



USE OF THE "WORKING WITH OBJECTS" METHODOLOGY IN PREPARING FOR INTERNATIONAL STUDIES

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A B S T R A C T	K E Y W O R D S
<p>This article describes the guidelines for using the "Working with objects" methodology for mathematics and natural sciences in preparation for TIMSS international studies, and the ability to adapt to social life through the methodology.</p>	<p>TIMSS research, STEM, natural sciences, functional literacy, "Working with objects" methodology, spatial forms, flat forms, content areas, cognitive area, physical phenomena.</p>

Introduction

The TIMSS survey of math and science assessments is a valuable resource for monitoring educational performance because science, technology, engineering, and math, commonly known as STEM, are core curriculum areas. Obviously, even today, many jobs require a basic understanding of mathematics and science, and this will not lose its relevance in the future. Those working in STEM careers are a world like fighting hunger and habitat loss they are responsible for finding solutions to their problems, as well as supporting growth and stability in the global economy. Also, mathematics and natural sciences are the basis of everyday life. Natural sciences are about nature, including our weather, land and water, food and fuel sources. Mathematics helps us perform everyday tasks and is essential in creating the technologies we rely on, such as computers, smartphones, and televisions. IEA because mathematics and natural sciences cover all aspects of our lives The International Association for the Assessment of Educational Achievement, widely known as the International Association for the Assessment of Educational Achievement, has been conducting assessments in the framework of international research in mathematics and natural sciences for almost 60 years.

TIMSS research is important in improving the functional literacy of primary school students. Here the question arises, what is functional literacy?

Functional literacy is considered as a method of using all the knowledge, skills and competences acquired continuously in life to solve life problems in various spheres of human activity.

Functional literacy begins with students learning all academic subjects. Based on these subjects, students should acquire the knowledge they need for life and learn to apply it to life. Tasks designed for TIMSS research increase students' functional literacy and prepare them for life. Uzbekistan should achieve good results in the TIMSS studies to be held in 2023. For this, preparation should be focused on the

methodological aspects of the subjects taught to primary school students. The more sophisticated the methodology, the more effective the result. Below we present the "Working with objects" methodology, which gives high results in preparing elementary school students for the TIMSS study in mathematics. As we know, in 4th grade mathematics, TIMSS tests mainly focus on the following content areas: numbers, measurements and geometry, and working with data. We tried to combine the content areas of mathematics, such as numbers, measurements and geometry, working with data in the "Working with objects" methodology, that is, in our methodology, we work with numbers, and measurement work is carried out, and Pupils work with geometric shapes and, most importantly, the level of functional literacy increases by applying this information to life.

In the "Working with objects" method, the following tasks are performed in sequence:

1. The student is assigned to observe a small one-room building at the address where he lives every day. For example: neighborhood security posts, shopping malls, computer services building, buildings for various snacks, etc.
2. The basis of the task is that the students will find the first building from a distance, which geometrical spatial forms are made up. For example: cone, cylinder, cube, pyramid, rectangular parallelepiped, etc.
3. The next task is to measure the parts of the walls of this building by eye, find its surface and learn to calculate its size from the entire surface. For example: let our building be in the shape of a cube. The wall should be approximately 3 meters high and 3 meters wide. The surface is $3 \times 3 = 9$ sq.m. There are 6 sides in total, i.e. 4 wall parts, floor and ceiling part of the building. $3^3 = 27$ cubic meters.
4. During the task, the door and window parts of the building are counted and what flat shape it consists of. For example: rectangle, square, etc. The door part should be 2 meters high and 1 meter wide. $2 \times 1 = 2$ sq.m. The surface of the window is found in the same way.
5. They distinguish how many spatial forms and how many flat forms the building consists of.
6. This assignment is given 2 times a week and is regularly checked by the teacher, mistakes are worked on.
7. Later, after the students have learned well, they will go to work with 2- and 3-room buildings.
8. After the students learn to work perfectly with the method, they can calculate how many bricks were used in the building, how many boards were used for the door and window parts (in this case, the glass part is subtracted), and how many slates were laid on the roof part.
9. What size equipment do they plan to put in the building?

When working with this methodology, the students' skills in working with non-negative whole numbers, working with geometric shapes, and most importantly, the application of mathematical information in life will increase. They learn to freely use operations such as creating expressions using numbers, multiplication, division, addition, subtraction, and when necessary, they learn to make simple equations and use fractions independently. And most importantly, they get acquainted with the application of professions in life. They will have certain knowledge and skills when choosing a profession. Through this, the cognitive areas of mathematics: knowledge, application, reasoning are developed.

In the fourth grade, the science content of the TIMSS science survey is defined by three main content areas: life sciences, physics sciences and Earth sciences.

Studying life sciences in fourth grade allows students to express their innate curiosity and understanding of the living nature that surrounds them. In the fourth grade, students learn that a number of physical phenomena that they observe in their daily lives can be explained using scientific concepts in physics. Students of the fourth grade should understand the physical state of matter (solid, liquid and gas), as well as general changes in the aggregate state and shape of matter; and this serves as a basis for studying chemistry and physics in higher grades. Also, students at this level should understand the basic concepts of energy types and sources familiar to most people and their practical uses, light, sound, electricity and magnetism. They should study the properties of substances, the state of matter and the classification of the different aspects of each state of matter, and the changes in matter.

We apply the above-mentioned "Working with objects" method directly to natural sciences, and it is carried out in the following sequence:

1. What are the construction materials of the building under study?
2. What is the aggregate condition of these building materials?
3. What physical phenomena do you know are happening in this building? (heating while cooking, steaming, etc.)
4. What is the electricity and gas supply of this building?
5. These data should be recorded in a separate notebook and the teacher should be regularly checked.

The advantage of this method is that students learn to apply their knowledge directly to life, enter social life, adapt to the choice of profession and profession, and most importantly, the level of functional literacy increases.

List of Used Literature:

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