

865 Study of the Mental Model of Volcano in Primary School Students, Through the Analysis of Drawings

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Abstract

Volcanic activity is a factor for landscape building, and causes a great impact on human beings and the natural environment. For this reason, the study of volcanoes is very important in hazard and risk assessment, as well as in mitigation planning. The aim of this paper is to study the image of a volcano that a group of Centroamerican primary school children have, in a place with high volcanic activity. This study carried on with a sample formed by 100 students with ages between 7 and 9 years old, plus 162 with ages between 10 and 15 years old, who drew a volcano. The drawings were analyzed according to the deductive categories: volcano shape, internal structure, human presence and disaster. The results indicate that the mental model of volcanoes of students is more influenced by what they see in the audiovisual media and other sources, than by their own experience with the volcanoes in the region where they live.

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750 Consistent and Inconsistent Mental Models of Ions in Solutions and Precipitation Reactions

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Abstract

In order to disentangle some the intricacy of explaining precipitation reactions, we analyzed 11th grade chemistry students' illustrations of ionic solutions and solid ionic precipitates. We focus on two typical pitfalls in students' reasoning: representing ionic substances as consisting of pairs of ions, and representing solid ionic material as "grains" of ions pairs or single ions. Through careful analysis of students' drawings and explanations, we suggest that about one third of them developed stable, incomplete mental models of ionic solutions, that hinder their understanding of precipitation reactions. About one quarter of the students developed less consistent mental models, that indicate partial connections between explanations of dissolving solid salts and the formation of precipitates.

741 Differences in Students' Interpretation of Graphs Based on Eye Movements

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