WHAT DO I WANT TO KNOW ABOUT ROCKS? A STUDY WITH 3TH GRADE PORTUGUESE STUDENTS

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The study of rocks, in Portuguese primary education is included in the curriculum area of Environmental Study, block 3 - Discovering the natural environment. The program emphasizes the handling of samples of rocks and soils, identification and recognition of some properties of the rocks usefulness for society. The aims of this study were to identify what students of 3rd grade learnt after a practical activity about rocks and identify, through formulated questions, what they still wanted to know. 17 students participated in the study, 7 girls and 10 boys, all of them with 8 years old, from the 3rd grade of a central Portuguese school. The procedure involved the planning and implementation of a practical activity with 6 rock samples (basalt, granite, sand, schist, marble and clay). After that, students wrote about what they had learned and formulated, at least, two questions about what they still wanted to know about rocks. The texts (n=17) were subjected to a content analysis.

Five categories were defined:

a) Lithological diversity, with the highest recording units (18)
b) Rocks features (17)
c) Rocks applications (15)
d) Rocks constitution (11)
e) Substrate (9).

The results show that students are able to repeat examples and rocks properties. However, they made confusion around the concept of texture. In geology, texture are the spatial arrangements of minerals, while, for students, texture are the tactile sensations of the rock surface. Another difficulty for students is the relationship between rocks and minerals. Because mineral concept is introduce only in the 7th grade, students don’t understand that minerals are the components of rocks. They affirm “The rocks are composed of minerals (...)” but ask “What are rocks made of?”. The content analysis of the questions (n = 36) revealed six categories, with the following recording units: Rocks constitution (9), Hardness (7), Rocks features (6), Curiosities (6), Rocks origin (5) and Rocks applications (3). Almost all the questions were of comprehension (23) and some were encyclopaedic (13), which showed a low cognitive level. Students’ questions revealed that they want to learn more about rocks and showed a curiosity for the natural world and a proper enthusiasm of this age. Most of the formulated questions belonged to meaning-oriented questions. The young students want to understand the world and they must be oriented to avoid discouragement for learning science.

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