

CITIZENSHIP BY WATERS

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The understanding of the environmental questions supposes an interdisciplinary work in which Mathematics is inserted. The quantification of involved aspects in environmental problems favors its clearer vision, helping in making the decisions and permitting the needed interventions (recycling and reutilization of materials, for example). This project is part of an investigation in which the line of research is Mathematics and Society, of the Master's Program in Mathematics Education of the Institute of Mathematics Education of Santa Úrsula University. This project was elaborated and implanted during the year of 1999 in three classes of the Sixth year of the Fundamental Course, totalizing 80 students of a private school in the south zone of Rio de Janeiro Country. The investigated problem was how to avoid the waste of water, since the missing of hydric resources is one of the most present day concerns of humanity. The project had as its targets – development of peoples' capacity to approach questions in the environment – environmental and ethical consciousness. The study implied the disciplines Geography, Portuguese, Mathematics and Sciences. At the beginning, the students and the teachers of the cited disciplines visited the State Company for Waters and Sewers –CEDAE– where they received an explanatory video and participated of activities that gave information about the origin, supplying, treatment and reutilization of the water in the city of Rio de Janeiro. The classes were divided in groups of three or four students; each group was held responsible for a specific theme related to one of the disciplines implied in the project. The groups in charge of the mathematical part chose as their theme: the quantity of water wasted in homes. It was asked to the students and each group was held responsible for the data collection in the following actions: dishwashing, teethbrushing, taking a bath, washing the sidewalk and washing a car. The students made tables that indicated the quantity of water spent in the action leaving the tap always open or closing it when flowing water was not needed. They calculated arithmetic means, ratios, percentages and, using EXCEL, made a graphic of sections where there appeared intuitively an idea of angle and its measures. Each group showed a synthesis of its investigation to all the students. The students took conscience of the environmental and ethical question of water economy with the aim of having a sustainable development. They influenced their families in this respectful attitude of preservation of the ecosystems.

References:

- Imenes Lesllis-Matemática – 5^a e 6^a series do Ensino Fundamental – Editora Scipione
Parâmetros Curriculares Nacionais do Ensino Fundamental, 1^o, 2^o, 3^o, 4^o ciclos-MEC
Boden, M.A. et alii, Dimensões da criatividade – Ed. Artmed, Porto Alegre, 1999.
Brousseau, G. et alii, Didática da matemática – Reflexões Psicopedagógicas – Ed. Artmed, Porto Alegre, 1996.
Freire, P. et alii, Novas perspectivas críticas em Educação. Ed. Artmed, Porto Alegre, 1996.
Sirota, R. A escola primária no cotidiano – Ed. Artmed, Porto Alegre, 1994.