this problem. He knocks the wand to the ground and says, "When the shadow of that wand is equal to the length of the wand, it is equal to the height of the pyramid." The Egyptians interpreted this issue along with the rays of the sun and found the answer to the question. Linking math to all subjects - it is advisable to teach with the knowledge that students' interest in science, emotional cognition, and logical cognition will be more perfect.

Matematika o’qitish metodikasi matematika fanini o’qitish qonuniyatlarini o’rganish jarayonida pedagogika, mantiq, psixologiya, matematika, falsafa va boshqa fanlar bilan uzviy aloqada bo’ladi. Bu fan o’z tarkibida bir nechta fanlarni ham yaratilishiga asos bo’lgan. Matematika fani barcha sohalarda o’z aksini namoyon etibgina qolmay, u doimo

kundalik hayotimizda uchrab turadi. Matematika o'qitish metodikasi fani pedagogika fanining ma'lum bir bo'limi bo'lib, u matematika fanini o'qitish qoidalarini o'rganish bilan shug'ullanadi.

Psixologik nuqtai nazardan qaraganda bilish jarayoni ikki xil bo'ladi: hissiy bilish, mantiqiy bilish. Hissiy bilish – sezgi idrok va tasavvur. Insonning hissiy bilishi uning sezgi va tasavvurlarida o'z ifodasini topadi. Inson sezgi a'zolari vositasida real dunyo bilan o'zaro aloqada bo'ladi. Bilish jarayonida sezgilar bilan birga idrok ham ishtirok etadi. Abu Nasr Forobiy ham insonni sezishi va hissiy bilishi haqida aytib o'tgan. Sezgilar natijasida ob'ektiv olamning sub'ektiv obrazi hosil bo'ladi, ana shu sub'ektiv obrazning inson ongida butunicha aks etishi idrok deyiladi. Mantiqiy bilish – tushuncha hukm va xulosa.

Har qanday mantiqiy bilish hissiy bilish orqali amalga oshadi, shuning uchun ham har bir o'rganilayotgan matematik ob'ektdagi narsalar seziladi, abstrakt nuqtai nazardan idrok va tasavvur qilinadi, so'ngra ana shu o'rganilayotgan ob'ektdagi narsa to'g'risida ma'lum bir matematik tushuncha hosil bo'ladi. Matematikada yangiliklarni yaratishda butun umrini bag'ishlagan juda ko'p insonlar haqida biz juda yaxshi bilamiz. O'rta osiyolik olimlardan Abu Rayhon Beruniy ham to'rtburchaklarning turlariga mufassal to'xtalgan. U o'zining "Astranomiya san'atidan boshlang'ich ma'lumot beruvchi kitob" nomli asarida, To'rtburchaklarning turi qanday ?" deb savol qo'yadi va quyidagicha javob beradi. Kvadrat – uning barcha tomonlari teng, barcha burchaklari to'g'ri, diagonallari, ya'ni qarama – qarshi burchaklarini tutashtiruvchi chiziqlari esa o'zaro teng. To'g'ri to'rtburchak – u kvadratga nisbatan uzunroq, barcha burchaklari to'g'ri, faqat qarama – qarshi tomanlari va diagonallari teng. Romb - uning to'rtta tomoni teng, ammo diagonallari turlicha, faqat ikkitadan qarama qarshi tomonlari teng. Bu shakllardan farqli to'ttburchaklar trapetsiyalar deyiladi. Parallelogramm - u to'rtburchakli shakl, uning har qanday ikki qarama qarshi tomoni parallel. Uning qarama-qarshi burchaklarining uchlarini tutashtiruvchi chiziq diagonal deb ataladi. Bizni bu shakllarni kundalik hayotda har kuni uchratishimiz ham bizni bu shakllar haqida tasavvurga ega va o'rganishga bo'lgan qiziqishimizni orttiradi.

Tarixiy voqealarga nazar solishni lozim topdik**.** Bu voqea miloddan avvalgi 6-asrda bo'lgan. Bu vaqtda yunonlar geometriya bilan deyarli shug'ullanmas edilar. Yunon faylasufi Fales fan

bilan tanishishga tashrif buyurgan. Misrliklar unga qiyin masala beradilar: ulkan piramidalardan birining balandligini qanday hisoblash mumkin? Fales bu masalani sodda va jozibali yechimini topadi. U tayoqchani yerga qoqadi va shunday deydi: “Qachonki shu tayoqcha soyasining uzunligi tayoqchaning uzunligi bilan teng bo’lsa, piramida balandligi bilan teng bo’ladi.” Bu masalani misrliklar quyosh nurlari bilan birga talqin qilishgan va savolga javob topishgan. Matematika fanini barcha fanlar bilan bog’lab o’tish - o’quvchilarda fanga bo’lgan qiziqishlari, hissiy bilish, mantiqiy bilish darajalarini yanada mukammal bo’lishini bilgan holda dars o’tilsa, maqsadga muvofiq bo’ladi.

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