ZMATH 2016d.00847

Almeida, Lourdes Maria; Kato, Lilian Akemi

Different approaches to mathematical modelling: deduction of models and student's actions.

Math. Educ. (Ank.) 9, No. 1, 3-11 (2014).

Summary: The idea about a general mathematical modelling process is one of the main components of the studies for teaching and learning mathematical modelling. In this article we are interested in showing that the approaches given to mathematical modelling activities, even if they are in perspective related to learning and instruction, can be distinguished, especially as regards the construction and use of mathematical models. To this end we present two activities that differ primarily in relation to data and methods used to obtain the model: in one situation models are obtained and analyzed from qualitative information while in another situation that construction starts from quantitative data about the phenomenon under study. What the students have to do – the students' actions – differ in these different approaches.

Classification: M10
Keywords: mathematical model building; teaching; research; approach; student activities; phases of modelling; natural sciences; modelling activities; biological control of an infestation; qualitative study; global warming; investigation; calculus; differential equations
http://www.mathedujournal.com/dosyalar/IJEM_v9n1_1.pdf