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Using solution strategies to examine and promote high-school students' understanding of exponential functions: one teacher's attempt.

Int. J. Math. Teach. Learn. 2014, 40 p., electronic only (2014).

Summary: Much research has been conducted on how elementary students develop mathematical understanding and subsequently how teachers might use this information. This article builds on this type of work by investigating how one high-school algebra teacher designs and conducts a lesson on exponential functions. Through a lesson study format she studies with her colleagues how other algebra students have mathematically modeled a bacteria growth problem with no prior formal instruction. Analysis revealed that the teacher was able to use students' algebraic thinking to structure her class and begin promoting mathematical understanding. The implications for building on students' conceptions of algebra are explored throughout the paper.

Classification: I23 M63 D43 C73

Keywords: high-school students; instructional design; concept formation; teacher collaboration; exponential functions; modeling

<http://www.cimt.plymouth.ac.uk/journal/brendefur.pdf>