



**Investigate mathematical creativity in the fractions topic in fifth grade
students**

Assan Meruyert

Suleyman Demirel University

Abstract

The article discusses the methodological problem of familiarizing a younger student with the concepts of "share" and "fraction" in an elementary school mathematics course. In mathematics textbooks for elementary grades, a student receives information about fractions only through a system of practical actions on real objects, quantities and a description of these actions in the language of special mathematical symbols. Teaching fractions is an integral part of the math program. But why are fractions so hard to understand for children? There are three big things that confuse children most often.

1. We often ask children to complete a series of steps without understanding the reasons for these steps. Sometimes, when they are younger, students are not even ready for the development of concepts.

2. Children often have misconceptions about all the complex topics of mathematics, including fractions. When we can help children resist these misconceptions, learning is often easier.

3. Children struggle with fractions for the same reason that children struggle with many new concepts: they just need practice.

Examples of such practical actions are given in the article.

Keywords: fractions, mathematical creativity, skills, teaching methods, visualization.

Introduction

Graduation work is devoted to one of the central topics of the course of school mathematics. It is impossible to fully realize the role and the applied value that ordinary fractions have. Based on this topic, a large amount of educational material of high school is presented. We know that for counting objects it is enough to have natural numbers. At present, questions of the depth and strength of assimilation, the mastery of students of educational material on the topic "Ordinary fractions" remain relevant.

A fraction is a topic that half of the inhabitants of our planet stumble upon. If you ask people on what topic they started having problems with mathematics, then most of them will answer with fractions. These people cannot be blamed. Fractions are not really a simple topic. The subject of fractions requires a lot of patience and attention, especially if a person is studying it for the first time. Simply put, a fraction is part of something. This "something" can be anything - food, money, number. People call a fraction. The word "fraction" also speaks for itself - fraction means fragmentation, separation, separation. Consider an example from life. We bought pizza to eat during the day. Suppose we decide to divide it into four parts in order to gradually eat one piece at a time. Each slice of pizza is a fraction, because each slice individually is a part of pizza.

The structure of the methodological system for teaching ordinary fractions

In the developed methodological system, we choose the technology of multilevel training. It is necessary in order to provide an opportunity for each student to develop their potential abilities. Multilevel education is a pedagogical technology for organizing the educational process, within the framework of which a different level of assimilation of educational material is assumed, which allows each student to master the educational material in individual subjects of the school curriculum at a different level, but not lower than the basic, depending on the abilities and individual characteristics of the person each student. In order for the technology of level learning to be effective, it is necessary to focus on the characteristics of the subjective experience of schoolchildren: the features of the personal-semantic sphere; features of mental development (features of memory, thinking, perception, ability to regulate one's emotional sphere, etc.); the level of training in the framework of a particular subject (knowledge generated by students, methods of activity). The preparation of the training material provides for the selection in the content and in the planned learning outcomes of several levels, the choice of which is determined

by the composition of the class and the requirements of the state standard. Thematic planning is carried out for integrated units of assimilation and provides for the preparation of a technological map for students, in which for each unit the levels of its assimilation are indicated:

- 1) knowledge (memorized, reproduced, recognized)
- 2) understanding (explained, illustrated, interpreted, translated from one language to another);
- 3) application (patterned, in a similar or changed situation); 4) generalization of systematization (singled out parts from the whole, formed a new whole);
- 5) assessment (determined the value and significance of the object of study). For each unit of content in the routing, indicators of its assimilation are presented, presented in the form of control or test tasks.

Multilevel tasks in mathematics lessons: the problem of developing students' creative abilities is extremely important for our modern school. And the main task of the teacher is to fully promote the development of cognitive abilities of schoolchildren. No matter how well education is delivered, it cannot provide a uniform rate of advancement for all students in the class. The effectiveness of students learning the techniques of mental activity depends not only on quality, but also on the individual psychological characteristics of children, on their ability to learn.

Designing a Fractional Lesson System

The objectives of studying the topic of fractions:

Didactic — introduce students to the concept of “fraction”; to form the ability to mark fractional numbers on the coordinate ray; to form the ability to read, compare, understand, perform arithmetic operations with fractions.

Developing – develop perception, attention, memory; develop skills to compare, analyze; develop skills in the implementation of theoretical knowledge in practice.

Educational – educate cognitive interest in the subject; foster a sense of self-confidence, the ability to work in a team; promote the rational organization of labor.

Learning Outcomes:

Subjects – systematic development of the concept of number; development of the ability to perform verbally and in writing arithmetic operations with numbers.

Meta-subject — creation of conditions for the acquisition of initial experience in mathematical modeling; the formation of common ways of intellectual activity.

Personal development – development of logical thinking; education of personality traits providing social mobility; development of interest in mathematical creativity. The main purpose

of studying the section “Ordinary fractions” in grade 5 is to familiarize each student with the concept of a fraction in a volume sufficient to introduce decimal fractions. The tasks of studying the section.

The learning process in the lesson should be based on the objective laws of psychology and the principles of didactics. It must be, first of all, focused. In the Soviet Encyclopedic Dictionary, design is described as “the process of creating a prototype project, a prototype of a proposed or possible object, condition”

What’s so difficult about fractions?

One of the reasons fractions can seem so complicated is that there is a lot to understand. For example, half of something may be less than a quarter of something else. An example of this is “half of six is three,” and “quarter of sixteen is four.” Therefore, studying fractions by folding pieces of paper or dividing circles can lead students astray, especially if the paper is always the same size. Students need to be taught to ask: "What fraction?" The development of understanding fractions is not so different from teaching understanding other mathematical concepts. For example, very young children are invited to many different events, as they learn to generalize the concept of “three”. Although they are older when they learn about fractions, primary school students also need a huge variety and varied experience if they want to develop a good understanding of fractions. Many students will have experience that will help them develop some understanding of fractions. In her study, Nunes found that elementary school students already had an idea of fractions in solving division problems:

They understand the relative nature of the fractions: if one student gets half the big cake and the other half the small, they don’t get the same amount. They also understand, for example, that you can share something by cutting it in different ways: it makes it “different fractions, but not different amounts.” Finally, they understand the inverse relationship between the denominator and quantity: the more people share something, the less everyone gets.

Methods of teaching fractions

We can help children overcome these obstacles. Here are five training fractions of ideas to do the trick.

1. Get hands

The concept of "fraction" is an abstract and visualizing part against the whole - it is a developmental skill that is not entirely true for some children up to middle or high school.

Manipulation can help concepts become more specific. I love to build fraction sets with my children at the beginning of every fraction I teach.

Putting the kit together gives the children a visual concept on which they can build the rest of their knowledge, and we use the kits throughout our fraction. I will keep my set of fractions glued to the board throughout the block and will refer to it when we need to solve a problem together.

2. Use visual effects

Every time I can imagine an image that matches the concept that I am teaching, I know that I will be in better shape. One of the ways I do this when teaching fractions is to ask students to create a visual image on paper.

3. Quit the game.

Games serve more than one purpose. Firstly, they make an interesting and boring topic for your students more fun and interesting. They also often provide that visual component that is especially useful for some students.

4. Refer to Tech

Another strategy that I would like to use to help children develop fluency with the skills of the fractions is to give them the opportunity to practice digitally. Applications and other online resources can help reinforce concepts.

There are several applications that present fractional parts visually and include fun games that ask students to be more flexible in their views on fractions, often helping to correct misconceptions that children may have.

5. Be strategic in training fractions

When you introduce a new concept, a free study with manipulations and games can help students prepare for study. Step by step, strategic learning can solve all three of the big problems listed above that students face when trying to learn fractions: limited understanding, misconceptions, and lack of practice.

Conclusion

In the course of studying this problem, the features of the study of ordinary fractions were established. The essence of the question of theory and practice is studied, the experience of various educators is studied, which indicates that the question “Ordinary fractions” is important enough for the development of the student’s mathematical abilities. The study of ordinary fractions will be most effective if we use effective forms and methods of conducting

mathematics lessons to study ordinary fractions, and the most rational methods will be developed that provide a conscious understanding by students of the concept of ordinary fractions. The developed didactic materials will be used in further professional activities.

References

- Investigating Mathematics: Using Active, Exploratory Activities to Further Math Education in an Elementary Classroom, Hillary Paige Walker
- Choreographing patterns and functions. Teaching Children Mathematics, Hawes, Z., Moss, J., Finch, H., & Katz, J. (2012---2013)
- <http://spacemath.xyz/drobi/>
- https://vkr.pspu.ru/uploads/2938/Vahrusheva_vkr.pdf