ACADEMICIA

ISSN: 2249-7137 Vol. 10 Issue 10, Oct 2020 Impact Factor: SJIF 2020 = 7.13

ACADEMICIA
An International Multidisciplinary Research Journal
(Double Blind Refereed & Reviewed International Journal)

DOI: 10.5958/2249-7137.2020.01142.8

METHODOLOGY TO ORGANIZE INDEPENDENT WORK OF STUDENTS IN MATHEMATICS LESSONS IN PRIMARY SCHOOL

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ABSTRACT

It is independent work that is the most important condition for self-regulation of the personality, its creative capabilities. But why are there so many people who are dependent, unable to make the necessary decisions in time, without looking back at others? This question comes up again and again in society, the long-standing dispute between teachers from different countries does not cease. The student's independent work is the main way of fostering independence. The school's many years of experience is the best proof of this. The article discusses the correctness of the organization of independent work, since I believe that independent work serves as an effective means of forming a personality, encourages mental independence in children.

KEYWORDS: *Formation, Skills, Problem Solving, Independence, Mathematics Lesson, Primary School.*

INTRODUCTION

Today, a student is defined not just as a subject of the educational process, he is recognized as a subject of social interaction, in the process of which there is a mutual development and personal development of all participants in the interaction.

The initial link of education is one of the sensitive school periods for the formation of such personality traits as independence, which is actively developing at this age in educational activity. Independent educational work is usually understood as any active activity of students organized by the teacher in a specially allotted time for this. As a didactic phenomenon, independent work is, on the one hand, an educational task, i.e. what the student must accomplish, the object of his activity, on the other hand, the form of manifestation of the corresponding

activity: memory, thinking, creative imagination when the student performs an educational task, which ultimately leads the student either to obtaining a completely new knowledge unknown in advance, or to deepening and expanding the scope of already acquired knowledge.

Independent work includes two stages: preparatory and executive. At the first stage, students get acquainted with the task, comprehend it, highlight what needs to be done, what tasks and actions will be required for this, and draw up a plan for completing the task. The second stage is that the students, having understood the task and drawing up a plan of action, carry out and check it.

In a modern lesson, the independent activity of students must necessarily be accompanied by evaluative (or rather, self-evaluative) activities (self-test by a key or standard, fixing and identifying the causes of errors and difficulties, adjusting the training route, etc.)

The following types of independent work can be distinguished, taking into account the level of activity of the thinking of children, to show the possibilities of their use at various stages of teaching mathematics.

1. Independent work with the aim of updating the knowledge of students.

The teacher must update the basic knowledge and skills before introducing new material and before consolidating it. This work can be reproductive and reconstructive – variativein nature.

Reproductive works (or patterns) in the mathematics course are numerous typical examples and problems with fully specified conditions. In the course of performing these works, students formulate the conditions of the problems, determine the conditions of the problems, determine the data and the desired, and then reproduce the corresponding knowledge, find a way to solve. Students perform work of this type with detailed instructions.

For example, in order to prepare for the study of a computational technique of the form 30 - 6, it is advisable to propose the following system of tasks:

1). Replace the number with the sum of the sample:

50 = 40 + 10 70 = +

90 = 80 + 10 20 = +

2). Fill in the "windows"

60 + = 65 72 +6 = +8 = 78

3) .Solutions in a convenient way:

(50 + 10) -6 (30 + 10) -4

This work should be carried out in order to determine the level of preparedness of students for the perception of new material. The types of verification can be different: frontal, selective, using feedback, etc.

Works of a reconstructive - variable nature require from students various transformations, generalizations, relying on previously acquired knowledge and skills. Here, students must not only reproduce individual functional characteristics of knowledge, but also the structure of this knowledge as a whole. Thus, they deepen, their application expands, they become more perfect, and the thinking of students reaches the level of productive activity.

Let's imagine a system of preparatory assignments using the example of the same topic 30 - 6

1. Distribute independently the examples in two columns according to some criterion, justify your answer:

40-8 34 + 5 44 + 3 80-9 56 + 20

70-8 90-6 45 + 50 30-6 72 + 10

2. Among these examples, find those that will help solve examples of one of the columns recorded in the assignment.

(20 + 10) -6 (70 + 10) -9

(30 + 10) -8 (60 + 10) -8

(50 + 10) -1 (80 + 10) -3

(40 + 10) -2 (80 + 10) -6

3. The composition of what numbers do you need to know to solve these examples? Write them down yourself.

2. Independent work with the aim of learning new knowledge

The introduction of new material can be carried out at different levels of students' cognitive activity. Itdependsonthecomplexityofthematerialandthelevelofpreparationoftheclass.

Works of a reproductive nature (or according to a model) are performed by students entirely on the basis of a model or detailed instructions, due to which the level of cognitive activity and independence does not go beyond the framework of reproductive activity.

For example, the chalkboard contains examples: 48-3; 48-30

The teacher announces the topic and makes a detailed record of the example solution:

48-30 = (40 + 8) -30 = (40-30) + 8 = 10 + 8 = 18

- Look, the chalkboard contains an example solution with an explanation and a memo with reference words that will help you explain the solution.

- Guys, independently figure out the solution to this example. It is advisable to start the survey at will and with weak students. At the end, the teacher summarizes the students' answers.

Works of a reconstructive - variable character.

Here, students must see and apply basic knowledge and skills. And this requires a system of preparatory knowledge. Only a system of appropriately selected preparatory questions and tasks will allow organizing independent work of this type.

For example, you need to enter a computational device of the form 30-6. We will proceed from the preparation that we presented in paragraph 1. Then the questions and tasks at the study stage will be as follows:

Take a close look at the examples we just solved. Are there any among them that will help solve this?

Children are given time to think. After the discussion, they are invited to independently write down an example with a detailed explanation, using the key words of the memo, and orally speak the algorithm. At the end of such work, the teacher should give a sample reasoning for solving this example using the same key words.

Works of a partial search nature differ from the previous ones in a greater degree of students' independence. With this type of work, it is advisable to offer the student some kind of auxiliary material.

For example, consider familiarity with computational example 47 + 5

Guys, now you will learn to solve examples of the form 47 + 5. You have bunches of sticks of different colors on your tables (two sticks of a different color) How is it convenient to calculate how many sticks there are in total? Children are given time to think. After the discussion, the teacher makes a generalization and invites the students to write down the solution themselves. What follows is a test and a sample algorithm for solving the example.

In the work of a research nature, students themselves solve the problem, draw up solution algorithms, and make generalizations. This type of work can only be organized in a strong classroom, where students have formed the skills necessary for research. The system of preparatory exercises also plays an important role here.

For example, it is necessary to acquaint students with a new computational technique of the form 42-5. We will proceed from the fact that we proposed the preparatory work that I spoke about in paragraph 1. Then, at the study stage, we can offer the following system of questions and tasks.

Guys, you need to solve example 42-5. Think about how you can calculate. There are sticks of the same color on the tables, but no practical help is offered to children. Our goal was to introduce material at a higher abstract level. Only those children who have not coped with the task, it is advisable to offer help - counting sticks.

After discussing the search for a solution, which should start with weak students and if desired, the teacher may offer to write down the solution with a full explanation and tell the algorithm using the cheat sheet.

We have considered 4 types of independent work that can be carried out in order to study new knowledge. These works can be carried out only in the indicated sequence, since the content is gradually increasing in difficulty, which entails an increase in activity in the thinking of students. The highest level of cognitive activity is manifested in research works.

3. Workswiththeaimofconsolidatingandrepeatingtheknowledgeandskillsofstudents

The purpose of consolidation is memorization, systematization, generalization and practical application of knowledge and skills. Most often, in practice, we observe the repeated execution of similar tasks. This, of course, is not enough. Consolidation is a lengthy process and tasks should be offered in a certain sequence: solving similar tasks; performing tasks where knowledge is transferred to new conditions; further - the inclusion of new knowledge in the old system; the latter can offer tasks of a creative nature. For independent execution, you can offer tasks of any kind. When consolidated, independent work can be reproductive and reconstructive-variative in nature.

For example, for work of a reproductive nature, you can offer tasks:

1. Solve examples based on the pattern.

2. Solve the problem similar to the one that was analyzed orally.

3. Draw the same line, etc.

For works of a constructive-variative nature, it is advisable to offer such tasks where it is necessary to transfer knowledge to new conditions, having seen intra-subject connections, and tasks of a creative nature.

For instance:

1. Using the first example, compose the second for calculations: (20 + 10) -6 (40 + 10) -7

2. Think of a problem that would be solved like this: 30 * 6.

4. Independent work in order to test the knowledge and skills of students

The purpose of the test is to determine the level of assimilation of knowledge and skills of the student. The result of the check is the assessment. Work at this stage, as well as at consolidating knowledge, can be of a reproducing and reconstructive-variative nature, tasks are offered similar.

I have named the main types of independent work used in elementary school, which can increase the activity of students at various stages of the lesson, and further contribute to the independent mastery of new knowledge.

Independent work as a teaching method can be included in almost all teaching methods, applied at different stages of the learning process. In most cases, at the stage of comprehending the material being studied, independent work in mathematics lessons takes about 5-6 minutes, at the stage of developing skills in applying the studied material up to 10-15 minutes, and at the stage of developing skills - up to 30 minutes.

1. Working with the textbook:

• reading text;

• Reading to yourself;

• Reproduction of the read;

• Discussion of what has been read;

• Breakdown of the read into semantic parts;

• drawing up a plan of the reading;

• work with a table of contents, with a suggested index;

• work on the concept, term.

2. Implementation of written independent work in the lesson:

• performing exercises, tasks to consolidate the topic;

• drawing up tasks, equations, exercises, diagrams, tables;

• Work on errors;

• Work according to a drawing, graphic, table, diagram;

• laboratory and practical work;

• test tasks.

3. Types of practical work

Mathematical dictation.

Proceed from the tasks of the studied item:

• include tasks for repetition, poorly mastered material;

• all tasks should be as close to the studied material as possible;

• mastering the technique of self-control.

Lessons - reports:

• homework is given ahead for two weeks on a card.

Practical work to consolidate knowledge, skills and abilities at the final stage.

Drawing up schemes. Tables.

Tests.

Requirements:

• certainty;

• simplicity;

• unambiguity;

• equal difficulty.

The modern educational process cannot be imagined without a test control system. The use of tests allows you to save time, check a wide range of students' knowledge of the subject, the level of formation of certain skills and abilities.

Laboratory work

• construction of graphs and their application;

• use of models, drawing tools;

• data processing according to the formula and average results;

• the use of tables, reference books;

• connection with other disciplines.

Creative "Special Assignments"

Naturally, at different stages of learning, independent work is used to achieve various goals: at the stage of comprehending the educational material, independent work is aimed at understanding the meaning of the studied concepts and rules; at the stage of skills formation,

independent work is primarily aimed at working out the correctness of the actions performed, and at the stage of skills formation, they are aimed at practicing the speed of the actions performed. Naturally, the formation of students' skills for independent study of mathematics at each of these stages has its own specifics.

Let's consider in more detail.

At the stage of acquaintance with the content of the studied material, independent work with the text of the textbook is fruitful. Generally speaking, the text of the textbook intended to be read after the teacher's explanation and the text that is designed for students to read independently should be different.

It should be remembered that independent reading of a mathematical text is a very difficult task due to the fact that this text is usually full of information, the references cited in it may slip out of sight of students, and some remarks may seem superfluous. Therefore, when choosing material for independent work with a textbook, the teacher has to take into account the level of accessibility of the text of the textbook. A combination of different methods is of great help. For example, the teacher explains part of the new material himself, while the other part from the textbook suggests studying on his own.

For the purposeful formation of this skill, some teachers use the following algorithm.

1) Read an example of solving a problem in the book and draw up a general plan for solving such problems.
2) Check if it can be used to solve another problem of this type.
3) Solve a number of tasks of a new type, using your plan and adjusting it if necessary.

The problem of enhancing the independent learning activity of students is closely related to the problem of developing their mathematical culture, with the problem of formulating a system of various educational and cognitive tasks in the process of teaching mathematics.

The ability to solve problems, the skill in solving them is, perhaps, the most important thing in teaching mathematics.

To develop skills in solving problems, of course, students will need to solve many and the most diverse problems; but they should be solved not mechanically, not indiscriminately, but consciously and deliberately, relying on indisputable logic.

Note that thinking through tasks on your own is the best way to get into the essence and spirit of tasks. Thinking over tasks can occur according to a given formula, rule or topic.

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