INTERNATIONAL CONFERENCE **Dehli, India, 2026**
https://eijmr.org/conferences/

METHODOLOGY OF USING DIDACTIC MATERIALS IN TEACHING NATURAL SCIENCE IN PRIMARY EDUCATION

Tokhtamurodova Sevinch

Student at Nizami National Pedagogical

University of Uzbekistan

Abstract: This article explores the methodological foundations of using didactic materials in teaching natural sciences at the primary education level. The study highlights the role of visual, interactive, and practical teaching aids in enhancing students' cognitive activity, critical thinking, and learning outcomes. Special attention is given to the selection, implementation, and effectiveness of didactic materials in accordance with learners' age characteristics. The research concludes that properly designed and systematically applied didactic materials significantly improve the quality and efficiency of primary science education.

Keywords: didactic materials, primary education, natural science teaching, interactive methods, cognitive development, teaching methodology

Introduction

Primary education plays a crucial role in forming the foundational knowledge and skills of learners. Teaching natural sciences at this stage requires special methodological approaches, as young learners tend to perceive information more effectively through concrete, visual, and interactive means. Therefore, the use of didactic materials becomes an essential component of the educational process.

Didactic materials are not only tools for delivering knowledge but also means of stimulating students' interest, developing their observational skills, and fostering independent thinking. In modern pedagogy, the integration of such materials aligns with learner-centered and competence-based approaches.

Theoretical Background

Didactic materials are defined as educational resources designed to facilitate the teaching and learning process. According to pedagogical theory, they serve several key functions:

- Informational function – delivering new knowledge
- Motivational function – increasing student engagement
- Developmental function – enhancing thinking and creativity
- Control function – assessing knowledge and skills

Researchers emphasize that primary school students have a predominantly visual and emotional perception style. Therefore, abstract concepts in natural sciences should be supported by concrete representations such as models, diagrams, and experiments.

Types of Didactic Materials in Natural Science Education

Visual Materials- These include pictures, charts, maps, diagrams, and models. For example, a model of the solar system helps students better understand planetary structure and movement.

Practical Materials- Hands-on tools such as laboratory equipment, natural specimens (plants, soil, water), and experimental kits allow students to learn through direct experience.

Printed Materials-Worksheets, flashcards, and test papers are used to reinforce knowledge and assess understanding.

Digital Materials- Multimedia presentations, animations, and educational software enhance engagement and provide dynamic visualization of natural phenomena.

Methodology of Using Didactic Materials- Selection Criteria. When selecting didactic materials, teachers should consider:

- The lesson objectives
- Students' age and psychological characteristics
- The complexity of the topic
- Availability and accessibility of resources

Stages of Implementation

a) Introduction Stage

Didactic materials are used to motivate students and introduce the topic. For instance, a short video or an image can spark curiosity.

b) Explanation Stage

Materials such as models or experiments help explain new concepts clearly.

c) Consolidation Stage

Worksheets, quizzes, and games are used to reinforce learning.

d) Assessment Stage

Tests and interactive tasks evaluate students' understanding.

Interactive Approaches with Didactic Materials. Brainstorming – encourages idea generation, Group work – promotes collaboration, Educational games – enhances engagement, Problem-based learning – develops critical thinking

`For example, students can work in groups to classify plants using real samples or images, fostering both teamwork and analytical skills.

The use of didactic materials in primary natural science education leads to:

- Improved comprehension of complex concepts
- Increased student motivation and participation
- Development of practical and observational skills
- Enhanced memory retention

Empirical observations show that lessons supported by visual and practical materials are significantly more effective than traditional lecture-based approaches.

Despite their advantages, several challenges exist:

Limited availability of resources, Lack of teacher training, Time constraints in lesson planning, These challenges can be addressed by:

Developing low-cost teaching aids

Providing professional development for teachers

Integrating digital resources effectively

The methodology of using didactic materials in primary natural science education is a vital aspect of modern pedagogy. When carefully selected and systematically applied, these materials significantly enhance the teaching and learning process. They not only make lessons more engaging but also contribute to the holistic development of students' cognitive and practical abilities.

References

1. Bruner, J. (1966). Toward a Theory of Instruction. Harvard University Press.
2. Piaget, J. (1970). Science of Education and the Psychology of the Child. Orion Press.
3. Vygotsky, L. S. (1978). Mind in Society. Harvard University Press.
4. Slavin, R. E. (2018). Educational Psychology: Theory and Practice. Pearson.
5. UNESCO (2020). Global Education Monitoring Report.
6. Mayer, R. E. (2009). Multimedia Learning. Cambridge University Press.