

**TITLE:** MICROBIOLOGY TEACHING IN BASIC EDUCATION: INVESTIGATION OF THE EFFECTIVENESS OF AN EXPERIMENTAL DIDACTIC SEQUENCE IN STUDENTS' LEARNING

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## **ABSTRACT**

The use of experimentation in Science and Biology classes has been discussed in several articles, being seen as a rupture with traditional teaching methodologies and a way to achieve scientific literacy. Research in the field of science teaching indicates that the use of this strategy can contribute to meaningful student learning. However, the application of practical classes continues to be a challenge for teachers of Basic Education, either because they do not have labs, materials and equipment in school or because they do not feel able to conduct experimental classes. Thus, this work proposes the use of experimentation in the teaching of Microbiology, through the development of practical lesson plans, consisting of a didactic sequence of contextualized experiments, with the aim of elucidate the basic concepts related to this science. The choice of Microbiology, a science that studies microscopic organisms and their role in relation to society, the human body and the environment, was carried out by the fact that this content is neglected by teachers, who present difficulties in working with such abstract concepts and in demonstrating the interconnection between these organisms and the daily life. Thus, teachers adopt predominantly theoretical teaching as didactic strategy and students only learn about the role of microorganisms as agents of disease. In this work, thirteen guides of practical activities were produced using materials of low cost and easy access. These experimental activities were tested with students of the 2nd year of the High School of a State School of Rio de Janeiro. The guides included issues such as ubiquity of microorganisms, hand hygiene, effects of chemical and physical agents on microorganisms, among others. The students were submitted to diagnostic and evaluative questionnaires before and after the development of activities, and the results obtained after the analysis of the questionnaires revealed evidence of learning by the students. Thus, experimentation proved to be an efficient methodology for the construction of basic concepts in Microbiology, corroborating the results of previous works that showed the importance of practical activities in stimulating and promoting the improvement of learning in the school environment.

**Keywords:** Experimental activities, microorganisms, Biology education, Science education.

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